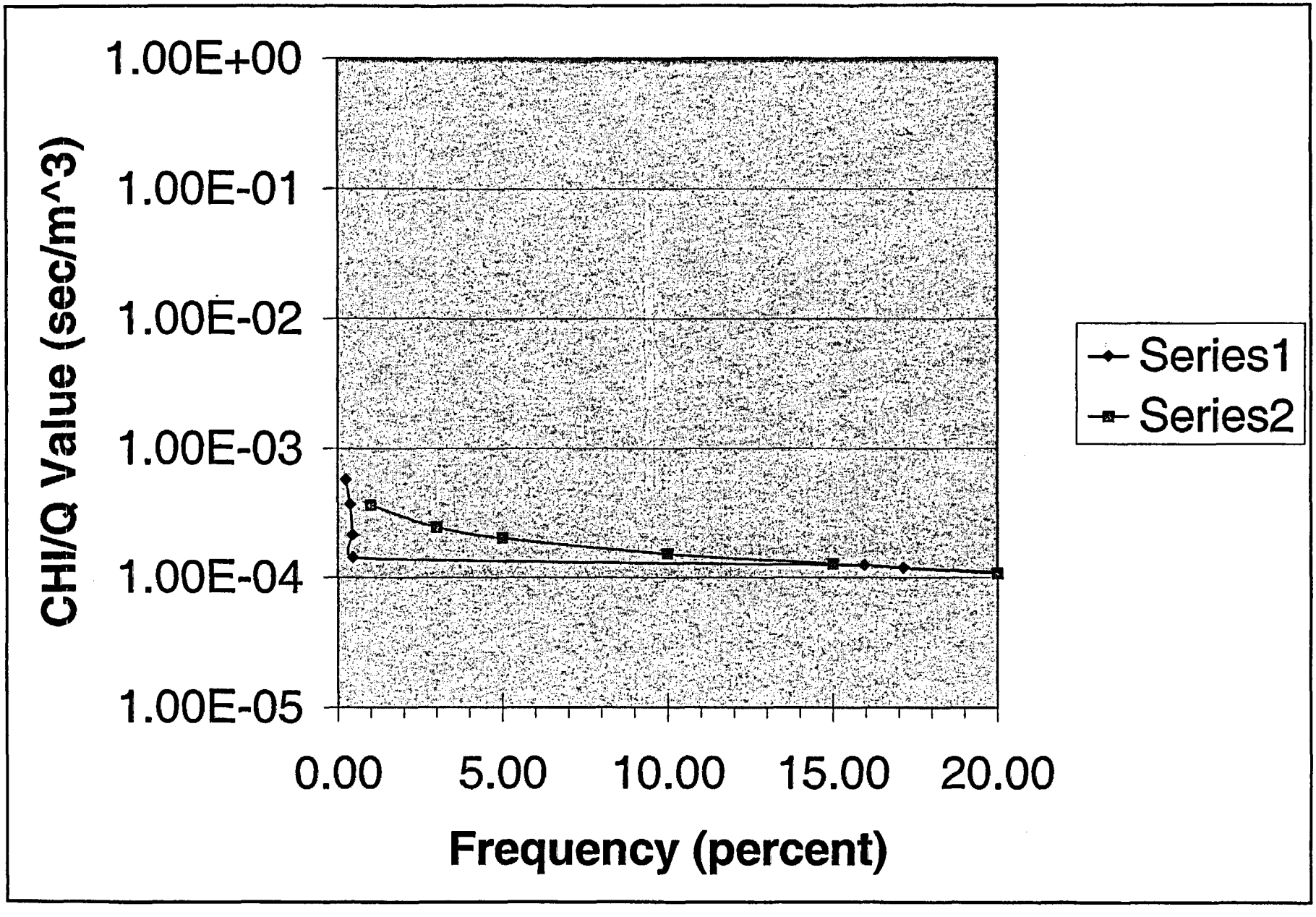
North Anna ESP
PAVAN
EAB/LPZ Comparison

1. Inputs

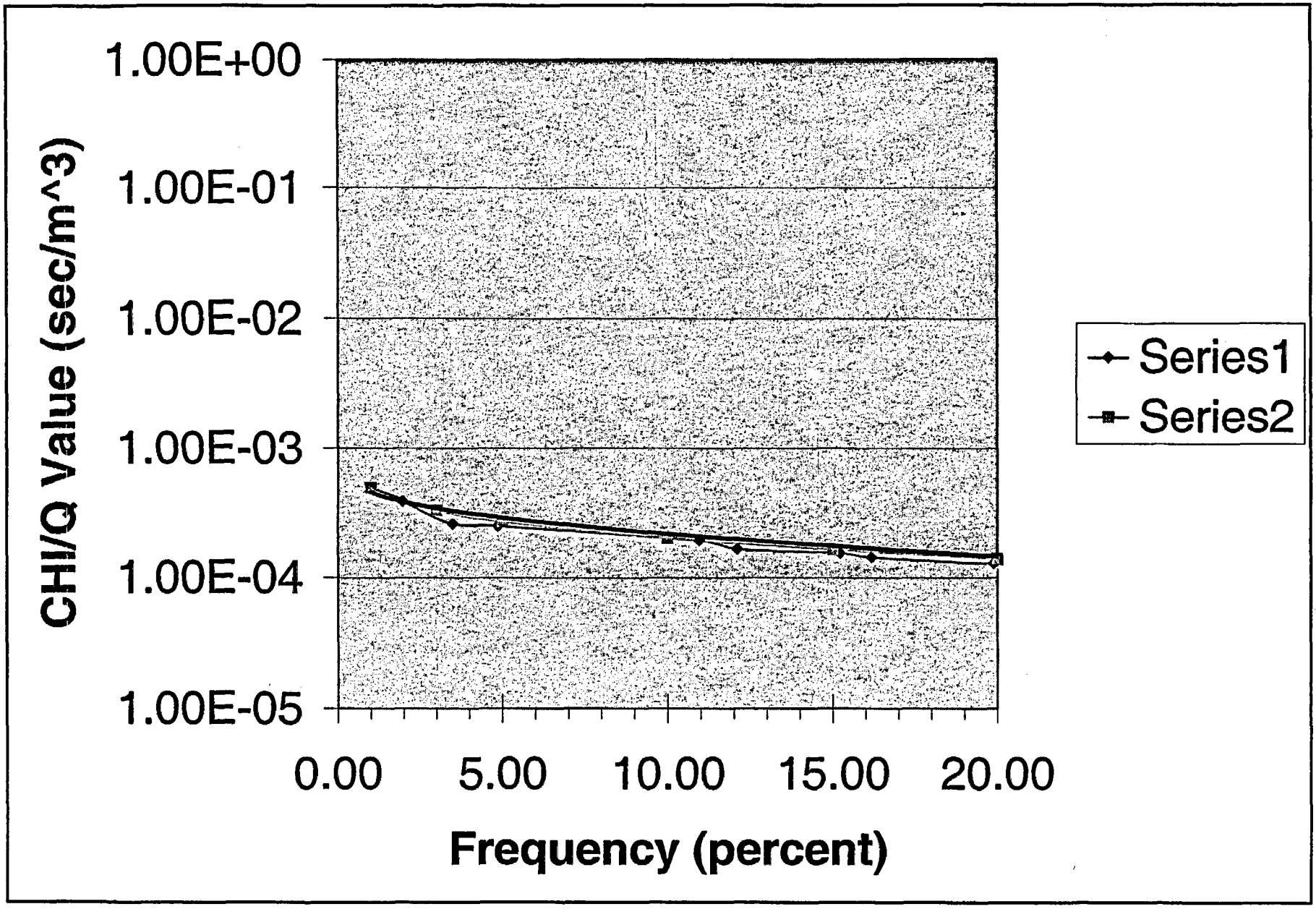
Card Type	Variable	Column	Description	Licensee	Staff
1	KOPT(1)	1	Use both P-G and desert diffusion coefficients	0	
	KOPT(2)	2	Calculate both with and without building wake	1	
	KOPT(3)	3	Print upper envelope curve calculations	1	
	KOPT(4)	4	Print points used in upper envelope curve	1	
		5			
	KOPT(6)	6	JFD data are in percent	0	
	KOPT(7)	7	Print the CHI/Q calculations	1	
	KOPT(8)	8	Distribute CALM array into first ws category	1	
	KOPT(9)	9	Use site-specific terrain adjustment factors	0	
	KOPT(10)	10	Use terrain adjustment factors	0	
2	TITLD(1-5)	1-20	Plant name	North Anna	
	TITLD(6-10)	21-40	Period of data record	1996-1998	
	TITLD(11-15)	41-60	Type of release	Gnd Level	
3	TITLD(16-20)	1-20	Height of wind sensors	10m	
	TITLD(21-25)	21-40	Heights of delta-temperature measurement	48.4m-10m	
4	TITLD(26-45)	1-80	References for the data	-	
5	TITLD(46-65)	1-80	Special comments	-	
6	NVEL	1-5	Number of JFD wind speed categories	6	10
	NDIS	6-10	Number of distances with terrain data	0	
7	A	1-5	Containment minimum cross-sectional area	0.	
	D	6-10	Containment height	0.	
	HS	11-15	Release height (set HS=10 for gnd release)	10.0	
	TOWERH	16-20	Wind speed measurement height	10.0	
8	CALM(1)	1-5	Number of (or % of) calm hours for stability A	0	
	CALM(2)	6-10	Number of (or % of) calm hours for stability B	0	
	CALM(3)	11-15	Number of (or % of) calm hours for stability C	0	
	CALM(4)	16-20	Number of (or % of) calm hours for stability D	4	
	CALM(5)	21-25	Number of (or % of) calm hours for stability E	15	
	CALM(6)	26-30	Number of (or % of) calm hours for stability F	14	
	CALM(7)	31-35	Number of (or % of) calm hours for stability G	16	
9	FREQ(K,I,J)		JFD (by wind direction K, wind speed I, stability J)	-	
10	UCOR	1-5	Ws correction factor (<0 for mps; >100 for mph)	101	Mps
	UMAX(1)	6-10	Maximum ws for category 1 (<1.5 mps)	0.75	0.5
	UMAX(2)	11-15	Maximum ws for category 2	3.5	0.75
	UMAX(3)	16-20	Maximum ws for category 3	7.5	1.0
	UMAX(4)	21-25	Maximum ws for category 4	12.5	1.25
	UMAX(5)	26-30	Maximum ws for category 5	18.5	1.5
	UMAX(6)	31-35	Maximum ws for category 6	24	2.0
	UMAX(7)	36-40	Maximum ws for category 7		3.0
11	BDY(K,1)		EAB downwind distances (by direction K)	misc	
	BDY(K,2)		LPZ downwind distances (by direction K)	8843	
Required only if KOPT(9) = 1					
12	TAF(K,1)		EAB Site-specific terrain correction factors	-	
	TAF(K,2)		LPZ Site-specific terrain correction factors	-	
Required only if HS > 10.1					
13	DIST(K,NDS)		Distances at which terrain heights are provided	-	
14	HT(K, NDS)		Terrain heights	-	

