

Effluent and Waste Disposal

Semi-Annual Report

July 1, 1998 - December 31, 1998

Facility Indian Point 3
Licensee New York Power Authority

This information is provided in accordance with the requirements of Regulatory Guide 1.21. The numbered sections of this report reference corresponding sections of the subject Regulatory Guide, pages 10 to 12.

A. Supplemental Information

1. Regulatory Limits

Indian Point 3 is presently subject to limits on radioactive waste releases that are set forth in sections 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.4.3 and 2.4.4 of Appendix B to Docket No. 50-286 entitled "Environmental Technical Specification Requirements Part II Radiological Environmental" (ETSR). The percentages of the technical specification limits reported in Tables 1A and 2A are the percent of the quarterly limits specified in the ETSR. If more than one limit applies to the release, the most restrictive limit is reported.

2. Maximum Permissible Concentration

a) Fission and Activation Gases

The quarterly dose resulting from release of fission and activation gases is calculated in accordance with the methodology stated in the Offsite Dose Calculation Manual (ODCM). The specific isotopes listed in Table 1C are used to determine the effective dose factors for the time period.

b/c) Iodines, Tritium and Particulates

The quarterly organ dose limit for Iodine 131, tritium and particulates with half-lives greater than eight days is calculated in accordance with the methodology stated in the ODCM.

d) Liquid Effluents

The quarterly dose limit for liquid isotopic releases is calculated in accordance with the methodology stated in the ODCM. The concentration limit for noble gases dissolved in liquid releases is calculated based upon a maximum permissible concentration of 2.00E-4 $\mu\text{Ci/ml}$ as required by section 2.3.1.A of the ETSR.

3. Average Energy

The average energies (\bar{E}) of the radionuclide mixtures in releases of fission and activation gases were as follows:

3rd Quarter $\bar{E}_\beta = 3.18E-01$ Mev/dis $\bar{E}_\gamma = 7.14E-01$ Mev/dis

4th Quarter $\bar{E}_\beta = 2.76E-01$ Mev/dis $\bar{E}_\gamma = 5.76E-01$ Mev/dis

4. Measurements and Approximations of Total Radioactivity

a) Fission and Activation Gases

Analysis of effluent gases has been performed in compliance with the requirements of Table 3.4-1 of the ETSR. In the case of isolated tanks (batch release), the total activity discharged is based on an isotopic analysis of each batch with the volume of gas in the batch corrected to standard temperature and pressure.

Vapor containment purge discharges that are less than 150 hours/quarter in duration have been treated as batch releases. Vapor Containment pressure relief discharges have been treated as continuous releases. Both types of releases from the Vapor Containment are performed randomly with regard to time of day and duration (release periods were not dependant solely on time of day or atmospheric condition). Therefore, determination of doses due to Vapor Containment releases includes the use of annual average dispersion data, as defined in NUREG 0133, Section 3.3.

At least one complete isotopic concentration analysis of containment air is performed monthly. This analysis is used in conjunction with a process monitor to obtain the isotopic mixture and quantification of each pressure relief. Isotopic analyses for each vapor containment purge are taken prior to and during the purge. This information is combined with the volume of air in each discharge to calculate the quantity of activity released from these discharges.

The continuous building discharges are based on weekly samples of ventilation air analyzed for isotopic content. This information is combined with total air volume discharged and the process radiation monitor readings to determine the quantity of activity from continuous discharges.

When no gaseous activity is identified for an entire quarter, a "less than" value is reported. This value is determined from the established Xe-133 minimum detectable concentration and the total volume of air released from all continuous release points for the quarter.

b/c) Iodines and Particulates

Iodine-131 and particulate releases are quantified by collecting a continuous sample of ventilation air on a TEDA impregnated, activated charcoal cartridge and a glass-fiber filter paper. These samples are changed weekly as required in Table 3.4-1 of the ETSR and the concentration of isotopes found by analysis of these samples is combined with the volume of air discharged during the sampling period to calculate the quantity of activity discharged.

For other iodine isotopes, concentrations are determined monthly on a 24-hour sample. The concentration of each isotope is analytically determined and combined with the volume of air discharged during the sampling period to calculate the quantity of activity discharged.

When no iodine is identified for an entire quarter, a "less than" value is reported. The "less than" value (in curies) is derived from the established minimum detectable concentration of I-131 and the total volume of air released from all continuous release points.

d) Liquid Effluents

A sample of each batch discharge is taken and an isotopic analysis is performed in compliance with requirements specified in Table 3.3-1 of the ETSR. This isotopic concentration data is combined with the information on volume discharged to determine the amount of each isotope discharged.

Proportional composite samples of continuous discharges are taken and analyzed in compliance with Table 3.3-1 of the ETSR. These concentration data are combined with the volume discharged to calculate the total activity discharged.

5. Batch Releases

a) Liquid Releases

	<u>1998</u>	
	<u>3rd Quarter</u>	<u>4th Quarter</u>
Number of Batch Releases	38	20
Total Time Period Batch Releases (min)	3904	2094
Maximum " " " " "	130	111
Average " " " " "	103	105
Minimum " " " " "	85	98
Average Stream Flow (cfs)	Note *	Note *

Note:*

Hudson River flow information is obtained from the Department of the Interior, United States Geological Survey (USGS). This data is received after review from the USGS, approximately 18 months after initial data collection. This information is included in semi-annual reports as the data becomes available.

Estimated Average Stream Flows Of The Hudson River At Indian Point

Year	Quarter	Flow (cfs)
1996	Fourth	34,167
1997	First	26,800
1997	Second	26,253
1997	Third	6,053

Correction from an earlier report (second half of 1996, IPN-97-025):

The third quarter 1995 flow was originally recorded as 3947 cfs. This value was revised by the USGS to 3957 cfs.

b) Gaseous Releases

	1998	
	3rd Quarter	4th Quarter
Number of Batch Releases	0	1
Total Time Period Batch Releases (min)	0	64
Maximum " " " " "	0	64
Average " " " " "	0	64
Minimum " " " " "	0	64

6. Abnormal Releases

a) Liquid
None

b) Gaseous
None

7. Radiological Environmental Technical Specifications

The Radiological Environmental Technical Specifications (RETS) require reporting of prolonged outages of effluent monitoring equipment (Sections 2.1.C and 2.2.B) and significant changes in the land use census, Radiological Environmental Monitoring Program (REMP), or exceeding the total curie content limitations in outdoor tanks (Sections 2.8.A, 2.8.B, 2.7.C and 2.3.4.B).

During this reporting period, no required Technical Specification Effluent Monitoring equipment was out of service (OOS) for periods greater than 30 consecutive days. The total curie content limit in outdoor tanks was not exceeded.

The Offsite Dose Calculation Manual, REMP, and Process Control Program were not changed during this reporting period. No new locations for dose calculations and/or environmental monitoring were identified by the land use census.