2. Outputs

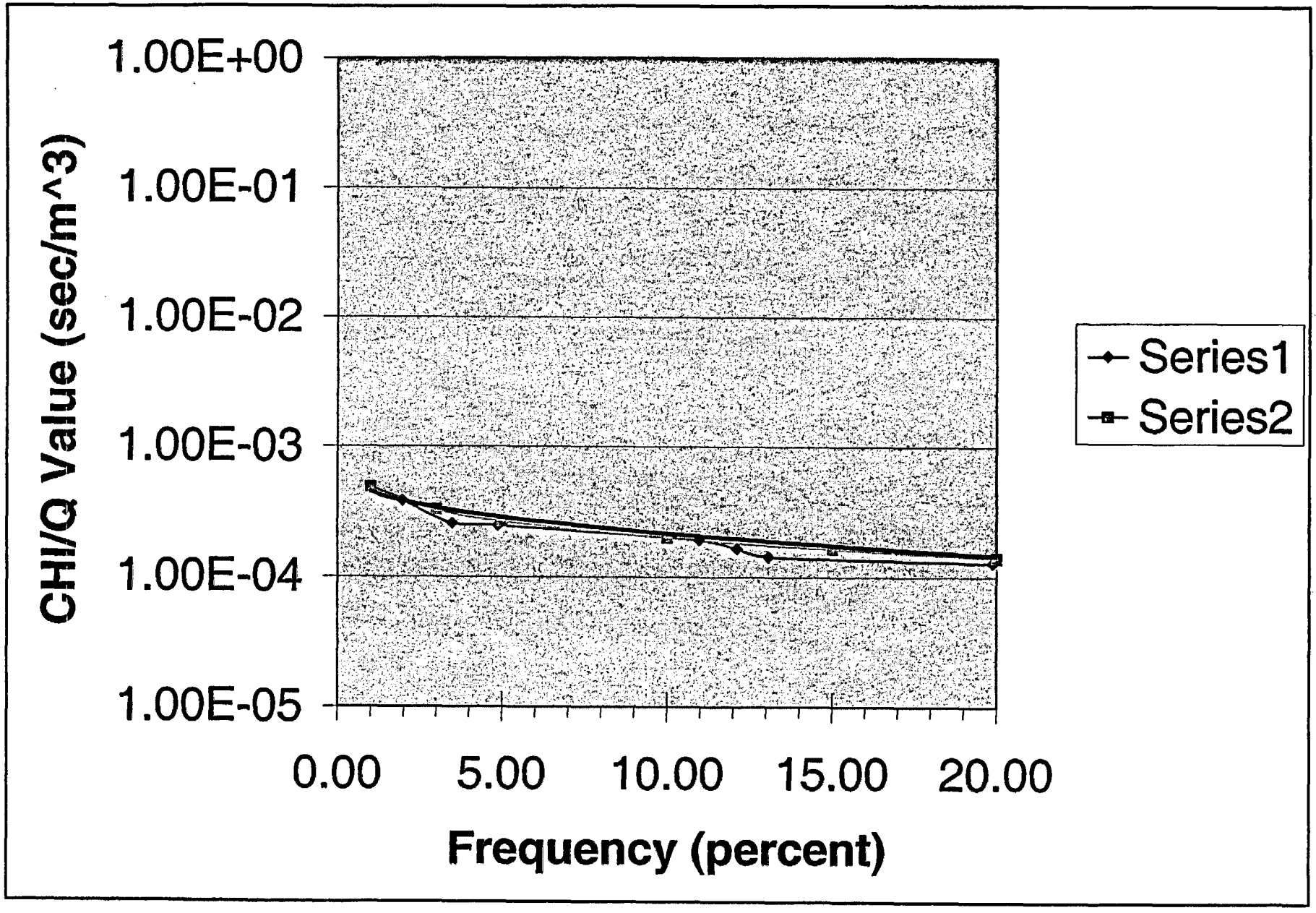
	EAB		LPZ					
	0-0.5 hr	0-2 hrs	0-0.5 hr	0-2 hrs	0-8 hrs	8-24 hrs	1-4 days	4-30 days
Licensee		1.77e-4		3.85e-5	1.73e-5	1.16e-5	4.89e-6	1.41e-6
Staff (lic JFD)		1.92e-4		4.18e-5	1.85e-5	1.23e-5	5.05e-5	1.41e-6
Diff		0.92		0.92	0.94	0.94	0.97	1.00
Staff JFD		2.58e-4		5.51e-5	2.40e-5	1.58e-5	6.42e-6	1.76e-6
Diff		0.69		0.70	0.72	0.73	0.76	0.80

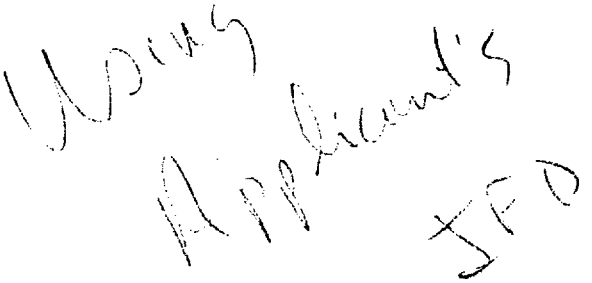

1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
CHI/Q Value (sec/m^3)
0.00
5.00
10.00
15.00
20.00
Frequency (percent)
Series1
Series2

9698nrca_a Chart 1



9698nrc_a Chart 1




Using
Applicant's
SFO

9698DOM.jfd

North Anna 1996-1998 Met Data
Height of winds 10.0 Stability from Delta T between 48.4 and 10.0 meters

Spd	Max	Vals:	0.75	3.5	7.5	12.5	18.5	24.0	34.5						
0	0	0	4	15	14	16									
14	7	5	5	12	15	6	14	14	16	7	3	5	11	32	35
24	16	12	17	33	45	44	54	151	171	67	70	80	77	132	47
44	12	13	13	10	9	1	0	5	39	56	34	65	84	70	39
8	2	3	1	0	0	0	0	0	1	6	4	8	14	18	21
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	2	2	5	9	11	1	2	5	4	4	1	1	3	14	9
29	16	16	19	24	44	26	25	61	85	29	28	20	33	35	37
12	9	9	4	6	3	1	0	5	44	31	16	19	30	54	37
14	0	2	0	0	1	0	0	0	12	5	7	2	9	14	26
0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	4
0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
13	5	10	6	16	23	14	5	15	8	8	1	9	13	11	21
40	17	13	31	32	79	41	20	62	103	55	27	23	35	51	58
58	23	10	13	7	13	2	0	4	37	39	14	22	32	53	75
26	2	0	0	1	4	0	0	0	7	17	6	4	7	21	24
1	0	0	0	0	0	0	0	0	0	0	0	0	2	13	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
178	161	147	157	169	96	76	77	196	208	179	80	95	102	155	150
771	608	492	381	414	330	318	148	359	578	459	169	121	190	282	484
571	284	205	164	183	114	47	9	32	218	191	146	81	139	195	325
78	29	8	12	12	9	0	0	1	27	44	7	7	38	41	77
7	4	6	3	9	0	0	0	0	0	1	0	0	8	14	7
1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
78	86	91	87	91	109	130	171	437	456	349	221	361	358	230	127
105	81	74	62	83	125	225	137	413	475	396	166	232	228	111	87
39	28	18	5	10	22	11	15	54	110	127	50	43	57	31	15
16	6	4	0	4	2	1	0	0	3	6	3	1	14	2	9
1	2	6	0	0	0	1	0	0	0	0	0	0	1	1	0
0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
18	17	21	26	46	34	35	40	109	170	121	123	321	332	137	38
1	6	2	2	9	12	9	4	8	29	46	17	98	82	21	9
0	0	1	0	0	1	0	2	0	0	0	4	0	1	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0
22	15	14	15	28	19	18	8	7	12	22	26	92	356	280	71
0	0	0	0	0	0	1	1	0	2	5	0	7	27	14	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

USNRC Computer Code PAVAN, Version 3.0 06/07/1999 Date of Run 5/11/2004 14:45
Plant Name: North Anna Meteorological Instrumentation
Data Period: 1996-1998 Wind Sensors Height: 10m
Type of Release: Ground-Level Delta-T Heights: 48.4m-10m
Source of Data:
Comments:
Program: PAVANPC, Implementation of Regulatory Guide 1.145

List of Input:

Option Flags:

Use Desert Sigma:	NO
Calculate w/ and w/o Building Wake:	YES
Print subroutine ENVLOP calculations:	YES
Print points in upper envelope curve:	YES
JFD data in hours (otherwise percent):	NO
Print X/Q calculations:	YES
Distribute Calm Array	NO
Use Site-Specific Terrain Factors:	NO
Use Default Open Terrain Factors:	NO

File containing Joint Frequency Data is
C:\Program Files\pavan2\North Anna\9698DOM.jfd
Number of Velocity Categories in JFD: 7; Correction Factor for Velocity Categories: 200.000; Height of Wind Measurements: 10.00
Maximum Velocities for Categories: 0.750 3.500 7.500 12.500 18.500 24.000 34.500

Source Term: Release Height: 10.000; Building Area: 0.000; Building Height: 0.000; Constant is Building Wake Term = 0.5

Distances to Boundary:

Dir	EAB	LPZ
S	954.0	8843.0
SSW	894.0	8843.0
SW	872.0	8843.0
WSW	876.0	8843.0
W	872.0	8843.0
WNW	902.0	8843.0
NW	988.0	8843.0
NNW	1164.0	8843.0
N	1399.0	8843.0
NNW	1420.0	8843.0
NE	1454.0	8843.0
ENE	1474.0	8843.0
E	1433.0	8843.0
ESE	1420.0	8843.0
SE	1338.0	8843.0
SSE	1166.0	8843.0

Not using any Terrain Adjustment Factors

Number of Terrain Distances is: 1

Terrain Heights:

S	DIST	0.0
	HGHT	0.0
SSW	DIST	0.0
	HGHT	0.0
SW	DIST	0.0
	HGHT	0.0
WSW	DIST	0.0
	HGHT	0.0
W	DIST	0.0
	HGHT	0.0
WNW	DIST	0.0
	HGHT	0.0
NW	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
N	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
NE	DIST	0.0
	HGHT	0.0
ENE	DIST	0.0
	HGHT	0.0
E	DIST	0.0
	HGHT	0.0
ESE	DIST	0.0
	HGHT	0.0
SE	DIST	0.0
	HGHT	0.0
SSE	DIST	0.0
	HGHT	0.0

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class A

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.56	1.56	0.054	0.027	0.019	0.019	0.046	0.057	0.023	0.054	0.054	0.061	0.027	0.011	0.019	0.042	0.123	0.134	0.770
3.35	3.35	0.092	0.061	0.046	0.065	0.126	0.172	0.169	0.207	0.579	0.655	0.257	0.268	0.307	0.295	0.506	0.180	3.987
5.59	5.59	0.169	0.046	0.050	0.050	0.038	0.034	0.004	0.000	0.019	0.149	0.215	0.130	0.249	0.322	0.268	0.149	1.894
8.27	8.27	0.031	0.008	0.011	0.004	0.000	0.000	0.000	0.000	0.000	0.004	0.023	0.015	0.031	0.054	0.069	0.080	0.330
10.73	10.73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.008
15.42	15.42	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.34	0.14	0.13	0.14	0.21	0.26	0.20	0.26	0.65	0.87	0.52	0.43	0.61	0.71	0.97	0.55	6.99

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class B

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.56	1.56	0.004	0.008	0.008	0.019	0.034	0.042	0.004	0.008	0.019	0.015	0.015	0.004	0.004	0.011	0.054	0.034	0.284
3.35	3.35	0.111	0.061	0.061	0.073	0.092	0.169	0.100	0.096	0.234	0.326	0.111	0.107	0.077	0.126	0.134	0.142	2.020
5.59	5.59	0.046	0.034	0.034	0.015	0.023	0.011	0.004	0.000	0.019	0.169	0.119	0.061	0.073	0.115	0.207	0.142	1.073
8.27	8.27	0.054	0.000	0.008	0.000	0.000	0.004	0.000	0.000	0.000	0.046	0.019	0.027	0.008	0.034	0.054	0.100	0.353
10.73	10.73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.031	0.015	0.050
15.42	15.42	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.000	0.027
TOTAL		0.21	0.10	0.11	0.11	0.15	0.23	0.11	0.10	0.27	0.56	0.26	0.20	0.16	0.29	0.51	0.43	3.81

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class C

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.56	1.56	0.050	0.019	0.038	0.023	0.061	0.088	0.054	0.019	0.057	0.031	0.031	0.004	0.034	0.050	0.042	0.080	0.682
3.35	3.35	0.153	0.065	0.050	0.119	0.123	0.303	0.157	0.077	0.238	0.395	0.211	0.103	0.088	0.134	0.195	0.222	2.633
5.59	5.59	0.222	0.088	0.038	0.050	0.027	0.050	0.008	0.000	0.015	0.142	0.149	0.054	0.084	0.123	0.203	0.287	1.541
8.27	8.27	0.100	0.008	0.000	0.000	0.004	0.015	0.000	0.000	0.000	0.027	0.065	0.023	0.015	0.027	0.080	0.092	0.456
10.73	10.73	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.050	0.004	0.065
15.42	15.42	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.008	0.023
TOTAL		0.53	0.18	0.13	0.19	0.21	0.46	0.22	0.10	0.31	0.59	0.46	0.18	0.22	0.34	0.59	0.69	5.40

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class D

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.015
1.56	1.56	0.682	0.617	0.563	0.602	0.648	0.368	0.291	0.295	0.751	0.797	0.686	0.307	0.364	0.391	0.594	0.575	8.533
3.35	3.35	2.955	2.331	1.886	1.460	1.587	1.265	1.219	0.567	1.376	2.216	1.759	0.648	0.464	0.728	1.081	1.855	23.399
5.59	5.59	2.189	1.089	0.786	0.629	0.701	0.437	0.180	0.034	0.123	0.836	0.732	0.560	0.310	0.533	0.747	1.246	11.132
8.27	8.27	0.299	0.111	0.031	0.046	0.046	0.034	0.000	0.000	0.004	0.103	0.169	0.027	0.027	0.146	0.157	0.295	1.495
10.73	10.73	0.027	0.015	0.023	0.011	0.034	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.031	0.054	0.027	0.226
15.42	15.42	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.008	0.019
TOTAL		6.16	4.16	3.29	2.75	3.02	2.11	1.69	0.90	2.26	3.95	3.35	1.54	1.17	1.83	2.64	4.01	44.82

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class E

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.001	0.001	0.002	0.001	0.002	0.002	0.002	0.003	0.007	0.008	0.006	0.004	0.006	0.006	0.004	0.002	0.057
1.56	1.56	0.299	0.330	0.349	0.333	0.349	0.418	0.498	0.655	1.675	1.748	1.338	0.847	1.384	1.372	0.882	0.487	12.964
3.35	3.35	0.402	0.310	0.284	0.238	0.318	0.479	0.862	0.525	1.583	1.821	1.518	0.636	0.889	0.874	0.425	0.333	11.500
5.59	5.59	0.149	0.107	0.069	0.019	0.038	0.084	0.042	0.057	0.207	0.422	0.487	0.192	0.165	0.218	0.119	0.057	2.434
8.27	8.27	0.061	0.023	0.015	0.000	0.015	0.008	0.004	0.000	0.000	0.011	0.023	0.011	0.004	0.054	0.008	0.034	0.272
10.73	10.73	0.004	0.008	0.023	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.046
15.42	15.42	0.000	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
TOTAL		0.92	0.78	0.75	0.60	0.73	0.99	1.41	1.24	3.47	4.01	3.37	1.69	2.45	2.53	1.44	0.91	27.29

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class F

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.004	0.006	0.004	0.004	0.011	0.011	0.005	0.001	0.054
1.56	1.56	0.069	0.065	0.080	0.100	0.176	0.130	0.134	0.153	0.418	0.652	0.464	0.471	1.230	1.273	0.525	0.146	6.087
3.35	3.35	0.004	0.023	0.008	0.008	0.034	0.046	0.034	0.015	0.031	0.111	0.176	0.065	0.376	0.314	0.080	0.034	1.361
5.59	5.59	0.000	0.000	0.004	0.000	0.000	0.004	0.000	0.008	0.000	0.000	0.000	0.015	0.000	0.004	0.000	0.000	0.034
8.27	8.27	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.011
10.73	10.73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15.42	15.42	0.000	0.000	0.000	0.000	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
TOTAL		0.07	0.09	0.09	0.11	0.22	0.19	0.17	0.18	0.45	0.77	0.64	0.56	1.62	1.61	0.61	0.18	7.57

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class G

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.34	0.34	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.006	0.022	0.017	0.004	0.061
1.56	1.56	0.084	0.057	0.054	0.057	0.107	0.073	0.069	0.031	0.027	0.046	0.084	0.100	0.353	1.365	1.073	0.272	3.852
3.35	3.35	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.008	0.019	0.000	0.027	0.103	0.054	0.000	0.218
5.59	5.59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8.27	8.27	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.73	10.73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15.42	15.42	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.09	0.06	0.05	0.06	0.11	0.07	0.07	0.03	0.03	0.05	0.10	0.10	0.39	1.49	1.14	0.28	4.13

Wind Measured at 10.0 Meters.
Wind Speed Corrected to the Release Height of 10.0 Meters.

Overall Wind Direction Frequency

Wind Direction:	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
Frequency:	8.3	5.5	4.5	3.9	4.6	4.3	3.9	2.8	7.4	10.8	8.7	4.7	6.6	8.8	7.9	7.1

Overall Wind Speed Frequency As Measured on the Tower:

Max Wind Speed (m/s):	0.335	1.565	3.353	5.588	8.270	10.729	15.423
Wind Speed Frequency:	0.19	33.17	45.12	18.11	2.92	0.39	0.10

Building and Release Characteristics:
Release Height: 10.00 Meters
Mixing Volume Coefficient: 0.50
Building Cross-Sectional Area: 0.00 Square Meters

Boundary Distances (meters) From The Source For Each Downwind Sector:

Downwind Sector	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE
BOUNDARY 1	954.	894.	872.	876.	872.	902.	988.	1164.	1399.	1420.	1454.	1474.	1433.	1420.	1338.	1166.
BOUNDARY 2	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.

THE CONVERSION FACTOR APPLIED TO THE WIND SPEED CLASSES IS 0.447

Windspeeds adjusted to 10.0 meters.
Percent of the Time a Given Windspeed is Lower:

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.34	0.19
1.56	33.36
3.35	78.48
5.59	96.59
8.27	99.51
10.73	99.90
15.42	100.00

Log-Normal Interpolation Percentiles

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.48	1.00
0.63	3.00
0.73	5.00
0.92	10.00
1.07	15.00
1.21	20.00
1.34	25.00
1.47	30.00
1.61	35.00
1.75	40.00
1.89	45.00
2.05	50.00
2.21	55.00
2.40	60.00
2.61	65.00
2.84	70.00
3.12	75.00
3.44	80.00
3.79	85.00
4.28	90.00

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	954.	9.38E-05	5.22E-05	3.90E-05	2.06E-05	8.29E-06	2.71E-06	6.8	S
SSW	894.	7.53E-05	4.27E-05	3.21E-05	1.73E-05	7.15E-06	2.42E-06	5.6	SSW
SW	872.	7.73E-05	4.32E-05	3.23E-05	1.71E-05	6.92E-06	2.28E-06	5.8	SW
WSW	876.	7.72E-05	4.26E-05	3.17E-05	1.66E-05	6.59E-06	2.12E-06	5.9	WSW
W	872.	1.03E-04	5.62E-05	4.16E-05	2.16E-05	8.44E-06	2.67E-06	10.8	W
WNW	902.	8.74E-05	4.75E-05	3.50E-05	1.80E-05	6.96E-06	2.17E-06	7.5	WNW
NW	988.	8.26E-05	4.43E-05	3.24E-05	1.65E-05	6.25E-06	1.91E-06	6.3	NW
NNW	1164.	7.26E-05	3.70E-05	2.64E-05	1.27E-05	4.46E-06	1.24E-06	3.2	NNW
N	1399.	8.53E-05	4.69E-05	3.48E-05	1.82E-05	7.18E-06	2.30E-06	3.9	N
NNE	1420.	9.23E-05	5.19E-05	3.89E-05	2.08E-05	8.51E-06	2.84E-06	5.3	NNE
NE	1454.	8.42E-05	4.62E-05	3.43E-05	1.79E-05	7.03E-06	2.24E-06	4.5	NE
ENE	1474.	8.18E-05	4.17E-05	2.98E-05	1.43E-05	5.02E-06	1.39E-06	4.5	ENE
E	1433.	1.31E-04	6.96E-05	5.08E-05	2.56E-05	9.61E-06	2.89E-06	15.7	E
ESE	1420.	1.92E-04	1.03E-04	7.57E-05	3.86E-05	1.47E-05	4.48E-06	43.7	ESE
SE	1338.	1.83E-04	9.48E-05	6.82E-05	3.34E-05	1.20E-05	3.43E-06	38.8	SE
SSE	1166.	1.04E-04	5.46E-05	3.96E-05	1.97E-05	7.27E-06	2.14E-06	13.1	SSE
MAX X/Q		1.92E-04				TOTAL HOURS AROUND SITE:		181.7	
SRP 2.3.4	872.	9.51E-04	3.92E-04	2.52E-04	9.64E-05	2.43E-05	4.48E-06		
SITE LIMIT		1.16E-04	6.78E-05	5.18E-05	2.89E-05	1.25E-05	4.48E-06		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	8843.	8.62E-06	3.94E-06	2.67E-06	1.14E-06	3.38E-07	7.60E-08	2.6	S
SSW	8843.	7.01E-06	3.20E-06	2.16E-06	9.23E-07	2.72E-07	6.11E-08	1.8	SSW
SW	8843.	6.06E-06	2.79E-06	1.89E-06	8.15E-07	2.43E-07	5.55E-08	1.7	SW
WSW	8843.	6.14E-06	2.79E-06	1.88E-06	8.01E-07	2.35E-07	5.24E-08	1.8	WSW
W	8843.	8.25E-06	3.72E-06	2.50E-06	1.05E-06	3.04E-07	6.67E-08	3.3	W
WNW	8843.	7.37E-06	3.30E-06	2.21E-06	9.23E-07	2.64E-07	5.71E-08	2.3	WNW
NW	8843.	7.83E-06	3.50E-06	2.34E-06	9.78E-07	2.79E-07	6.02E-08	2.1	NW
NNW	8843.	7.96E-06	3.47E-06	2.29E-06	9.31E-07	2.56E-07	5.25E-08	1.0	NNW
N	8843.	1.25E-05	5.88E-06	4.04E-06	1.79E-06	5.56E-07	1.33E-07	1.6	N
NNE	8843.	1.52E-05	7.21E-06	4.97E-06	2.22E-06	6.95E-07	1.68E-07	2.7	NNE
NE	8843.	1.39E-05	6.50E-06	4.44E-06	1.95E-06	5.94E-07	1.39E-07	3.1	NE
ENE	8843.	1.40E-05	6.08E-06	4.01E-06	1.62E-06	4.44E-07	9.09E-08	3.3	ENE
E	8843.	2.35E-05	1.06E-05	7.10E-06	2.98E-06	8.59E-07	1.87E-07	11.2	E
ESE	8843.	4.18E-05	1.85E-05	1.23E-05	5.05E-06	1.41E-06	2.97E-07	43.7	ESE
SE	8843.	3.78E-05	1.59E-05	1.03E-05	4.05E-06	1.05E-06	2.03E-07	34.1	SE
SSE	8843.	1.50E-05	6.45E-06	4.23E-06	1.69E-06	4.55E-07	9.11E-08	8.4	SSE
MAX X/Q		4.18E-05				TOTAL HOURS AROUND SITE:		124.7	
SRP 2.3.4	8843.	3.52E-05	1.60E-05	1.08E-05	4.57E-06	1.34E-06	2.97E-07		
SITE LIMIT		2.32E-05	1.13E-05	7.88E-06	3.60E-06	1.17E-06	2.97E-07		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

PARAMETER VALUES FOR THE CHI/Q CALCULATIONS FOR THE ESE SECTOR.