Indian Point 3

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

B. GASEOUS EFFLUENTS

THIRD AND FOURTH QUARTERS, 1998

TABLE 1A
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jul - Dec 1998)
 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error %
A. Fission & Activation Gases				
1. Total Release	Ci	2.50E-02	9.95E-02	±25
2. Average release rate	µCi/sec	3.15E-03	1.25E-02	
3. Percent of Tech Spec Limit	%	8.82E-05	3.07E-04	
B. Iodines				
1. Total Iodine-131	Ci	<5.56E-06	<5.31E-06	±25
2. Average release rate	µCi/sec	<6.99E-07	<6.68E-07	
C. Particulates				
1. Total release, with half-life > 8 days	Ci	1.35E-06	2.12E-07	±25
2. Average release rate	µCi/sec	1.70E-07	2.67E-08	
3. Gross alpha radioactivity	Ci	<3.79E-07	<3.15E-07	
D. Tritium				
1. Total release	Ci	1.09E+00	7.24E-01	±25
2. Average release rate	µCi/sec	1.36E-01	9.10E-02	
E. Percent Tech Spec limit, I & P with half-life > 8 days, including H-3				
	%	2.27E-03	1.49E-03	±25

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jul - Dec 1998)
 GASEOUS EFFLUENTS - GROUND RELEASES

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
1) Fission Gases					
Kr-85m	Ci				
Kr-85	Ci				
Kr-87	Ci				
Kr-88	Ci				
Xe-131m	Ci				
Xe-133m	Ci				
Xe-133	Ci	1.07E-02	5.53E-02		1.46E-03
Xe-135m	Ci				
Xe-135	Ci	9.00E-04			
Xe-138	Ci				
Ar-41	Ci	1.34E-02	4.28E-02		
Total for Period	Ci	2.50E-02	9.80E-02		1.46E-03
2) Iodines					
I-131	Ci				
I-133	Ci				
I-135	Ci				
Total for Period	Ci	<5.56E-06	<5.31E-06		
3) Particulates					
Cs-137	Ci	1.35E-06	2.12E-07		
Total for Period	Ci	1.35E-06	2.12E-07		

Indian Point 3
EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT
C. LIQUID EFFLUENTS
THIRD AND FOURTH QUARTERS, 1998

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jul - Dec 1998)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error %
A. Fission & Activation Products				
1. Total Release (excluding tritium, gases, alpha)	Ci	2.14E-02	1.06E-02	±25
2. Avg diluted concentration during period	µCi/ml	6.18E-11	2.88E-11	
B. Tritium				
1. Total Release	Ci	3.44E+02	1.52E+02	±25
2. Avg diluted concentration during period	µCi/ml	9.91E-07	4.14E-07	
C. Dissolved and entrained gases				
1. Total release	Ci	2.68E-03	8.20E-04	±25
2. Avg diluted concentration during period	µCi/ml	7.73E-12	2.24E-12	
D. Gross Alpha radioactivity				
1. Total release	Ci	<6.88E-05	<3.02E-05	±25
E. Volume of waste released prior to dilution				
	liters	8.67E+05	4.68E+05	±10
F. Volume of dilution water used during period				
	liters	3.47E+11	3.67E+11	±10
G. Percent of liquid effluent limit				
	%	3.55E-02	1.16E-02	±25

TABLE 2B

LIQUID EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jul - Dec 1998)

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
Cr-51	Ci			3.04E-05	
Mn-54	Ci			3.35E-04	
Fe-55	Ci			6.20E-03	1.80E-03
Fe-59	Ci			1.65E-05	
Co-58	Ci			8.76E-04	1.80E-03
Co-60	Ci			5.42E-03	2.05E-03
Ni-63	Ci			2.03E-03	1.28E-03
Sb-125	Ci			1.86E-03	2.19E-03
I-131	Ci			1.87E-05	
Cs-134	Ci			1.38E-03	3.87E-04
Cs-137	Ci			3.26E-03	1.06E-03

Total for Period	Ci			2.14E-02	1.06E-02

Xe-133	Ci			2.68E-03	8.20E-04

Total Dissolved & Entrained Gases	Ci			2.68E-03	8.20E-04

Indian Point 3
EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT

D. SOLID WASTE
THIRD AND FOURTH QUARTERS, 1998

TABLE 3
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
 Jul 1, 1998 - Dec 31, 1998
 SOLID WASTE SHIPMENTS

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

1. Type of Waste	Unit	/----- 6 Month Period -----\			Est. Total Error, %
		Class A	Class B	Class C	
a. Spent resins, filter sludges, etc.	m ³ Ci			4.48E+00 1.45E+01	±25
b. Dry compressible, contam. equipment for burial	m ³ Ci	0 0	0 0	0 0	±25
c. Irradiated Components	m ³ Ci	0 0	0 0	0 0	±25
d. Other: Dry compressible, contaminated equip. for volume reduction at offsite facility	m ³ Ci	1.12E+02 1.41E-01	0 0	0 0	±25

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

NUCLIDE	UNIT	Class C	Class A
		Resins/Filters	Dry Vol Reduction
H-3	%	0.2042	19.6951
C-14	%	0.3180	2.4143
Cr-51	%	0.2677	<0.0001
Mn-54	%	1.6074	0.9067
Fe-55	%	31.6653	20.9972
Co-57	%	0.0463	<0.0001
Co-58	%	2.5387	4.0311
Fe-59	%	0.0399	<0.0001
Ni-59	%	0.0424	<0.0001
Co-60	%	15.7291	19.3818
Ni-63	%	5.6156	14.5425
Zn-65	%	0.2711	<0.0001
Sr-89	%	0.0003	<0.0001
Sr-90	%	0.0035	0.0242
Nb-95	%	0.4629	0.6515
Zr-95	%	0.7727	0.5546
Ag-110m	%	0.0210	0.0266
Sn-113	%	0.0862	<0.0001
Sb-124	%	0.0610	0.0106
Sb-125	%	1.0486	1.0063
Cs-134	%	29.1127	2.7928
Cs-137	%	10.0032	12.1211
Ce-144	%	0.0220	0.8304
Pu-238	%	0.0016	0.0019
Pu-239/240	%	0.0004	0.0007
Pu-241	%	0.0499	<0.0001
Am-241	%	0.0005	0.0011
Cm-242	%	0.0054	0.0071
Cm-243/244	%	0.0025	0.0025

Percentages of nuclides and total activities are based on a combination of direct measurements and scaling for non-gamma emitting nuclides.