STABILITY CLASS	WINDSPEED METER/SEC AT 10.0 METERS	FREQUENCY PERCENT	DISTANCE METERS	TERRAIN HT METERS	EFF PLUME HT METERS	SIGMA-Y METERS	SIGMA-Z METERS	MEANDER-SY METERS	** CHI/Q VALUES (SEC/CUBIC METER) MEANDER	BLDG WAKE CA= 0.SQ.METERS	USED
A	1.6	0.48	1420.	0.	0.	257.1	947.8	257.1	8.349E-07	8.349E-07	8.349E-07
A	3.4	3.35	1420.	0.	0.	257.1	947.8	257.1	3.896E-07	3.896E-07	3.896E-07
A	5.6	3.66	1420.	0.	0.	257.1	947.8	257.1	2.338E-07	2.338E-07	2.338E-07
A	8.3	0.61	1420.	0.	0.	257.1	947.8	257.1	1.580E-07	1.580E-07	1.580E-07
B	1.6	0.13	1420.	0.	0.	193.3	161.1	193.3	6.533E-06	6.533E-06	6.533E-06
B	3.4	1.44	1420.	0.	0.	193.3	161.1	193.3	3.049E-06	3.049E-06	3.049E-06
B	5.6	1.31	1420.	0.	0.	193.3	161.1	193.3	1.829E-06	1.829E-06	1.829E-06
B	8.3	0.39	1420.	0.	0.	193.3	161.1	193.3	1.236E-06	1.236E-06	1.236E-06
B	10.7	0.04	1420.	0.	0.	193.3	161.1	193.3	9.527E-07	9.527E-07	9.527E-07
C	1.6	0.57	1420.	0.	0.	146.8	84.1	146.8	1.648E-05	1.648E-05	1.648E-05
C	3.4	1.52	1420.	0.	0.	146.8	84.1	146.8	7.689E-06	7.689E-06	7.689E-06
C	5.6	1.39	1420.	0.	0.	146.8	84.1	146.8	4.613E-06	4.613E-06	4.613E-06
C	8.3	0.30	1420.	0.	0.	146.8	84.1	146.8	3.117E-06	3.117E-06	3.117E-06
C	10.7	0.09	1420.	0.	0.	146.8	84.1	146.8	2.403E-06	2.403E-06	2.403E-06
D	0.3	0.01	1420.	0.	0.	103.4	40.3	165.0	1.427E-04	2.277E-04	1.427E-04
D	1.6	4.44	1420.	0.	0.	103.4	40.3	165.0	3.058E-05	4.880E-05	3.058E-05
D	3.4	8.27	1420.	0.	0.	103.4	40.3	130.7	1.801E-05	2.277E-05	1.801E-05
D	5.6	6.05	1420.	0.	0.	103.4	40.3	106.2	1.330E-05	1.366E-05	1.330E-05
D	8.3	1.65	1420.	0.	0.	103.4	40.3	103.4	9.232E-06	9.232E-06	9.232E-06
D	10.7	0.35	1420.	0.	0.	103.4	40.3	103.4	7.116E-06	7.116E-06	7.116E-06
E	0.3	0.07	1420.	0.	0.	73.5	27.6	161.1	2.137E-04	4.682E-04	2.137E-04
E	1.6	15.59	1420.	0.	0.	73.5	27.6	161.1	4.579E-05	1.003E-04	4.579E-05
E	3.4	9.93	1420.	0.	0.	73.5	27.6	108.1	3.184E-05	4.682E-05	3.184E-05
E	5.6	2.48	1420.	0.	0.	73.5	27.6	76.7	2.691E-05	2.809E-05	2.691E-05
E	8.3	0.61	1420.	0.	0.	73.5	27.6	73.5	1.898E-05	1.898E-05	1.898E-05
E	10.7	0.04	1420.	0.	0.	73.5	27.6	73.5	1.463E-05	1.463E-05	1.463E-05
F	0.3	0.13	1420.	0.	0.	50.7	18.1	141.4	3.717E-04	1.036E-03	3.717E-04
F	1.6	14.46	1420.	0.	0.	50.7	18.1	141.4	7.964E-05	2.220E-04	7.964E-05
F	3.4	3.57	1420.	0.	0.	50.7	18.1	83.5	6.294E-05	1.036E-04	6.294E-05
F	5.6	0.04	1420.	0.	0.	50.7	18.1	53.6	5.886E-05	6.215E-05	5.886E-05
F	8.3	0.09	1420.	0.	0.	50.7	18.1	50.7	4.199E-05	4.199E-05	4.199E-05
G	0.3	0.25	1420.	0.	0.	35.0	11.8	139.3	5.760E-04	2.291E-03	5.760E-04
G	1.6	15.50	1420.	0.	0.	35.0	11.8	139.3	1.234E-04	4.910E-04	1.234E-04
G	3.4	1.18	1420.	0.	0.	35.0	11.8	68.1	1.179E-04	2.291E-04	1.179E-04

Site Excusion Boundary Calculations:

ESE Sector Boundary Distance = 1420.0 meters

LATERAL PLUME MEANDER/BUILDING WAKE CREDIT ALLOWED
AS A FUNCTION OF DOWNWIND DISTANCE.
MEANDER CREDIT IS FOR WINDSPEEDS LESS THAN 6 MPS.

BUILDING WAKE CREDIT ALLOWED: C= 0.5 A= 0. D= 0.0

BELOW ARE PRINTED THE ORDERED VALUES OF CHI/Q AND THE FREQUENCY WITH WHICH THAT VALUE IS REACHED OR EXCEEDED.
THE TOP NUMBER IS THE CHI/Q. THE MIDDLE NUMBER IS THE FREQUENCY NORMALIZED TO THIS SECTOR.
THE THIRD NUMBER IS THE FREQUENCY WITH RESPECT TO ALL TIME.

5.760E-04	3.717E-04	2.137E-04	1.427E-04	1.234E-04	1.179E-04	7.964E-05	6.294E-05	5.886E-05	4.579E-05
0.247	0.374	0.443	0.451	15.954	17.130	31.588	35.158	35.202	50.792
0.02173	0.03295	0.03903	0.03974	1.40440	1.50790	2.78056	3.09490	3.09873	4.47106
4.199E-05	3.184E-05	3.058E-05	2.691E-05	1.898E-05	1.801E-05	1.648E-05	1.463E-05	1.330E-05	9.232E-06
50.879	60.808	65.249	67.732	68.341	76.615	77.181	77.225	83.278	84.933
4.47873	5.35273	5.74373	5.96223	6.01589	6.74422	6.79406	6.79789	7.33072	7.47639
7.689E-06	7.116E-06	6.533E-06	4.613E-06	3.117E-06	3.049E-06	2.403E-06	1.829E-06	1.236E-06	9.527E-07
86.457	86.805	86.936	88.329	88.634	90.071	90.158	91.465	91.857	91.900
7.61056	7.64122	7.65272	7.77539	7.80222	7.92872	7.93639	8.05139	8.08589	8.08972
8.349E-07	3.896E-07	2.338E-07	1.580E-07						
92.379	95.732	99.390	100.000						
8.13189	8.42705	8.74905	8.80272						

X/Q PERCENTILES
(BASED ON THE UPPER ENVELOPE OF THE
ORDERED X/Q-FREQUENCY VALUES, AND AS
PLOTTED ON A LOG-NORMAL GRAPH.)

CHI/Q	PERCENT OF TIME CHI/Q IS EQUALED OR EXCEEDED WITH RESPECT TO THE TOTAL TIME	WHEN THE WIND BLOWS INTO THIS SECTOR ONLY
SEC/CUBIC METER		

N	XA	YA	SAVESL	I	XLIM
1	-3.51835	-7.45936	-1.000E+10	1	-1.69883

I	X(I)	SAVESL	ISAVE
2	-3.40633	-1.000E+10	1

(Y(I) -	YA)/(X(I) -	XA) = SLOPE
-7.89749	-7.45936 -3.40633	-3.51835 -3.911E+00

I	X(I)	SAVESL	ISAVE
3	-3.35978	-3.911E+00	2

(Y(I) -	YA)/(X(I) -	XA) = SLOPE
-8.45106	-7.45936 -3.35978	-3.51835 -6.254E+00

I	X(I)	SAVESL	ISAVE
4	-3.35485	-3.911E+00	2

(Y(I) -	YA)/(X(I) -	XA) = SLOPE
-8.85465	-7.45936 -3.35485	-3.51835 -8.534E+00

3.656E-04	0.088	1.000
2.464E-04	0.264	3.000
2.022E-04	0.440	5.000
1.518E-04	0.880	10.000
1.269E-04	1.320	15.000
1.073E-04	1.761	20.000
9.302E-05	2.201	25.000
8.246E-05	2.641	30.000
7.095E-05	3.081	35.000
6.084E-05	3.521	40.000
5.297E-05	3.961	45.000
4.667E-05	4.401	50.000
4.037E-05	4.841	55.000
3.509E-05	5.282	60.000
3.078E-05	5.722	65.000
2.431E-05	6.162	70.000
1.934E-05	6.602	75.000
1.540E-05	7.042	80.000
9.865E-06	7.482	85.000
1.921E-04	0.5	5.68

Annual Average = 4.48E-06

k= 14 FiveXQ(k)= 1.921E-04 Fivepr(k)= 5.680

Rerun Using
Default WS Values
in PAVANZ

North Anna 1996-1998 Met Data (lower level)
Height of winds 10.0;Stability from Delta T between 48.4 and 10.0 meters

Spd Max Vals:	0.50	0.75	1.00	1.50	2.00	3.00	5.00	10.00	20.00	40.00				
0	1	0	42	203	148	119								
2	0	0	0	1	0	0	0	0	0	0	0	0	1	0
3	0	3	0	2	3	0	2	3	0	0	0	0	3	6	5
7	6	2	5	9	12	5	10	11	14	8	2	6	7	26	30
7	5	4	3	26	29	24	17	42	31	15	12	8	25	48	25
19	10	11	12	17	31	26	44	119	120	44	49	61	46	78	31
45	19	20	23	13	11	2	1	11	98	81	54	86	85	89	41
17	3	7	1	1	0	0	0	0	6	10	9	12	39	41	46
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	2	0	1	1	1	1	0	0	2	3	0
3	1	3	6	10	7	1	2	6	2	2	1	1	3	7	8
2	4	3	4	7	15	11	7	23	10	5	2	3	7	14	6
22	6	5	11	15	28	14	15	35	46	14	21	11	21	21	19
11	10	6	3	5	7	4	0	9	47	35	21	13	30	43	34
22	1	4	0	0	3	0	0	0	21	9	9	7	18	34	28
0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
7	1	2	1	0	2	1	1	1	0	0	0	1	4	1	4
5	4	9	4	11	19	15	5	14	10	7	3	9	6	9	18
14	8	4	10	14	33	17	8	27	22	9	8	6	8	13	31
30	10	10	18	20	44	24	13	26	84	41	13	13	19	23	35
76	30	11	22	17	13	5	0	8	37	45	15	25	36	60	90
34	9	2	1	1	4	0	0	0	14	24	5	7	7	29	41
0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	6	6	7	10	5	7	4	6	7	17	13	7	4	2	8
44	35	21	33	38	16	13	18	42	49	43	27	34	33	31	30
117	107	117	113	108	67	52	49	135	137	118	41	52	66	117	101
185	176	141	121	138	103	82	66	172	193	147	48	42	75	93	152
459	359	288	223	225	186	219	88	198	342	252	101	71	103	158	251
633	342	264	201	223	157	71	14	60	262	233	160	93	133	199	336
143	58	32	26	40	24	2	1	3	55	73	21	18	66	78	126
2	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9	12	10	10	10	14	13	47	59	35	38	41	28	21	17
25	23	22	20	17	24	39	42	115	163	123	75	97	102	61	35
27	37	37	39	45	58	57	93	229	198	155	86	185	195	120	53
32	23	27	12	45	49	94	92	241	139	128	40	95	122	61	37
46	48	35	40	34	58	117	43	158	259	225	96	131	103	46	36
46	31	18	6	9	19	18	14	64	157	152	71	46	68	26	24
17	10	7	0	3	5	3	5	0	9	12	3	4	16	7	9
0	0	4	1	2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	3	7	5	14	3	6	8	10	12	21	13	31	27	20	12
4	5	3	8	16	8	8	11	40	54	41	60	88	115	49	9
6	4	7	7	7	17	12	15	41	77	41	32	161	154	52	8
1	3	2	3	8	6	7	2	5	25	24	8	90	58	13	4
0	2	0	0	2	6	2	1	1	9	17	9	25	31	9	4
0	1	1	0	0	0	0	0	0	0	5	4	0	1	1	0
0	0	0	0	0	1	1	2	0	0	0	0	0	2	0	0
0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	5	3	4	9	7	1	1	1	1	6	5	13	36	35	21
6	3	4	5	8	9	6	2	2	1	6	8	36	143	109	20
4	1	1	1	2	2	9	3	4	7	8	5	29	160	110	11
0	0	0	0	0	0	1	0	0	4	4	0	9	31	12	0
0	0	0	0	0	0	0	1	0	0	1	0	1	4	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

USNRC Computer Code PAVAN, Version 3.0 06/07/1999 Date of Run 5/14/2004 11:39
Plant Name: North Anna Meteorological Instrumentation
Data Period: 1996-1998 Wind Sensors Height: 10m
Type of Release: Ground-Level Delta-T Heights: 48.4m-10m
Source of Data:
Comments:
Program: PAVANPC, Implementation of Regulatory Guide 1.145

List of Input:

Option Flags:

Use Desert Sigma:	NO
Calculate w/ and w/o Building Wake:	NO
Print subroutine ENVLOP calculations:	YES
Print points in upper envelope curve:	YES
JFD data in hours (otherwise percent):	NO
Print X/Q calculations:	YES
Distribute Calm Array	NO
Use Site-Specific Terrain Factors:	NO
Use Default Open Terrain Factors:	NO

File containing Joint Frequency Data is
C:\Program Files\pavan2\North Anna\9698nrc.jfd
Number of Velocity Categories in JFD: 10; Correction Factor for Velocity Categories: 1.000; Height of Wind Measurements: 10.00
Maximum Velocities for Categories: 0.500 0.750 1.000 1.500 2.000 3.000 5.000 10.000 20.000 30.000

Source Term: Release Height: 10.000; Building Area: 0.000; Building Height: 0.000; Constant is Building Wake Term = 0.5

Distances to Boundary:

Dir	EAB	LPZ
S	954.0	8843.0
SSW	894.0	8843.0
SW	872.0	8843.0
WSW	876.0	8843.0
W	872.0	8843.0
WNW	902.0	8843.0
NW	988.0	8843.0
NNW	1164.0	8843.0
N	1399.0	8843.0
NNW	1420.0	8843.0
NE	1454.0	8843.0
ENE	1474.0	8843.0
E	1433.0	8843.0
ESE	1420.0	8843.0
SE	1338.0	8843.0
SSE	1166.0	8843.0

Not using any Terrain Adjustment Factors

Number of Terrain Distances is: 1

Terrain Heights:

S	DIST	0.0
	HGHT	0.0
SSW	DIST	0.0
	HGHT	0.0
SW	DIST	0.0
	HGHT	0.0
WSW	DIST	0.0
	HGHT	0.0
W	DIST	0.0
	HGHT	0.0
WNW	DIST	0.0
	HGHT	0.0
NW	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
N	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
NE	DIST	0.0
	HGHT	0.0
ENE	DIST	0.0
	HGHT	0.0
E	DIST	0.0
	HGHT	0.0
ESE	DIST	0.0
	HGHT	0.0
SE	DIST	0.0
	HGHT	0.0
SSE	DIST	0.0
	HGHT	0.0

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class A

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.75	0.75	0.008	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.015
1.00	1.00	0.011	0.000	0.011	0.000	0.008	0.011	0.000	0.008	0.011	0.000	0.000	0.000	0.000	0.011	0.023	0.019	0.115
1.50	1.50	0.027	0.023	0.008	0.019	0.034	0.046	0.019	0.038	0.042	0.054	0.031	0.008	0.023	0.027	0.100	0.115	0.613
2.00	2.00	0.027	0.019	0.015	0.011	0.100	0.111	0.092	0.065	0.161	0.119	0.057	0.046	0.031	0.096	0.184	0.096	1.230
3.00	3.00	0.073	0.038	0.042	0.046	0.065	0.119	0.100	0.169	0.456	0.460	0.169	0.188	0.234	0.176	0.299	0.119	2.752
5.00	5.00	0.172	0.073	0.077	0.088	0.050	0.042	0.008	0.004	0.042	0.376	0.310	0.207	0.330	0.326	0.341	0.157	2.603
10.00	10.00	0.065	0.011	0.027	0.004	0.004	0.000	0.000	0.000	0.000	0.023	0.038	0.034	0.046	0.149	0.157	0.176	0.736
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.38	0.16	0.18	0.17	0.26	0.33	0.22	0.28	0.71	1.03	0.61	0.48	0.66	0.79	1.11	0.68	8.07

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class B

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.004
0.75	0.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.00	1.00	0.000	0.004	0.000	0.000	0.004	0.008	0.000	0.004	0.004	0.004	0.004	0.000	0.000	0.008	0.011	0.000	0.050
1.50	1.50	0.011	0.004	0.011	0.023	0.038	0.027	0.004	0.008	0.023	0.008	0.008	0.004	0.004	0.011	0.027	0.031	0.241
2.00	2.00	0.008	0.015	0.011	0.015	0.027	0.057	0.042	0.027	0.088	0.038	0.019	0.008	0.011	0.027	0.054	0.023	0.471
3.00	3.00	0.084	0.023	0.019	0.042	0.057	0.107	0.054	0.057	0.134	0.176	0.054	0.080	0.042	0.080	0.080	0.073	1.165
5.00	5.00	0.042	0.038	0.023	0.011	0.019	0.027	0.015	0.000	0.034	0.180	0.134	0.080	0.050	0.115	0.165	0.130	1.066
10.00	10.00	0.084	0.004	0.015	0.000	0.000	0.011	0.000	0.000	0.000	0.080	0.034	0.034	0.027	0.069	0.130	0.107	0.598
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.000	0.034
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.23	0.09	0.08	0.09	0.15	0.24	0.12	0.10	0.28	0.49	0.25	0.21	0.13	0.31	0.50	0.36	3.63

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class C

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.75	0.75	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.015
1.00	1.00	0.027	0.004	0.008	0.004	0.000	0.008	0.004	0.004	0.004	0.000	0.000	0.000	0.004	0.015	0.004	0.015	0.100
1.50	1.50	0.019	0.015	0.034	0.015	0.042	0.073	0.057	0.019	0.054	0.038	0.027	0.011	0.034	0.023	0.034	0.069	0.567
2.00	2.00	0.054	0.031	0.015	0.038	0.054	0.126	0.065	0.031	0.103	0.084	0.034	0.031	0.023	0.031	0.050	0.119	0.889
3.00	3.00	0.115	0.038	0.038	0.069	0.077	0.169	0.092	0.050	0.100	0.322	0.157	0.050	0.050	0.073	0.088	0.134	1.621
5.00	5.00	0.291	0.115	0.042	0.084	0.065	0.050	0.019	0.000	0.031	0.142	0.172	0.057	0.096	0.138	0.230	0.345	1.878
10.00	10.00	0.130	0.034	0.008	0.004	0.004	0.015	0.000	0.000	0.000	0.054	0.092	0.019	0.027	0.027	0.111	0.157	0.682
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042	0.011	0.054
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.64	0.24	0.15	0.21	0.24	0.44	0.24	0.11	0.29	0.64	0.48	0.17	0.23	0.31	0.56	0.85	5.81

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class D

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.013	0.011	0.011	0.012	0.012	0.007	0.005	0.005	0.014	0.015	0.014	0.006	0.007	0.008	0.011	0.011	0.161
0.75	0.75	0.027	0.023	0.023	0.027	0.038	0.019	0.027	0.015	0.023	0.027	0.065	0.050	0.027	0.015	0.008	0.031	0.445
1.00	1.00	0.169	0.134	0.080	0.126	0.146	0.061	0.050	0.069	0.161	0.188	0.165	0.103	0.130	0.126	0.119	0.115	1.943
1.50	1.50	0.448	0.410	0.448	0.433	0.414	0.257	0.199	0.188	0.517	0.525	0.452	0.157	0.199	0.253	0.448	0.387	5.738
2.00	2.00	0.709	0.675	0.540	0.464	0.529	0.395	0.314	0.253	0.659	0.740	0.563	0.184	0.161	0.287	0.356	0.583	7.414
3.00	3.00	1.759	1.376	1.104	0.855	0.862	0.713	0.839	0.337	0.759	1.311	0.966	0.387	0.272	0.395	0.606	0.962	13.505
5.00	5.00	2.426	1.311	1.012	0.770	0.855	0.602	0.272	0.054	0.230	1.004	0.893	0.613	0.356	0.510	0.763	1.288	12.960
10.00	10.00	0.548	0.222	0.123	0.100	0.153	0.092	0.008	0.004	0.011	0.211	0.280	0.080	0.069	0.253	0.299	0.483	2.936
20.00	20.00	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.011	0.011	0.038
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		6.11	4.16	3.34	2.79	3.01	2.15	1.72	0.93	2.38	4.02	3.40	1.58	1.22	1.86	2.62	3.87	45.14

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class E

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.017	0.018	0.019	0.018	0.019	0.024	0.029	0.039	0.102	0.110	0.082	0.052	0.085	0.085	0.053	0.027	0.778
0.75	0.75	0.046	0.034	0.046	0.038	0.038	0.038	0.054	0.050	0.180	0.226	0.134	0.146	0.157	0.107	0.080	0.065	1.441
1.00	1.00	0.096	0.088	0.084	0.077	0.065	0.092	0.149	0.161	0.441	0.625	0.471	0.287	0.372	0.391	0.234	0.134	3.768
1.50	1.50	0.103	0.142	0.142	0.149	0.172	0.222	0.218	0.356	0.878	0.759	0.594	0.330	0.709	0.747	0.460	0.203	6.187
2.00	2.00	0.123	0.088	0.103	0.046	0.172	0.188	0.360	0.353	0.924	0.533	0.491	0.153	0.364	0.468	0.234	0.142	4.742
3.00	3.00	0.176	0.184	0.134	0.153	0.130	0.222	0.448	0.165	0.606	0.993	0.862	0.368	0.502	0.395	0.176	0.138	5.654
5.00	5.00	0.176	0.119	0.069	0.023	0.034	0.073	0.069	0.054	0.245	0.602	0.583	0.272	0.176	0.261	0.100	0.092	2.948
10.00	10.00	0.065	0.038	0.027	0.000	0.011	0.019	0.011	0.019	0.000	0.034	0.046	0.011	0.015	0.061	0.027	0.034	0.422
20.00	20.00	0.000	0.000	0.015	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.80	0.71	0.64	0.51	0.65	0.88	1.34	1.20	3.38	3.88	3.26	1.62	2.38	2.52	1.36	0.84	25.97

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class F

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.006	0.005	0.007	0.008	0.015	0.012	0.011	0.014	0.038	0.060	0.043	0.044	0.117	0.124	0.051	0.012	0.567
0.75	0.75	0.015	0.011	0.027	0.019	0.054	0.011	0.023	0.031	0.038	0.046	0.080	0.050	0.119	0.103	0.077	0.046	0.751
1.00	1.00	0.015	0.019	0.011	0.031	0.061	0.031	0.031	0.042	0.153	0.207	0.157	0.230	0.337	0.441	0.188	0.034	1.989
1.50	1.50	0.023	0.015	0.027	0.027	0.027	0.065	0.046	0.057	0.157	0.295	0.157	0.123	0.617	0.590	0.199	0.031	2.457
2.00	2.00	0.004	0.011	0.008	0.011	0.031	0.023	0.027	0.008	0.019	0.096	0.092	0.031	0.345	0.222	0.050	0.015	0.993
3.00	3.00	0.000	0.008	0.000	0.000	0.008	0.023	0.008	0.004	0.004	0.034	0.065	0.034	0.096	0.119	0.034	0.015	0.452
5.00	5.00	0.000	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.015	0.000	0.004	0.004	0.000	0.050
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.023
20.00	20.00	0.000	0.000	0.000	0.000	0.004	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.06	0.07	0.08	0.10	0.20	0.18	0.15	0.16	0.41	0.74	0.61	0.53	1.63	1.61	0.60	0.15	7.30

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class G

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.007	0.005	0.004	0.005	0.010	0.009	0.008	0.003	0.004	0.005	0.010	0.009	0.041	0.176	0.132	0.027	0.456
0.75	0.75	0.015	0.019	0.011	0.015	0.034	0.027	0.004	0.004	0.004	0.004	0.023	0.019	0.050	0.138	0.134	0.080	0.583
1.00	1.00	0.023	0.011	0.015	0.019	0.031	0.034	0.023	0.008	0.008	0.004	0.023	0.031	0.138	0.548	0.418	0.077	1.411
1.50	1.50	0.015	0.004	0.004	0.004	0.008	0.008	0.034	0.011	0.015	0.027	0.031	0.019	0.111	0.613	0.422	0.042	1.368
2.00	2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.015	0.015	0.000	0.034	0.119	0.046	0.000	0.234
3.00	3.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.004	0.000	0.004	0.015	0.011	0.000	0.038
5.00	5.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30.00	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.06	0.04	0.03	0.04	0.08	0.08	0.07	0.03	0.03	0.05	0.11	0.08	0.38	1.61	1.16	0.23	4.09

Wind Measured at 10.0 Meters.
Wind Speed Corrected to the Release Height of 10.0 Meters.