3. Solid Waste Disposition

# of Shipments	Mode of Transport	Destination	Type
1	Truck	CNS, Barnwell, SC	direct burial
1	Truck	F.W.Hake, Memphis, TN	volume reduction
1	Truck	G.T.S. Duratek, Oak Ridge, TN	volume reduction
1	Truck	American Ecology, Oak Ridge, TN	volume reduction
1	Truck	Divers. Scien. Serv., Kinston TN	volume reduction

4. Containers Shipped

Container	Number	Class A		Class B		Class C	
		Solid	Media	Number	Solid Media	Number	Solid Media
For Burial:							
Poly HIC	0	N/A		0	N/A	1	N/A
Drums	0	N/A		0	N/A	0	N/A
Steel Liner	0	N/A		0	N/A	0	N/A
Crates	0	N/A		0	N/A	0	N/A
Volume Reduction:							
Sea Land Cont.	2	N/A		0	N/A	0	N/A
Crate	11	N/A		0	N/A	0	N/A
Six Pack	0	N/A		0	N/A	0	N/A
Drums	43	N/A		0	N/A	0	N/A

Indian Point 3
EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT

E. RADIOLOGICAL IMPACT ON MAN
January 1, 1998 through December 31, 1998

RADIOLOGICAL IMPACT ON MAN

The radiological impact on man is determined by conservatively calculating doses to a hypothetical maximally exposed individual offsite based on plant effluents. These calculations are divided into 3 categories:

- Noble Gases
- Particulates and Iodine
- Liquid Releases (fish and invertebrate consumption)

An annual average dispersion factor is used in the calculations, the details of which are presented in the Offsite Dose Calculation Manual.

The computer code used to perform gaseous dose calculations incorporates the models and parameters presented in the Indian Point 3 ODCM Revision 11 which utilizes the assumptions in Regulatory Guide 1.109 and NUREG 0133.

These doses were calculated using radioactive releases from the Indian Point #3 Nuclear Power Plant. Indian Point is a multi-unit site, with Unit 3 owned and operated by the New York Power Authority. Consolidated Edison owns and operates Unit 2. Unit 1 is owned by Consolidated Edison but is defueled and not operational. Doses resulting from releases from Indian Point unit 2 are independently reported by Consolidated Edison.

Doses to individuals from liquid pathways for the fish and invertebrate consumption pathways are computed using the methodology and parameters in the Indian Point 3 ODCM, which incorporates the calculational models that are present in Regulatory Guide 1.109 and NUREG 0133 where site specific data do not exist.

Carbon 14 release concentration and resulting dose have been estimated using data generated at Indian Point 3 from August 1980 to June 1982 after a study conducted by the New York State Department of Health. These estimates are consistent with NUREG 0017, Rev. 1. The maximum dose from Carbon 14 releases has been calculated using the maximum dependable gross electrical capacity of Indian Point 3, which is 1000 MW maintained for the entire year for Carbon 14. The resultant dose to the maximally exposed individual (child) from gaseous releases is 0.68 mRem to the critical organ (bone) and 0.14 mRem to the total body. These values are based upon site specific assumptions. The resultant dose to the maximally exposed individual from liquid releases from Carbon 14 is 0.012 mRem to the critical organ and 0.0025 mRem to the total body.

INDIAN POINT 3 NUCLEAR POWER PLANT
 RADIOLOGICAL IMPACT ON MAN

JANUARY - DECEMBER 1998

Maximum exposed individual doses in mrem or mrad

A. LIQUID DOSES

	Qtr 1	Qtr 2	Qtr 3	Qtr 4	ANNUAL
Adult Bone (mrem)	1.84E-03	1.19E-03	6.76E-04	2.34E-04	3.94E-03
Percent of Limit	3.67E-02	2.38E-02	1.35E-02	4.69E-03	3.94E-02
Adult Total Body (mrem)	8.61E-04	4.23E-04	5.32E-04	1.74E-04	1.99E-03
Percent of Limit	5.74E-02	2.82E-02	3.55E-02	1.16E-02	6.64E-02

Note: The Adult Bone was the critical organ for liquid pathways in 1998.

B. NOBLE GAS DOSES

	Qtr 1	Qtr 2	Qtr 3	Qtr 4	ANNUAL
Total Body (mrem)	1.59E-05	1.97E-05	8.48E-06	2.73E-05	7.15E-05
Percent of Limit	1.28E-05	1.58E-05	6.78E-06	2.19E-05	1.43E-05
Skin (mrem)	3.16E-05	3.84E-05	1.62E-05	5.23E-05	1.39E-04
Percent of Limit	4.22E-06	5.13E-06	2.16E-06	6.98E-06	4.62E-06
Gamma Air (mrad)	1.70E-05	2.09E-05	8.97E-06	2.90E-05	7.59E-05
Percent of Limit	3.40E-04	4.19E-04	1.79E-04	5.81E-04	7.59E-04
Beta Air (mrad)	2.01E-05	2.27E-05	8.82E-06	3.07E-05	8.23E-05
Percent of Limit	2.01E-04	2.27E-04	8.82E-05	3.07E-04	4.12E-04

C. IODINE and PARTICULATE DOSES

	Qtr 1	Qtr 2	Qtr 3	Qtr 4	ANNUAL
Iodine/Part (mrem)	7.29E-05	1.89E-04	1.70E-04	1.12E-04	5.43E-04
Age Group	Child	Child	Child	Child	Child
Critical Organ	Liver	Liver	Liver	Liver	Liver
Percent of Limit	9.72E-04	2.52E-03	2.27E-03	1.49E-03	3.62E-03

Indian Point 3
EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT

F. METEOROLOGICAL DATA

January 1, 1998 through December 31, 1998

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: A

WIND FROM	WIND SPEED (MPH)						TOTAL	
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00		24.00 - 80.00
N	.0	.0	5.0	5.0	.0	.0	.0	10.0
NNE	.0	.0	3.0	1.0	.0	.0	.0	4.0
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	18.0	3.0	.0	.0	.0	21.0
S	.0	.0	.0	1.0	.0	.0	.0	1.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	1.0	.0	1.0	.0	.0	.0	2.0
W	.0	.0	4.0	1.0	.0	.0	.0	5.0
WNW	.0	.0	3.0	5.0	.0	.0	.0	8.0
NW	.0	.0	4.0	16.0	.0	.0	.0	20.0
NNW	.0	.0	14.0	1.0	.0	.0	.0	15.0
TOTAL	.0	1.0	51.0	34.0	.0	.0	.0	86.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: B

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	10.0	8.0	.0	.0	.0	18.0
NNE	.0	.0	7.0	.0	.0	.0	.0	7.0
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	1.0	.0	.0	.0	.0	.0	1.0
SSE	.0	2.0	5.0	.0	.0	.0	.0	7.0
S	.0	.0	6.0	6.0	2.0	.0	.0	14.0
SSW	.0	.0	2.0	1.0	.0	.0	.0	3.0
SW	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	2.0	1.0	.0	.0	.0	3.0
WNW	.0	.0	3.0	.0	.0	.0	.0	3.0
NW	.0	.0	5.0	6.0	1.0	.0	.0	12.0
NNW	.0	.0	8.0	1.0	.0	.0	.0	9.0
TOTAL	.0	3.0	48.0	23.0	3.0	.0	.0	77.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: C

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	2.0	22.0	14.0	2.0	.0	.0	40.0
NNE	.0	2.0	4.0	4.0	2.0	.0	.0	12.0
NE	.0	1.0	1.0	.0	.0	.0	.0	2.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	1.0	.0	.0	.0	.0	.0	1.0
ESE	.0	1.0	.0	.0	.0	.0	.0	1.0
SE	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	2.0	8.0	5.0	.0	.0	.0	15.0
S	.0	3.0	13.0	2.0	.0	.0	.0	18.0
SSW	.0	2.0	4.0	1.0	.0	.0	.0	7.0
SW	.0	1.0	.0	.0	.0	.0	.0	1.0
WSW	.0	.0	2.0	.0	.0	.0	.0	2.0
W	.0	.0	4.0	1.0	.0	.0	.0	5.0
WNW	.0	1.0	2.0	5.0	.0	.0	.0	8.0
NW	.0	.0	5.0	10.0	.0	.0	.0	15.0
NNW	.0	.0	9.0	.0	.0	.0	.0	9.0
TOTAL	.0	16.0	74.0	42.0	4.0	.0	.0	136.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: D

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.8	32.0	99.0	66.0	14.0	.0	.0	211.8
NNE	.7	29.0	141.0	109.0	14.0	.0	.0	293.7
NE	.6	26.0	33.0	11.0	.0	.0	.0	70.6
ENE	.3	13.0	17.0	.0	.0	.0	.0	30.3
E	.3	13.0	10.0	.0	.0	.0	.0	23.3
ESE	.2	9.0	5.0	.0	.0	.0	.0	14.2
SE	.3	13.0	.0	.0	.0	.0	.0	13.3
SSE	.5	22.0	41.0	7.0	2.0	.0	.0	72.5
S	.4	18.0	46.0	17.0	1.0	.0	.0	82.4
SSW	.2	10.0	13.0	2.0	.0	.0	.0	25.2
SW	.2	8.0	11.0	1.0	.0	.0	.0	20.2
WSW	.3	12.0	18.0	3.0	.0	.0	.0	33.3
W	.2	9.0	32.0	7.0	.0	.0	.0	48.2
WNW	.2	7.0	46.0	11.0	.0	.0	.0	64.2
NW	.3	11.0	55.0	45.0	2.0	.0	.0	113.3
NNW	.2	9.0	78.0	17.0	1.0	.0	.0	105.2
TOTAL	6.0	241.0	645.0	296.0	34.0	.0	.0	1222.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: E

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	13.0	14.0	3.0	.0	.0	.0	30.0
NNE	.0	21.0	46.0	1.0	.0	.0	.0	68.0
NE	.0	19.0	18.0	.0	.0	.0	.0	37.0
ENE	.0	12.0	.0	.0	.0	.0	.0	12.0
E	.0	5.0	2.0	.0	.0	.0	.0	7.0
ESE	.0	6.0	.0	.0	.0	.0	.0	6.0
SE	.0	12.0	1.0	.0	.0	.0	.0	13.0
SSE	.0	26.0	15.0	3.0	2.0	.0	.0	46.0
S	.0	18.0	42.0	4.0	.0	.0	.0	64.0
SSW	.0	19.0	9.0	.0	.0	.0	.0	28.0
SW	.0	10.0	5.0	.0	.0	.0	.0	15.0
WSW	.0	10.0	4.0	.0	.0	.0	.0	14.0
W	.0	9.0	5.0	2.0	.0	.0	.0	16.0
WNW	.0	6.0	3.0	1.0	.0	.0	.0	10.0
NW	.0	7.0	6.0	2.0	.0	.0	.0	15.0
NNW	.0	7.0	11.0	4.0	.0	.0	.0	22.0
TOTAL	.0	200.0	181.0	20.0	2.0	.0	.0	403.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: F

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	20.0	.0	.0	.0	.0	.0	20.0
NNE	.0	37.0	18.0	.0	.0	.0	.0	55.0
NE	.0	19.0	20.0	.0	.0	.0	.0	39.0
ENE	.0	5.0	1.0	.0	.0	.0	.0	6.0
E	.0	3.0	1.0	.0	.0	.0	.0	4.0
ESE	.0	7.0	.0	.0	.0	.0	.0	7.0
SE	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	5.0	13.0	.0	.0	.0	.0	18.0
S	.0	4.0	6.0	.0	.0	.0	.0	10.0
SSW	.0	11.0	.0	.0	.0	.0	.0	11.0
SW	.0	5.0	.0	.0	.0	.0	.0	5.0
WSW	.0	2.0	.0	.0	.0	.0	.0	2.0
W	.0	6.0	.0	.0	.0	.0	.0	6.0
WNW	.0	3.0	.0	.0	.0	.0	.0	3.0
NW	.0	6.0	.0	.0	.0	.0	.0	6.0
NNW	.0	9.0	.0	.0	.0	.0	.0	9.0
TOTAL	.0	142.0	59.0	.0	.0	.0	.0	201.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: G

WIND FROM	WIND SPEED (MPH)						TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	
N	.0	.0	.0	.0	.0	.0	.0
NNE	.0	7.0	1.0	.0	.0	.0	8.0
NE	.0	2.0	2.0	.0	.0	.0	4.0
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	1.0	.0	.0	.0	.0	1.0
SSE	.0	4.0	.0	.0	.0	.0	4.0
S	.0	3.0	.0	.0	.0	.0	3.0
SSW	.0	3.0	.0	.0	.0	.0	3.0
SW	.0	1.0	.0	.0	.0	.0	1.0
WSW	.0	1.0	.0	.0	.0	.0	1.0
W	.0	2.0	.0	.0	.0	.0	2.0
WNW	.0	.0	.0	.0	.0	.0	.0
NW	.0	2.0	.0	.0	.0	.0	2.0
NNW	.0	3.0	.0	.0	.0	.0	3.0
TOTAL	.0	29.0	3.0	.0	.0	.0	32.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JAN/FEB/MAR 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 1/ 1/ 0] TO [1998/ 3/31/23]

PASQUILL STABILITY: ALL

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.8	67.0	150.0	96.0	16.0	.0	.0	329.8
NNE	.7	96.0	220.0	115.0	16.0	.0	.0	447.7
NE	.6	67.0	74.0	11.0	.0	.0	.0	152.6
ENE	.3	30.0	18.0	.0	.0	.0	.0	48.3
E	.3	22.0	13.0	.0	.0	.0	.0	35.3
ESE	.2	23.0	5.0	.0	.0	.0	.0	28.2
SE	.3	27.0	1.0	.0	.0	.0	.0	28.3
SSE	.5	61.0	100.0	18.0	4.0	.0	.0	183.5
S	.4	46.0	113.0	30.0	3.0	.0	.0	192.4
SSW	.2	45.0	28.0	4.0	.0	.0	.0	77.2
SW	.2	25.0	16.0	1.0	.0	.0	.0	42.2
WSW	.3	26.0	24.0	4.0	.0	.0	.0	54.3
W	.2	26.0	47.0	12.0	.0	.0	.0	85.2
WNW	.2	17.0	57.0	22.0	.0	.0	.0	96.2
NW	.3	26.0	75.0	79.0	3.0	.0	.0	183.3
NNW	.2	28.0	120.0	23.0	1.0	.0	.0	172.2
TOTAL	6.0	632.0	1061.0	415.0	43.0	.0	.0	2157.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2157