Overall Wind Direction Frequency

Wind Direction:	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
Frequency:	8.3	5.5	4.5	3.9	4.6	4.3	3.8	2.8	7.5	10.9	8.7	4.7	6.6	9.0	7.9	7.0

Overall Wind Speed Frequency As Measured on the Tower:

Max Wind Speed (m/s):	0.500	0.750	1.000	1.500	2.000	3.000	5.000	10.000	20.000	30.000
Wind Speed Frequency:	1.97	3.25	9.38	17.17	15.97	25.19	21.50	5.40	0.17	0.00

Building and Release Characteristics:
Release Height: 10.00 Meters
Mixing Volume Coefficient: 0.50
Building Cross-Sectional Area: 0.00 Square Meters

Boundary Distances (meters) From The Source For Each Downwind Sector:

Downwind Sector	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE
BOUNDARY 1	954.	894.	872.	876.	872.	902.	988.	1164.	1399.	1420.	1454.	1474.	1433.	1420.	1338.	1166.
BOUNDARY 2	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.

THE CONVERSION FACTOR APPLIED TO THE WIND SPEED CLASSES IS 1.000

Windspeeds adjusted to 10.0 meters.
Percent of the Time a Given Windspeed is Lower:

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.50	1.97
0.75	5.22
1.00	14.59
1.50	31.77
2.00	47.74
3.00	72.93
5.00	94.43
10.00	99.83
20.00	100.00
30.00	100.00

ERROR IN NORMAL TRANSFORMATION FOR A(9) = 100.00002

Log-Normal Interpolation Percentiles

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.39	1.00
0.59	3.00
0.74	5.00
0.89	10.00
1.01	15.00
1.16	20.00
1.30	25.00
1.45	30.00
1.59	35.00
1.75	40.00
1.91	45.00
2.07	50.00
2.23	55.00
2.41	60.00
2.62	65.00
2.85	70.00
3.10	75.00
3.38	80.00
3.74	85.00
4.25	90.00

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	954.	8.62E-05	4.87E-05	3.66E-05	1.97E-05	8.06E-06	2.71E-06	5.5	S
SSW	894.	8.38E-05	4.66E-05	3.47E-05	1.84E-05	7.37E-06	2.41E-06	5.4	SSW
SW	872.	9.21E-05	4.99E-05	3.68E-05	1.89E-05	7.30E-06	2.27E-06	6.4	SW
WSW	876.	8.89E-05	4.80E-05	3.53E-05	1.81E-05	6.92E-06	2.14E-06	6.6	WSW
W	872.	1.15E-04	6.20E-05	4.56E-05	2.34E-05	8.98E-06	2.79E-06	14.0	W
WNW	902.	9.62E-05	5.19E-05	3.81E-05	1.95E-05	7.45E-06	2.30E-06	9.3	WNW
NW	988.	9.77E-05	5.14E-05	3.73E-05	1.86E-05	6.86E-06	2.02E-06	6.0	NW
NNW	1164.	8.21E-05	4.15E-05	2.95E-05	1.41E-05	4.86E-06	1.32E-06	3.1	NNW
N	1399.	1.09E-04	5.85E-05	4.28E-05	2.17E-05	8.22E-06	2.50E-06	3.6	N
NNE	1420.	1.21E-04	6.57E-05	4.85E-05	2.51E-05	9.73E-06	3.05E-06	4.9	NNE
NE	1454.	1.15E-04	6.10E-05	4.44E-05	2.23E-05	8.27E-06	2.46E-06	5.2	NE
ENE	1474.	1.13E-04	5.55E-05	3.89E-05	1.80E-05	5.98E-06	1.55E-06	4.7	ENE
E	1433.	1.70E-04	8.86E-05	6.39E-05	3.15E-05	1.14E-05	3.29E-06	15.6	E
ESE	1420.	2.58E-04	1.36E-04	9.89E-05	4.95E-05	1.83E-05	5.41E-06	43.7	ESE
SE	1338.	2.40E-04	1.22E-04	8.71E-05	4.18E-05	1.46E-05	4.00E-06	37.0	SE
SSE	1166.	1.10E-04	5.77E-05	4.19E-05	2.08E-05	7.64E-06	2.24E-06	14.1	SSE
MAX X/Q		2.58E-04				TOTAL HOURS AROUND SITE:		185.3	
SRP 2.3.4	872.	1.07E-03	4.45E-04	2.87E-04	1.11E-04	2.86E-05	5.41E-06		
SITE LIMIT		1.45E-04	8.43E-05	6.43E-05	3.56E-05	1.53E-05	5.41E-06		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	8843.	6.36E-06	3.06E-06	2.12E-06	9.57E-07	3.06E-07	7.57E-08	2.1	S
SSW	8843.	5.62E-06	2.66E-06	1.83E-06	8.12E-07	2.53E-07	6.07E-08	2.2	SSW
SW	8843.	5.75E-06	2.67E-06	1.82E-06	7.91E-07	2.39E-07	5.54E-08	1.4	SW
WSW	8843.	5.87E-06	2.69E-06	1.83E-06	7.84E-07	2.33E-07	5.29E-08	1.9	WSW
W	8843.	7.49E-06	3.46E-06	2.35E-06	1.02E-06	3.05E-07	7.00E-08	4.0	W
WNW	8843.	7.34E-06	3.33E-06	2.24E-06	9.48E-07	2.76E-07	6.11E-08	3.3	WNW
NW	8843.	8.39E-06	3.75E-06	2.50E-06	1.04E-06	2.98E-07	6.40E-08	2.0	NW
NNW	8843.	8.51E-06	3.71E-06	2.45E-06	9.96E-07	2.74E-07	5.63E-08	1.0	NNW
N	8843.	1.53E-05	7.08E-06	4.82E-06	2.09E-06	6.29E-07	1.45E-07	1.6	N
NNE	8843.	1.79E-05	8.40E-06	5.75E-06	2.52E-06	7.72E-07	1.82E-07	2.1	NNE
NE	8843.	1.76E-05	8.02E-06	5.42E-06	2.32E-06	6.84E-07	1.54E-07	3.5	NE
ENE	8843.	1.71E-05	7.32E-06	4.79E-06	1.91E-06	5.09E-07	1.01E-07	3.5	ENE
E	8843.	3.19E-05	1.40E-05	9.23E-06	3.76E-06	1.04E-06	2.14E-07	13.0	E
ESE	8843.	5.51E-05	2.40E-05	1.58E-05	6.42E-06	1.76E-06	3.61E-07	43.7	ESE
SE	8843.	4.84E-05	2.01E-05	1.30E-05	5.01E-06	1.28E-06	2.40E-07	32.6	SE
SSE	8843.	1.25E-05	5.61E-06	3.75E-06	1.57E-06	4.46E-07	9.62E-08	9.7	SSE
MAX X/Q		5.51E-05				TOTAL HOURS AROUND SITE:		127.9	
SRP 2.3.4	8843.	3.93E-05	1.81E-05	1.23E-05	5.29E-06	1.58E-06	3.61E-07		
SITE LIMIT		2.79E-05	1.36E-05	9.49E-06	4.35E-06	1.42E-06	3.61E-07		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

PARAMETER VALUES FOR THE CHI/Q CALCULATIONS FOR THE ESE SECTOR.

STABILITY CLASS	WINDSPEED METER/SEC AT 10.0 METERS	FREQUENCY PERCENT	DISTANCE METERS	TERRAIN HT METERS	EFF PLUME HT METERS	SIGMA-Y METERS	SIGMA-Z METERS	MEANDER-SY METERS	** CHI/Q VALUES (SEC/CUBIC METER) MEANDER	BLDG WAKE CA= 0.SQ.METERS	USED
A	1.0	0.13	1420.	0.	0.	257.1	947.8	257.1	1.306E-06	1.306E-06	1.306E-06
A	1.5	0.30	1420.	0.	0.	257.1	947.8	257.1	8.709E-07	8.709E-07	8.709E-07
A	2.0	1.07	1420.	0.	0.	257.1	947.8	257.1	6.532E-07	6.532E-07	6.532E-07
A	3.0	1.96	1420.	0.	0.	257.1	947.8	257.1	4.354E-07	4.354E-07	4.354E-07
A	5.0	3.62	1420.	0.	0.	257.1	947.8	257.1	2.613E-07	2.613E-07	2.613E-07
A	10.0	1.66	1420.	0.	0.	257.1	947.8	257.1	1.306E-07	1.306E-07	1.306E-07
B	0.5	0.00	1420.	0.	0.	193.3	161.1	193.3	2.044E-05	2.044E-05	2.044E-05
B	1.0	0.09	1420.	0.	0.	193.3	161.1	193.3	1.022E-05	1.022E-05	1.022E-05
B	1.5	0.13	1420.	0.	0.	193.3	161.1	193.3	6.814E-06	6.814E-06	6.814E-06
B	2.0	0.30	1420.	0.	0.	193.3	161.1	193.3	5.111E-06	5.111E-06	5.111E-06
B	3.0	0.89	1420.	0.	0.	193.3	161.1	193.3	3.407E-06	3.407E-06	3.407E-06
B	5.0	1.28	1420.	0.	0.	193.3	161.1	193.3	2.044E-06	2.044E-06	2.044E-06
B	10.0	0.77	1420.	0.	0.	193.3	161.1	193.3	1.022E-06	1.022E-06	1.022E-06
C	1.0	0.17	1420.	0.	0.	146.8	84.1	146.8	2.578E-05	2.578E-05	2.578E-05
C	1.5	0.26	1420.	0.	0.	146.8	84.1	146.8	1.719E-05	1.719E-05	1.719E-05
C	2.0	0.34	1420.	0.	0.	146.8	84.1	146.8	1.289E-05	1.289E-05	1.289E-05
C	3.0	0.81	1420.	0.	0.	146.8	84.1	146.8	8.593E-06	8.593E-06	8.593E-06
C	5.0	1.53	1420.	0.	0.	146.8	84.1	146.8	5.156E-06	5.156E-06	5.156E-06
C	10.0	0.30	1420.	0.	0.	146.8	84.1	146.8	2.578E-06	2.578E-06	2.578E-06
D	0.5	0.09	1420.	0.	0.	103.4	40.3	165.0	9.570E-05	1.527E-04	9.570E-05
D	0.8	0.17	1420.	0.	0.	103.4	40.3	165.0	6.380E-05	1.018E-04	6.380E-05
D	1.0	1.41	1420.	0.	0.	103.4	40.3	165.0	4.785E-05	7.635E-05	4.785E-05
D	1.5	2.81	1420.	0.	0.	103.4	40.3	165.0	3.190E-05	5.090E-05	3.190E-05
D	2.0	3.20	1420.	0.	0.	103.4	40.3	164.9	2.393E-05	3.817E-05	2.393E-05
D	3.0	4.39	1420.	0.	0.	103.4	40.3	137.2	1.918E-05	2.545E-05	1.918E-05
D	5.0	5.67	1420.	0.	0.	103.4	40.3	110.9	1.424E-05	1.527E-05	1.424E-05
D	10.0	2.81	1420.	0.	0.	103.4	40.3	103.4	7.635E-06	7.635E-06	7.635E-06
D	20.0	0.09	1420.	0.	0.	103.4	40.3	103.4	3.817E-06	3.817E-06	3.817E-06
E	0.5	0.95	1420.	0.	0.	73.5	27.6	161.1	1.433E-04	3.140E-04	1.433E-04
E	0.8	1.19	1420.	0.	0.	73.5	27.6	161.1	9.552E-05	2.093E-04	9.552E-05
E	1.0	4.35	1420.	0.	0.	73.5	27.6	161.1	7.164E-05	1.570E-04	7.164E-05
E	1.5	8.31	1420.	0.	0.	73.5	27.6	161.1	4.776E-05	1.047E-04	4.776E-05
E	2.0	5.20	1420.	0.	0.	73.5	27.6	161.1	3.582E-05	7.849E-05	3.582E-05
E	3.0	4.39	1420.	0.	0.	73.5	27.6	117.3	3.279E-05	5.233E-05	3.279E-05
E	5.0	2.90	1420.	0.	0.	73.5	27.6	82.3	2.805E-05	3.140E-05	2.805E-05
E	10.0	0.68	1420.	0.	0.	73.5	27.6	73.5	1.570E-05	1.570E-05	1.570E-05
F	0.5	1.38	1420.	0.	0.	50.7	18.1	141.4	2.492E-04	6.946E-04	2.492E-04
F	0.8	1.15	1420.	0.	0.	50.7	18.1	141.4	1.662E-04	4.630E-04	1.662E-04
F	1.0	4.90	1420.	0.	0.	50.7	18.1	141.4	1.246E-04	3.473E-04	1.246E-04
F	1.5	6.56	1420.	0.	0.	50.7	18.1	141.4	8.308E-05	2.315E-04	8.308E-05
F	2.0	2.47	1420.	0.	0.	50.7	18.1	141.4	6.231E-05	1.736E-04	6.231E-05
F	3.0	1.32	1420.	0.	0.	50.7	18.1	93.0	6.316E-05	1.158E-04	6.316E-05
F	5.0	0.04	1420.	0.	0.	50.7	18.1	58.6	6.018E-05	6.946E-05	6.018E-05