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: A

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	25.0	15.0	.0	.0	.0	40.0
NNE	.0	.0	.0	4.0	.0	.0	.0	4.0
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	1.0	.0	.0	.0	.0	1.0
SSE	.0	1.0	8.0	4.0	.0	.0	.0	13.0
S	.0	.0	38.0	10.0	.0	.0	.0	48.0
SSW	.0	.0	2.0	.0	.0	.0	.0	2.0
SW	.0	1.0	4.0	.0	.0	.0	.0	5.0
WSW	.0	1.0	2.0	.0	.0	.0	.0	3.0
W	.0	.0	12.0	.0	.0	.0	.0	12.0
WNW	.0	.0	31.0	4.0	.0	.0	.0	35.0
NW	.0	1.0	29.0	13.0	.0	.0	.0	43.0
NNW	.0	.0	22.0	2.0	.0	.0	.0	24.0
TOTAL	.0	4.0	174.0	52.0	.0	.0	.0	230.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: B

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	26.0	10.0	.0	.0	.0	36.0
NNE	.0	.0	1.0	1.0	.0	.0	.0	2.0
NE	.0	1.0	.0	4.0	.0	.0	.0	5.0
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	1.0	.0	.0	.0	.0	.0	1.0
SSE	.0	.0	7.0	.0	.0	.0	.0	7.0
S	.0	.0	26.0	4.0	.0	.0	.0	30.0
SSW	.0	.0	7.0	.0	.0	.0	.0	7.0
SW	.0	3.0	4.0	.0	.0	.0	.0	7.0
WSW	.0	1.0	6.0	.0	.0	.0	.0	7.0
W	.0	.0	3.0	.0	.0	.0	.0	3.0
WNW	.0	.0	2.0	2.0	.0	.0	.0	4.0
NW	.0	.0	7.0	5.0	.0	.0	.0	12.0
NNW	.0	1.0	6.0	4.0	.0	.0	.0	11.0
TOTAL	.0	7.0	95.0	30.0	.0	.0	.0	132.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: C

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	3.0	24.0	5.0	1.0	.0	.0	33.0
NNE	.0	1.0	4.0	3.0	.0	.0	.0	8.0
NE	.0	.0	1.0	1.0	.0	.0	.0	2.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	1.0	.0	.0	.0	.0	1.0
ESE	.0	1.0	1.0	.0	.0	.0	.0	2.0
SE	.0	.0	1.0	.0	.0	.0	.0	1.0
SSE	.0	.0	12.0	.0	.0	.0	.0	12.0
S	.0	2.0	24.0	2.0	.0	.0	.0	28.0
SSW	.0	1.0	11.0	.0	.0	.0	.0	12.0
SW	.0	.0	5.0	.0	.0	.0	.0	5.0
WSW	.0	1.0	3.0	.0	.0	.0	.0	4.0
W	.0	.0	2.0	.0	.0	.0	.0	2.0
WNW	.0	.0	6.0	.0	.0	.0	.0	6.0
NW	.0	1.0	4.0	2.0	.0	.0	.0	7.0
NNW	.0	5.0	6.0	3.0	.0	.0	.0	14.0
TOTAL	.0	15.0	105.0	16.0	1.0	.0	.0	137.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: D

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	19.0	79.0	23.0	6.0	.0	.0	127.0
NNE	.0	25.0	92.0	76.0	4.0	.0	.0	197.0
NE	.0	20.0	24.0	6.0	1.0	.0	.0	51.0
ENE	.0	23.0	8.0	.0	.0	.0	.0	31.0
E	.0	20.0	8.0	.0	.0	.0	.0	28.0
ESE	.0	19.0	7.0	.0	.0	.0	.0	26.0
SE	.0	18.0	6.0	.0	.0	.0	.0	24.0
SSE	.0	41.0	41.0	.0	.0	.0	.0	82.0
S	.0	49.0	96.0	7.0	.0	.0	.0	152.0
SSW	.0	18.0	20.0	6.0	1.0	.0	.0	45.0
SW	.0	22.0	6.0	.0	.0	.0	.0	28.0
WSW	.0	12.0	7.0	.0	.0	.0	.0	19.0
W	.0	7.0	19.0	1.0	.0	.0	.0	27.0
WNW	.0	6.0	15.0	1.0	.0	.0	.0	22.0
NW	.0	7.0	24.0	5.0	.0	.0	.0	36.0
NNW	.0	11.0	49.0	7.0	.0	.0	.0	67.0
TOTAL	.0	317.0	501.0	132.0	12.0	.0	.0	962.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: E

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	19.0	14.0	2.0	2.0	.0	.0	37.0
NNE	.0	43.0	59.0	.0	.0	.0	.0	102.0
NE	.0	28.0	20.0	.0	.0	.0	.0	48.0
ENE	.0	18.0	6.0	.0	.0	.0	.0	24.0
E	.0	19.0	4.0	1.0	.0	.0	.0	24.0
ESE	.0	12.0	1.0	.0	.0	.0	.0	13.0
SE	.0	17.0	.0	.0	.0	.0	.0	17.0
SSE	.0	36.0	4.0	.0	.0	.0	.0	40.0
S	.0	44.0	36.0	2.0	.0	.0	.0	82.0
SSW	.0	16.0	7.0	.0	.0	.0	.0	23.0
SW	.0	16.0	4.0	.0	.0	.0	.0	20.0
WSW	.0	8.0	5.0	.0	.0	.0	.0	13.0
W	.0	7.0	6.0	.0	.0	.0	.0	13.0
WNW	.0	8.0	5.0	1.0	.0	.0	.0	14.0
NW	.0	12.0	1.0	.0	.0	.0	.0	13.0
NNW	.0	11.0	9.0	1.0	.0	.0	.0	21.0
TOTAL	.0	314.0	181.0	7.0	2.0	.0	.0	504.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: F

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	17.0	1.0	.0	.0	.0	.0	18.0
NNE	.0	27.0	21.0	.0	.0	.0	.0	48.0
NE	.0	16.0	8.0	.0	.0	.0	.0	24.0
ENE	.0	7.0	2.0	.0	.0	.0	.0	9.0
E	.0	4.0	.0	.0	.0	.0	.0	4.0
ESE	.0	7.0	.0	.0	.0	.0	.0	7.0
SE	.0	5.0	.0	.0	.0	.0	.0	5.0
SSE	.0	8.0	.0	.0	.0	.0	.0	8.0
S	.0	23.0	2.0	.0	.0	.0	.0	25.0
SSW	.0	7.0	.0	.0	.0	.0	.0	7.0
SW	.0	4.0	.0	.0	.0	.0	.0	4.0
WSW	.0	2.0	.0	.0	.0	.0	.0	2.0
W	.0	1.0	1.0	.0	.0	.0	.0	2.0
WNW	.0	6.0	.0	.0	.0	.0	.0	6.0
NW	.0	1.0	.0	.0	.0	.0	.0	1.0
NNW	.0	6.0	.0	.0	.0	.0	.0	6.0
TOTAL	.0	141.0	35.0	.0	.0	.0	.0	176.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: G

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	13.0	.0	.0	.0	.0	.0	13.0
NNE	.0	8.0	3.0	.0	.0	.0	.0	11.0
NE	.0	.0	4.0	.0	.0	.0	.0	4.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	2.0	.0	.0	.0	.0	.0	2.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	1.0	.0	.0	.0	.0	.0	1.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	2.0	1.0	.0	.0	.0	.0	3.0
SSW	.0	1.0	.0	.0	.0	.0	.0	1.0
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	1.0	.0	.0	.0	.0	.0	1.0
NNW	.0	4.0	.0	.0	.0	.0	.0	4.0
TOTAL	.0	32.0	8.0	.0	.0	.0	.0	40.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - APR/MAY/JUN 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 4/ 1/ 0] TO [1998/ 6/30/23]

PASQUILL STABILITY: ALL

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	71.0	169.0	55.0	9.0	.0	.0	304.0
NNE	.0	104.0	180.0	84.0	4.0	.0	.0	372.0
NE	.0	65.0	57.0	11.0	1.0	.0	.0	134.0
ENE	.0	48.0	16.0	.0	.0	.0	.0	64.0
E	.0	45.0	13.0	1.0	.0	.0	.0	59.0
ESE	.0	39.0	9.0	.0	.0	.0	.0	48.0
SE	.0	42.0	8.0	.0	.0	.0	.0	50.0
SSE	.0	86.0	72.0	4.0	.0	.0	.0	162.0
S	.0	120.0	223.0	25.0	.0	.0	.0	368.0
SSW	.0	43.0	47.0	6.0	1.0	.0	.0	97.0
SW	.0	46.0	23.0	.0	.0	.0	.0	69.0
WSW	.0	25.0	23.0	.0	.0	.0	.0	48.0
W	.0	15.0	43.0	1.0	.0	.0	.0	59.0
WNW	.0	20.0	59.0	8.0	.0	.0	.0	87.0
NW	.0	23.0	65.0	25.0	.0	.0	.0	113.0
NNW	.0	38.0	92.0	17.0	.0	.0	.0	147.0
TOTAL	.0	830.0	1099.0	237.0	15.0	.0	.0	2181.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 3
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2181

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: A

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	54.0	14.0	.0	.0	.0	68.0
NNE	.0	.0	2.0	6.0	.0	.0	.0	8.0
NE	.0	.0	1.0	.0	.0	.0	.0	1.0
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	2.0	27.0	.0	.0	.0	.0	29.0
S	.0	1.0	71.0	12.0	.0	.0	.0	84.0
SSW	.0	1.0	14.0	4.0	.0	.0	.0	19.0
SW	.0	.0	8.0	.0	.0	.0	.0	8.0
WSW	.0	2.0	4.0	.0	.0	.0	.0	6.0
W	.0	.0	3.0	1.0	.0	.0	.0	4.0
WNW	.0	.0	10.0	1.0	.0	.0	.0	11.0
NW	.0	.0	18.0	.0	.0	.0	.0	18.0
NNW	.0	1.0	18.0	2.0	.0	.0	.0	21.0
TOTAL	.0	7.0	230.0	40.0	.0	.0	.0	277.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: B

WIND FROM	WIND SPEED (MPH)						TOTAL	
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00		24.00 - 80.00
N	.0	.0	23.0	3.0	.0	.0	.0	26.0
NNE	.0	.0	13.0	2.0	.0	.0	.0	15.0
NE	.0	1.0	.0	.0	.0	.0	.0	1.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	2.0	.0	.0	.0	.0	2.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	1.0	.0	.0	.0	.0	1.0
SSE	.0	1.0	9.0	.0	.0	.0	.0	10.0
S	.0	3.0	37.0	3.0	.0	.0	.0	43.0
SSW	.0	1.0	14.0	4.0	.0	.0	.0	19.0
SW	.0	.0	6.0	.0	.0	.0	.0	6.0
WSW	.0	.0	3.0	.0	.0	.0	.0	3.0
W	.0	.0	4.0	1.0	.0	.0	.0	5.0
WNW	.0	2.0	3.0	.0	.0	.0	.0	5.0
NW	.0	3.0	5.0	.0	.0	.0	.0	8.0
NNW	.0	1.0	7.0	.0	.0	.0	.0	8.0
TOTAL	.0	12.0	127.0	13.0	.0	.0	.0	152.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: C

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	2.0	25.0	1.0	.0	.0	.0	28.0
NNE	.0	1.0	17.0	1.0	.0	.0	.0	19.0
NE	.0	.0	4.0	.0	.0	.0	.0	4.0
ENE	.0	.0	1.0	.0	.0	.0	.0	1.0
E	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	1.0	.0	.0	.0	.0	.0	1.0
SE	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	3.0	5.0	.0	.0	.0	.0	8.0
S	.0	9.0	23.0	.0	.0	.0	.0	32.0
SSW	.0	5.0	11.0	5.0	.0	.0	.0	21.0
SW	.0	1.0	4.0	.0	.0	.0	.0	5.0
WSW	.0	3.0	.0	.0	.0	.0	.0	3.0
W	.0	3.0	4.0	1.0	.0	.0	.0	8.0
WNW	.0	.0	1.0	.0	.0	.0	.0	1.0
NW	.0	1.0	.0	.0	.0	.0	.0	1.0
NNW	.0	5.0	6.0	1.0	.0	.0	.0	12.0
TOTAL	.0	34.0	101.0	9.0	.0	.0	.0	144.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90"
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: D

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	18.0	86.0	4.0	.0	.0	.0	108.0
NNE	.0	16.0	103.0	25.0	3.0	.0	.0	147.0
NE	.0	13.0	19.0	.0	.0	.0	.0	32.0
ENE	.0	9.0	3.0	.0	.0	.0	.0	12.0
E	.0	12.0	1.0	.0	.0	.0	.0	13.0
ESE	.0	9.0	.0	.0	.0	.0	.0	9.0
SE	.0	20.0	.0	.0	.0	.0	.0	20.0
SSE	.0	32.0	17.0	.0	.0	.0	.0	49.0
S	.0	24.0	102.0	13.0	.0	.0	.0	139.0
SSW	.0	20.0	45.0	12.0	.0	.0	.0	77.0
SW	.0	10.0	9.0	.0	.0	.0	.0	19.0
WSW	.0	9.0	3.0	.0	.0	.0	.0	12.0
W	.0	6.0	2.0	.0	.0	.0	.0	8.0
WNW	.0	2.0	11.0	.0	.0	.0	.0	13.0
NW	.0	7.0	14.0	1.0	.0	.0	.0	22.0
NNW	.0	6.0	25.0	.0	.0	.0	.0	31.0
TOTAL	.0	213.0	440.0	55.0	3.0	.0	.0	711.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: E