F	10.0	0.09	1420.	0.	0.	50.7	18.1	50.7	3.473E-05	3.473E-05	3.473E-05
G	0.5	1.96	1420.	0.	0.	35.0	11.8	139.3	3.863E-04	1.537E-03	3.863E-04
G	0.8	1.53	1420.	0.	0.	35.0	11.8	139.3	2.575E-04	1.024E-03	2.575E-04
G	1.0	6.09	1420.	0.	0.	35.0	11.8	139.3	1.931E-04	7.683E-04	1.931E-04
G	1.5	6.82	1420.	0.	0.	35.0	11.8	139.3	1.288E-04	5.122E-04	1.288E-04
G	2.0	1.32	1420.	0.	0.	35.0	11.8	139.3	9.657E-05	3.841E-04	9.657E-05
G	3.0	0.17	1420.	0.	0.	35.0	11.8	78.8	1.139E-04	2.561E-04	1.139E-04

Site Excusion Boundary Calculations:

ESE Sector Boundary Distance = 1420.0 meters

LATERAL PLUME MEANDER/BUILDING WAKE CREDIT ALLOWED
AS A FUNCTION OF DOWNWIND DISTANCE.
MEANDER CREDIT IS FOR WINDSPEEDS LESS THAN 6 MPS.
BUILDING WAKE CREDIT ALLOWED: C= 0.5 A= 0. D= 0.0

BELOW ARE PRINTED THE ORDERED VALUES OF CHI/Q AND THE FREQUENCY WITH WHICH THAT VALUE IS REACHED OR EXCEEDED.
THE TOP NUMBER IS THE CHI/Q. THE MIDDLE NUMBER IS THE FREQUENCY NORMALIZED TO THIS SECTOR.
THE THIRD NUMBER IS THE FREQUENCY WITH RESPECT TO ALL TIME.

3.863E-04	2.575E-04	2.492E-04	1.931E-04	1.662E-04	1.433E-04	1.288E-04	1.246E-04	1.139E-04	9.657E-05
1.960	3.494	4.871	10.965	12.116	13.061	19.880	24.780	24.951	26.272
0.17633	0.31433	0.43817	0.98634	1.08984	1.17490	1.78824	2.22907	2.24440	2.36323
9.570E-05	9.552E-05	8.308E-05	7.164E-05	6.380E-05	6.316E-05	6.231E-05	6.018E-05	4.785E-05	4.776E-05
26.359	27.552	34.115	38.461	38.632	39.953	42.425	42.467	43.874	52.183
2.37106	2.47839	3.06872	3.45972	3.47506	3.59389	3.81622	3.82005	3.94655	4.69405
3.582E-05	3.473E-05	3.279E-05	3.190E-05	2.805E-05	2.578E-05	2.393E-05	2.044E-05	1.918E-05	1.719E-05
57.382	57.468	61.857	64.670	67.567	67.738	70.934	70.937	75.326	75.582
5.16172	5.16939	5.56422	5.81722	6.07788	6.09322	6.38072	6.38097	6.77580	6.79880
1.570E-05	1.424E-05	1.289E-05	1.022E-05	8.593E-06	7.635E-06	6.814E-06	5.156E-06	5.111E-06	3.817E-06
76.264	81.931	82.272	82.357	83.167	85.980	86.108	87.642	87.940	88.025
6.86013	7.36997	7.40063	7.40830	7.48113	7.73413	7.74563	7.88363	7.91047	7.91813
3.407E-06	2.578E-06	2.044E-06	1.306E-06	1.022E-06	8.709E-07	6.532E-07	4.354E-07	2.613E-07	1.306E-07
88.920	89.218	90.497	90.625	91.392	91.690	92.755	94.716	98.338	100.000
7.99863	8.02547	8.14047	8.15197	8.22097	8.24780	8.34363	8.51997	8.84580	8.99530

X/Q PERCENTILES
(BASED ON THE UPPER ENVELOPE OF THE
ORDERED X/Q-FREQUENCY VALUES, AND AS
PLOTTED ON A LOG-NORMAL GRAPH.)

PERCENT OF TIME CHI/Q IS EQUALED OR EXCEEDED
CHI/Q WITH RESPECT TO WHEN THE WIND BLOWS
SEC/CUBIC METER THE TOTAL TIME INTO THIS SECTOR ONLY

N	XA	YA	SAVESL	I	XLIM

4.916E-04	0.090	1.000
3.291E-04	0.270	3.000
2.692E-04	0.450	5.000
2.011E-04	0.900	10.000
1.642E-04	1.349	15.000
1.405E-04	1.799	20.000
1.233E-04	2.249	25.000
9.845E-05	2.699	30.000
8.096E-05	3.148	35.000
6.809E-05	3.598	40.000
5.832E-05	4.048	45.000
5.062E-05	4.498	50.000
4.333E-05	4.947	55.000
3.681E-05	5.397	60.000
3.143E-05	5.847	65.000
2.499E-05	6.297	70.000
1.961E-05	6.746	75.000
1.553E-05	7.196	80.000
2.578E-04	0.5	5.56

Annual Average = 5.41E-06

k= 14 FiveXQ(k)= 2.578E-04 Fivepr(k)= 5.558

Rerun using
WS classes
defined in Section 9.6 (p 24)
of NUREG/CR-2858.

North Anna 1996-1998 Met Data (PAVAN JFD)
Height of winds 10.0;Stability from Delta T between 48.4 and 10.0 meters

Spd	Max	Vals:	0.50	0.75	1.00	1.25	1.50	2.00	3.00	4.00	5.00	6.00	8.00	10.00	20.00	40.00
0	1	0	42	203	148	119										
2	0	0	0	1	0	0	0	0	0	0	0	0	1	0		
3	0	3	0	2	3	0	2	3	0	0	0	3	6	5		
3	2	1	2	1	1	1	5	3	3	2	0	1	1	8	7	
4	4	1	3	8	11	4	5	8	11	6	2	5	6	18	23	
7	5	4	3	26	29	24	17	42	31	15	12	8	25	48	25	
19	10	11	12	17	31	26	44	119	120	44	49	61	46	78	31	
22	13	13	18	9	6	2	1	9	86	55	41	55	45	55	23	
23	6	7	5	4	5	0	0	2	12	26	13	31	40	34	18	
12	2	5	0	1	0	0	0	0	3	9	4	9	33	25	23	
5	1	2	1	0	0	0	0	0	3	1	5	3	6	11	18	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	1	0	0	1	2	0	1	1	1	1	0	0	2	3	0	
1	0	0	0	4	1	0	0	0	0	0	0	0	0	5	4	
2	1	3	6	6	6	1	2	6	2	2	1	1	3	2	4	
2	4	3	4	7	15	11	7	23	10	5	2	3	7	14	6	
22	6	5	11	15	28	14	15	35	46	14	21	11	21	21	19	
9	8	3	2	3	6	4	0	7	32	25	11	9	21	22	11	
2	2	3	1	2	1	0	0	2	15	10	10	4	9	21	23	
12	1	3	0	0	3	0	0	0	17	5	6	5	13	13	15	
10	0	1	0	0	0	0	0	0	4	4	3	2	2	15	10	
0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	3	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	
7	1	2	1	0	2	1	1	1	0	0	0	1	4	1	4	
1	1	4	2	2	5	2	0	5	0	1	2	5	2	3	5	
4	3	5	2	9	14	13	5	9	10	6	1	4	4	6	13	
14	8	4	10	14	33	17	8	27	22	9	8	6	8	13	31	
30	10	10	18	20	44	24	13	26	84	41	13	13	19	23	35	
37	16	6	15	12	10	4	0	7	24	28	12	19	18	34	51	
39	14	5	7	5	3	1	0	1	13	17	3	6	18	26	39	
24	9	2	1	1	3	0	0	0	11	14	3	5	5	10	18	
9	0	0	0	0	1	0	0	0	3	10	2	2	1	14	23	
1	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	3	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	6	6	7	10	5	7	4	6	7	17	13	7	4	2	8	
44	35	21	33	38	16	13	18	42	49	43	27	34	33	31	30	
31	30	32	28	41	28	16	13	33	46	33	9	25	20	32	33	
86	77	85	85	67	39	36	36	102	91	85	32	27	46	85	68	
185	176	141	121	138	103	82	66	172	193	147	48	42	75	93	152	
459	359	288	223	225	186	219	88	198	342	252	101	71	103	158	251	
389	227	177	131	168	115	56	12	46	171	169	103	53	66	111	210	
244	115	87	70	55	42	15	2	14	91	64	57	40	67	88	126	
84	37	19	15	19	21	2	1	3	44	41	18	17	33	37	67	
53	16	5	7	10	3	0	0	0	11	30	3	1	26	27	52	
6	5	8	4	11	0	0	0	0	0	2	0	0	7	14	7	
2	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	9	12	10	10	10	14	13	47	59	35	38	41	28	21	17	
25	23	22	20	17	24	39	42	115	163	123	75	97	102	61	35	
14	15	17	12	17	22	17	30	74	82	65	41	80	58	56	25	
13	22	20	27	28	36	40	63	155	116	90	45	105	137	64	28	
32	23	27	12	45	49	94	92	241	139	128	40	95	122	61	37	
46	48	35	40	34	58	117	43	158	259	225	96	131	103	46	36	
25	24	11	5	9	14	18	10	46	135	115	66	35	43	17	17	
21	7	7	1	0	5	0	4	18	22	37	5	11	25	9	7	
5	3	0	0	1	5	1	5	0	8	8	1	4	5	6	2	
9	5	4	0	2	0	1	0	0	1	4	2	0	10	0	7	
3	2	3	0	0	0	1	0	0	0	0	0	0	1	1	0	
0	0	4	1	2	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	3	7	5	14	3	6	8	10	12	21	13	31	27	20	12	
4	5	3	8	16	8	8	11	40	54	41	60	88	115	49	9	
0	3	4	4	1	9	5	6	14	40	14	20	53	70	24	4	
6	1	3	3	6	8	7	9	27	37	27	12	108	84	28	4	
1	3	2	3	8	6	7	2	5	25	24	8	90	58	13	4	

0	2	0	0	2	6	2	1	1	9	17	9	25	31	9	4
0	1	0	0	0	0	0	0	0	0	5	2	0	1	1	0
0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0
0	0	0	0	0	1	1	2	0	0	0	0	0	2	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	5	3	4	9	7	1	1	1	1	6	5	13	36	35	21
6	3	4	5	8	9	6	2	2	1	6	8	36	143	109	20
2	1	1	1	2	2	4	1	1	3	3	3	19	73	55	8
2	0	0	0	0	0	5	2	3	4	5	2	10	87	55	3
0	0	0	0	0	0	1	0	0	4	4	0	9	31	12	0
0	0	0	0	0	0	0	1	0	0	1	0	1	4	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