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	26.0	8.0	2.0	.0	.0	.0	36.0
NNE	.0	68.0	104.0	1.0	.0	.0	.0	173.0
NE	.0	38.0	40.0	3.0	.0	.0	.0	81.0
ENE	.0	28.0	.0	.0	.0	.0	.0	28.0
E	.0	22.0	.0	.0	.0	.0	.0	22.0
ESE	.0	22.0	1.0	.0	.0	.0	.0	23.0
SE	.0	28.0	.0	.0	.0	.0	.0	28.0
SSE	.0	47.0	2.0	.0	.0	.0	.0	49.0
S	.0	76.0	63.0	1.0	.0	.0	.0	140.0
SSW	.0	50.0	39.0	1.0	.0	.0	.0	90.0
SW	.0	15.0	.0	.0	.0	.0	.0	15.0
WSW	.0	15.0	3.0	.0	.0	.0	.0	18.0
W	.0	13.0	3.0	.0	.0	.0	.0	16.0
WNW	.0	10.0	3.0	.0	.0	.0	.0	13.0
NW	.0	3.0	1.0	.0	.0	.0	.0	4.0
NNW	.0	7.0	1.0	.0	.0	.0	.0	8.0
TOTAL	.0	468.0	268.0	8.0	.0	.0	.0	744.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: F

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	12.0	.0	.0	.0	.0	.0	12.0
NNE	.0	56.0	18.0	1.0	.0	.0	.0	75.0
NE	.0	19.0	7.0	.0	.0	.0	.0	26.0
ENE	.0	9.0	1.0	.0	.0	.0	.0	10.0
E	.0	11.0	.0	.0	.0	.0	.0	11.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	6.0	.0	.0	.0	.0	.0	6.0
SSE	.0	4.0	.0	.0	.0	.0	.0	4.0
S	.0	11.0	1.0	.0	.0	.0	.0	12.0
SSW	.0	7.0	.0	.0	.0	.0	.0	7.0
SW	.0	2.0	.0	.0	.0	.0	.0	2.0
WSW	.0	1.0	1.0	.0	.0	.0	.0	2.0
W	.0	3.0	.0	.0	.0	.0	.0	3.0
WNW	.0	1.0	.0	.0	.0	.0	.0	1.0
NW	.0	3.0	.0	.0	.0	.0	.0	3.0
NNW	.0	4.0	.0	.0	.0	.0	.0	4.0
TOTAL	.0	149.0	28.0	1.0	.0	.0	.0	178.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: G

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	2.0	.0	.0	.0	.0	2.0
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	2.0	.0	.0	.0	.0	2.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - JUL/AUG/SEP 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/ 7/ 1/ 0] TO [1998/ 9/30/23]

PASQUILL STABILITY: ALL

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	58.0	196.0	24.0	.0	.0	.0	278.0
NNE	.0	141.0	257.0	36.0	3.0	.0	.0	437.0
NE	.0	71.0	73.0	3.0	.0	.0	.0	147.0
ENE	.0	46.0	5.0	.0	.0	.0	.0	51.0
E	.0	45.0	3.0	.0	.0	.0	.0	48.0
ESE	.0	32.0	1.0	.0	.0	.0	.0	33.0
SE	.0	54.0	1.0	.0	.0	.0	.0	55.0
SSE	.0	89.0	60.0	.0	.0	.0	.0	149.0
S	.0	124.0	297.0	29.0	.0	.0	.0	450.0
SSW	.0	84.0	123.0	26.0	.0	.0	.0	233.0
SW	.0	28.0	27.0	.0	.0	.0	.0	55.0
WSW	.0	30.0	14.0	.0	.0	.0	.0	44.0
W	.0	25.0	16.0	3.0	.0	.0	.0	44.0
WNW	.0	15.0	28.0	1.0	.0	.0	.0	44.0
NW	.0	17.0	38.0	1.0	.0	.0	.0	56.0
NNW	.0	24.0	57.0	3.0	.0	.0	.0	84.0
TOTAL	.0	883.0	1196.0	126.0	3.0	.0	.0	2208.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 0
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2208

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: A

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	4.0	7.0	.0	.0	.0	11.0
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	2.0	.0	.0	.0	.0	2.0
S	.0	.0	3.0	.0	.0	.0	.0	3.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	4.0	.0	.0	.0	.0	4.0
W	.0	.0	8.0	.0	.0	.0	.0	8.0
WNW	.0	.0	13.0	3.0	.0	.0	.0	16.0
NW	.0	.0	12.0	9.0	.0	.0	.0	21.0
NNW	.0	.0	13.0	.0	.0	.0	.0	13.0
TOTAL	.0	.0	59.0	19.0	.0	.0	.0	78.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185*

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: B

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	14.0	12.0	.0	.0	.0	26.0
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	4.0	.0	.0	.0	.0	4.0
S	.0	.0	9.0	3.0	.0	.0	.0	12.0
SSW	.0	.0	3.0	2.0	.0	.0	.0	5.0
SW	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	1.0	1.0	.0	.0	.0	.0	2.0
W	.0	.0	4.0	.0	.0	.0	.0	4.0
WNW	.0	.0	3.0	4.0	.0	.0	.0	7.0
NW	.0	1.0	8.0	12.0	.0	.0	.0	21.0
NNW	.0	.0	4.0	1.0	.0	.0	.0	5.0
TOTAL	.0	2.0	50.0	34.0	.0	.0	.0	86.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: C

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	.0	9.0	3.0	.0	.0	.0	12.0
NNE	.0	.0	1.0	1.0	.0	.0	.0	2.0
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	1.0	.0	.0	.0	.0	.0	1.0
SSE	.0	.0	7.0	.0	.0	.0	.0	7.0
S	.0	1.0	7.0	3.0	.0	.0	.0	11.0
SSW	.0	.0	2.0	2.0	.0	.0	.0	4.0
SW	.0	1.0	.0	.0	.0	.0	.0	1.0
WSW	.0	1.0	4.0	.0	.0	.0	.0	5.0
W	.0	.0	7.0	.0	.0	.0	.0	7.0
WNW	.0	.0	8.0	.0	.0	.0	.0	8.0
NW	.0	1.0	10.0	9.0	.0	.0	.0	20.0
NNW	.0	1.0	6.0	2.0	.0	.0	.0	9.0
TOTAL	.0	6.0	61.0	20.0	.0	.0	.0	87.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: D

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	22.0	104.0	40.0	.0	.0	.0	166.0
NNE	.0	15.0	69.0	70.0	.0	.0	.0	154.0
NE	.0	16.0	17.0	.0	.0	.0	.0	33.0
ENE	.0	6.0	.0	.0	.0	.0	.0	6.0
E	.0	6.0	1.0	.0	.0	.0	.0	7.0
ESE	.0	11.0	.0	.0	.0	.0	.0	11.0
SE	.0	20.0	.0	.0	.0	.0	.0	20.0
SSE	.0	25.0	34.0	3.0	.0	.0	.0	62.0
S	.0	18.0	69.0	18.0	.0	.0	.0	105.0
SSW	.0	9.0	36.0	6.0	1.0	.0	.0	52.0
SW	.0	9.0	8.0	.0	.0	.0	.0	17.0
WSW	.0	14.0	17.0	.0	.0	.0	.0	31.0
W	.0	4.0	30.0	3.0	.0	.0	.0	37.0
WNW	.0	9.0	54.0	19.0	2.0	.0	.0	84.0
NW	.0	9.0	66.0	46.0	.0	.0	.0	121.0
NNW	.0	8.0	77.0	7.0	.0	.0	.0	92.0
TOTAL	.0	201.0	582.0	212.0	3.0	.0	.0	998.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: E

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	17.0	6.0	.0	.0	.0	.0	23.0
NNE	.0	30.0	45.0	2.0	.0	.0	.0	77.0
NE	.0	33.0	27.0	.0	.0	.0	.0	60.0
ENE	.0	22.0	.0	.0	.0	.0	.0	22.0
E	.0	18.0	.0	.0	.0	.0	.0	18.0
ESE	.0	20.0	.0	.0	.0	.0	.0	20.0
SE	.0	42.0	3.0	.0	.0	.0	.0	45.0
SSE	.0	48.0	27.0	2.0	.0	.0	.0	77.0
S	.0	55.0	65.0	12.0	1.0	.0	.0	133.0
SSW	.0	50.0	23.0	2.0	.0	.0	.0	75.0
SW	.0	19.0	4.0	.0	.0	.0	.0	23.0
WSW	.0	20.0	20.0	.0	.0	.0	.0	40.0
W	.0	20.0	33.0	3.0	.0	.0	.0	56.0
WNW	.0	13.0	25.0	3.0	.0	.0	.0	41.0
NW	.0	10.0	14.0	.0	.0	.0	.0	24.0
NNW	.0	8.0	3.0	.0	.0	.0	.0	11.0
TOTAL	.0	425.0	295.0	24.0	1.0	.0	.0	745.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: F

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	10.0	.0	.0	.0	.0	.0	10.0
NNE	.0	20.0	14.0	.0	.0	.0	.0	34.0
NE	.0	20.0	21.0	.0	.0	.0	.0	41.0
ENE	.0	6.0	.0	.0	.0	.0	.0	6.0
E	.0	2.0	.0	.0	.0	.0	.0	2.0
ESE	.0	5.0	.0	.0	.0	.0	.0	5.0
SE	.0	6.0	.0	.0	.0	.0	.0	6.0
SSE	.0	11.0	1.0	.0	.0	.0	.0	12.0
S	.0	12.0	10.0	.0	.0	.0	.0	22.0
SSW	.0	9.0	4.0	.0	.0	.0	.0	13.0
SW	.0	8.0	.0	.0	.0	.0	.0	8.0
WSW	.0	2.0	.0	.0	.0	.0	.0	2.0
W	.0	5.0	.0	.0	.0	.0	.0	5.0
WNW	.0	1.0	.0	.0	.0	.0	.0	1.0
NW	.0	1.0	1.0	.0	.0	.0	.0	2.0
NNW	.0	2.0	.0	.0	.0	.0	.0	2.0
TOTAL	.0	120.0	51.0	.0	.0	.0	.0	171.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90

MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: G

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	3.0	.0	.0	.0	.0	.0	3.0
NNE	.0	3.0	6.0	.0	.0	.0	.0	9.0
NE	.0	1.0	4.0	.0	.0	.0	.0	5.0
ENE	.0	1.0	.0	.0	.0	.0	.0	1.0
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	1.0	.0	.0	.0	.0	.0	1.0
SW	.0	1.0	.0	.0	.0	.0	.0	1.0
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	10.0	10.0	.0	.0	.0	.0	20.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

INDIAN POINT (UNITS 2 & 3) - JOINT FREQUENCY DISTRIBUTIONS - OCT/NOV/DEC 1998

BASIC METEOROLOGICAL OBSERVATIONS AT 10.0 (M)
 FOR PERIOD [Year/Month/Day/Hour]
 [1998/10/ 1/ 0] TO [1998/12/31/23]

PASQUILL STABILITY: ALL

WIND FROM	WIND SPEED (MPH)							TOTAL
	CALMS	.60 - 3.50	3.50 - 7.50	7.50 - 12.50	12.50 - 18.50	18.50 - 24.00	24.00 - 80.00	
N	.0	52.0	137.0	62.0	.0	.0	.0	251.0
NNE	.0	68.0	135.0	73.0	.0	.0	.0	276.0
NE	.0	70.0	69.0	.0	.0	.0	.0	139.0
ENE	.0	35.0	.0	.0	.0	.0	.0	35.0
E	.0	26.0	1.0	.0	.0	.0	.0	27.0
ESE	.0	36.0	.0	.0	.0	.0	.0	36.0
SE	.0	69.0	3.0	.0	.0	.0	.0	72.0
SSE	.0	84.0	75.0	5.0	.0	.0	.0	164.0
S	.0	86.0	163.0	36.0	1.0	.0	.0	286.0
SSW	.0	69.0	68.0	12.0	1.0	.0	.0	150.0
SW	.0	38.0	12.0	.0	.0	.0	.0	50.0
WSW	.0	38.0	46.0	.0	.0	.0	.0	84.0
W	.0	29.0	82.0	6.0	.0	.0	.0	117.0
WNW	.0	23.0	103.0	29.0	2.0	.0	.0	157.0
NW	.0	22.0	111.0	76.0	.0	.0	.0	209.0
NNW	.0	19.0	103.0	10.0	.0	.0	.0	132.0
TOTAL	.0	764.0	1108.0	309.0	4.0	.0	.0	2185.0

DATA MEASUREMENT HEIGHT (M ABOVE GRADE) 10.00^a
 TEMPERATURE SENSOR SEPARATION (METERS) 50.90
 MISSING OBS. DURING THIS PERIOD (ALL STABILITIES) 23
 VALID OBSER. DURING THIS PERIOD (ALL STABILITIES) 2185

NOTE: CALMS WERE DISTRIBUTED IN PROPORTION TO THE FREQUENCY OF WINDS IN THE LOWEST WIND SPEED GROUP WITH NON-ZERO ENTRIES IN EACH STABILITY.

Indian Point 3
EFFLUENT AND WASTE DISPOSAL
SEMI-ANNUAL REPORT

G. OFFSITE DOSE CALCULATION MANUAL,
PROCESS CONTROL PROGRAM, OR LAND USE CENSUS LOCATION CHANGES

THIRD AND FOURTH QUARTERS, 1998

The ODCM was not changed during this reporting period.

No new locations for dose calculations and/or environmental monitoring
were identified by the land use census.

The Process Control Program was not changed during this reporting
period.