USNRC Computer Code PAVAN, Version 3.0 06/07/1999 Date of Run 5/18/2004 17:50
Plant Name: North Anna Meteorological Instrumentation
Data Period: 1996-1998 Wind Sensors Height: 10m
Type of Release: Ground-Level Delta-T Heights: 48.4m-10m
Source of Data: JFD Based on PAVAN Users Guide
Comments:
Program: PAVANPC, Implementation of Regulatory Guide 1.145

List of Input:

Option Flags:

Use Desert Sigma:	NO
Calculate w/ and w/o Building Wake:	NO
Print subroutine ENVLOP calculations:	YES
Print points in upper envelope curve:	YES
JFD data in hours (otherwise percent):	NO
Print X/Q calculations:	YES
Distribute Calm Array	NO
Use Site-Specific Terrain Factors:	NO
Use Default Open Terrain Factors:	NO

File containing Joint Frequency Data is
C:\Program Files\pavan2\North Anna\9698nrca.jfd
Number of Velocity Categories in JFD: 14; Correction Factor for Velocity Categories: 1.000; Height of Wind Measurements: 10.00
Maximum Velocities for Categories: 0.500 0.750 1.000 1.250 1.500 2.000 3.000 4.000 5.000 6.000 8.000 10.000 20.000 40.000

Source Term: Release Height: 10.000; Building Area: 0.000; Building Height: 0.000; Constant is Building Wake Term = 0.5

Distances to Boundary:

Dir	EAB	LPZ
S	954.0	8843.0
SSW	894.0	8843.0
SW	872.0	8843.0
WSW	876.0	8843.0
W	872.0	8843.0
WNW	902.0	8843.0
NW	988.0	8843.0
NNW	1164.0	8843.0
N	1399.0	8843.0
NNW	1420.0	8843.0
NE	1454.0	8843.0
ENE	1474.0	8843.0
E	1433.0	8843.0
ESE	1420.0	8843.0
SE	1338.0	8843.0
SSE	1166.0	8843.0

Not using any Terrain Adjustment Factors

Number of Terrain Distances is: 1

Terrain Heights:

S	DIST	0.0
	HGHT	0.0
SSW	DIST	0.0
	HGHT	0.0
SW	DIST	0.0
	HGHT	0.0
WSW	DIST	0.0
	HGHT	0.0
W	DIST	0.0
	HGHT	0.0
WNW	DIST	0.0
	HGHT	0.0
NW	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
N	DIST	0.0
	HGHT	0.0
NNW	DIST	0.0
	HGHT	0.0
NE	DIST	0.0
	HGHT	0.0
ENE	DIST	0.0
	HGHT	0.0
E	DIST	0.0
	HGHT	0.0
ESE	DIST	0.0
	HGHT	0.0
SE	DIST	0.0
	HGHT	0.0
SSE	DIST	0.0
	HGHT	0.0

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class A

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.75	0.75	0.008	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.015
1.00	1.00	0.011	0.000	0.011	0.000	0.008	0.011	0.000	0.008	0.011	0.000	0.000	0.000	0.000	0.011	0.023	0.019	0.115
1.25	1.25	0.011	0.008	0.004	0.008	0.004	0.004	0.004	0.019	0.011	0.011	0.008	0.000	0.004	0.004	0.031	0.027	0.157
1.50	1.50	0.015	0.015	0.004	0.011	0.031	0.042	0.015	0.019	0.031	0.042	0.023	0.008	0.019	0.023	0.069	0.088	0.456
2.00	2.00	0.027	0.019	0.015	0.011	0.100	0.111	0.092	0.065	0.161	0.119	0.057	0.046	0.031	0.096	0.184	0.096	1.230
3.00	3.00	0.073	0.038	0.042	0.046	0.065	0.119	0.100	0.169	0.456	0.460	0.169	0.188	0.234	0.176	0.299	0.119	2.752
4.00	4.00	0.084	0.050	0.050	0.069	0.034	0.023	0.008	0.004	0.034	0.330	0.211	0.157	0.211	0.172	0.211	0.088	1.736
5.00	5.00	0.088	0.023	0.027	0.019	0.015	0.019	0.000	0.000	0.008	0.046	0.100	0.050	0.119	0.153	0.130	0.069	0.866
6.00	6.00	0.046	0.008	0.019	0.000	0.004	0.000	0.000	0.000	0.000	0.011	0.034	0.015	0.034	0.126	0.096	0.088	0.483
8.00	8.00	0.019	0.004	0.008	0.004	0.000	0.000	0.000	0.000	0.000	0.011	0.004	0.019	0.011	0.023	0.042	0.069	0.215
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.019	0.038
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.38	0.16	0.18	0.17	0.26	0.33	0.22	0.28	0.71	1.03	0.61	0.48	0.66	0.79	1.11	0.68	8.07

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class B

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.004
0.75	0.75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.00	1.00	0.000	0.004	0.000	0.000	0.004	0.008	0.000	0.004	0.004	0.004	0.004	0.000	0.000	0.008	0.011	0.000	0.050
1.25	1.25	0.004	0.000	0.000	0.000	0.015	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.015	0.057
1.50	1.50	0.008	0.004	0.011	0.023	0.023	0.023	0.004	0.008	0.023	0.008	0.008	0.004	0.004	0.011	0.008	0.015	0.184
2.00	2.00	0.008	0.015	0.011	0.015	0.027	0.057	0.042	0.027	0.088	0.038	0.019	0.008	0.011	0.027	0.054	0.023	0.471
3.00	3.00	0.084	0.023	0.019	0.042	0.057	0.107	0.054	0.057	0.134	0.176	0.054	0.080	0.042	0.080	0.080	0.073	1.165
4.00	4.00	0.034	0.031	0.011	0.008	0.011	0.023	0.015	0.000	0.027	0.123	0.096	0.042	0.034	0.080	0.084	0.042	0.663
5.00	5.00	0.008	0.008	0.011	0.004	0.008	0.004	0.000	0.000	0.008	0.057	0.038	0.038	0.015	0.034	0.080	0.088	0.402
6.00	6.00	0.046	0.004	0.011	0.000	0.000	0.011	0.000	0.000	0.000	0.065	0.019	0.023	0.019	0.050	0.050	0.057	0.356
8.00	8.00	0.038	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015	0.011	0.008	0.008	0.057	0.038	0.195
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.023	0.011	0.046
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.000	0.034
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.23	0.09	0.08	0.09	0.15	0.24	0.12	0.10	0.28	0.49	0.25	0.21	0.13	0.31	0.50	0.36	3.63

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class C

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.75	0.75	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.015
1.00	1.00	0.027	0.004	0.008	0.004	0.000	0.008	0.004	0.004	0.004	0.000	0.000	0.000	0.004	0.015	0.004	0.015	0.100
1.25	1.25	0.004	0.004	0.015	0.008	0.008	0.019	0.008	0.000	0.019	0.000	0.004	0.008	0.019	0.008	0.011	0.019	0.153
1.50	1.50	0.015	0.011	0.019	0.008	0.034	0.054	0.050	0.019	0.034	0.038	0.023	0.004	0.015	0.015	0.023	0.050	0.414
2.00	2.00	0.054	0.031	0.015	0.038	0.054	0.126	0.065	0.031	0.103	0.084	0.034	0.031	0.023	0.031	0.050	0.119	0.889
3.00	3.00	0.115	0.038	0.038	0.069	0.077	0.169	0.092	0.050	0.100	0.322	0.157	0.050	0.050	0.073	0.088	0.134	1.621
4.00	4.00	0.142	0.061	0.023	0.057	0.046	0.038	0.015	0.000	0.027	0.092	0.107	0.046	0.073	0.069	0.130	0.195	1.123
5.00	5.00	0.149	0.054	0.019	0.027	0.019	0.011	0.004	0.000	0.004	0.050	0.065	0.011	0.023	0.069	0.100	0.149	0.755
6.00	6.00	0.092	0.034	0.008	0.004	0.004	0.011	0.000	0.000	0.000	0.042	0.054	0.011	0.019	0.019	0.038	0.069	0.406
8.00	8.00	0.034	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.011	0.038	0.008	0.008	0.004	0.054	0.088	0.249
10.00	10.00	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.019	0.000	0.027
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042	0.011	0.054
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.64	0.24	0.15	0.21	0.24	0.44	0.24	0.11	0.29	0.64	0.48	0.17	0.23	0.31	0.56	0.85	5.81

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class D

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.013	0.011	0.011	0.012	0.012	0.007	0.005	0.005	0.014	0.015	0.014	0.006	0.007	0.008	0.011	0.011	0.161
0.75	0.75	0.027	0.023	0.023	0.027	0.038	0.019	0.027	0.015	0.023	0.027	0.065	0.050	0.027	0.015	0.008	0.031	0.445
1.00	1.00	0.169	0.134	0.080	0.126	0.146	0.061	0.050	0.069	0.161	0.188	0.165	0.103	0.130	0.126	0.119	0.115	1.943
1.25	1.25	0.119	0.115	0.123	0.107	0.157	0.107	0.061	0.050	0.126	0.176	0.126	0.034	0.096	0.077	0.123	0.126	1.725
1.50	1.50	0.330	0.295	0.326	0.326	0.257	0.149	0.138	0.138	0.391	0.349	0.326	0.123	0.103	0.176	0.326	0.261	4.013
2.00	2.00	0.709	0.675	0.540	0.464	0.529	0.395	0.314	0.253	0.659	0.740	0.563	0.184	0.161	0.287	0.356	0.583	7.414
3.00	3.00	1.759	1.376	1.104	0.855	0.862	0.713	0.839	0.337	0.759	1.311	0.966	0.387	0.272	0.395	0.606	0.962	13.505
4.00	4.00	1.491	0.870	0.678	0.502	0.644	0.441	0.215	0.046	0.176	0.655	0.648	0.395	0.203	0.253	0.425	0.805	8.449
5.00	5.00	0.935	0.441	0.333	0.268	0.211	0.161	0.057	0.008	0.054	0.349	0.245	0.218	0.153	0.257	0.337	0.483	4.512
6.00	6.00	0.322	0.142	0.073	0.057	0.073	0.080	0.008	0.004	0.011	0.169	0.157	0.069	0.065	0.126	0.142	0.257	1.756
8.00	8.00	0.203	0.061	0.019	0.027	0.038	0.011	0.000	0.000	0.000	0.042	0.115	0.011	0.004	0.100	0.103	0.199	0.935
10.00	10.00	0.023	0.019	0.031	0.015	0.042	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.027	0.054	0.027	0.245
20.00	20.00	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.011	0.011	0.038
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		6.11	4.16	3.34	2.79	3.01	2.15	1.72	0.93	2.38	4.02	3.40	1.58	1.22	1.86	2.62	3.87	45.14

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class E

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.017	0.018	0.019	0.018	0.019	0.024	0.029	0.039	0.102	0.110	0.082	0.052	0.085	0.085	0.053	0.027	0.778
0.75	0.75	0.046	0.034	0.046	0.038	0.038	0.038	0.054	0.050	0.180	0.226	0.134	0.146	0.157	0.107	0.080	0.065	1.441
1.00	1.00	0.096	0.088	0.084	0.077	0.065	0.092	0.149	0.161	0.441	0.625	0.471	0.287	0.372	0.391	0.234	0.134	3.768
1.25	1.25	0.054	0.057	0.065	0.046	0.065	0.084	0.065	0.115	0.284	0.314	0.249	0.157	0.307	0.222	0.215	0.096	2.396
1.50	1.50	0.050	0.084	0.077	0.103	0.107	0.138	0.153	0.241	0.594	0.445	0.345	0.172	0.402	0.525	0.245	0.107	3.791
2.00	2.00	0.123	0.088	0.103	0.046	0.172	0.188	0.360	0.353	0.924	0.533	0.491	0.153	0.364	0.468	0.234	0.142	4.742
3.00	3.00	0.176	0.184	0.134	0.153	0.130	0.222	0.448	0.165	0.606	0.993	0.862	0.368	0.502	0.395	0.176	0.138	5.654
4.00	4.00	0.096	0.092	0.042	0.019	0.034	0.054	0.069	0.038	0.176	0.517	0.441	0.253	0.134	0.165	0.065	0.065	2.262
5.00	5.00	0.080	0.027	0.027	0.004	0.000	0.019	0.000	0.015	0.069	0.084	0.142	0.019	0.042	0.096	0.034	0.027	0.686
6.00	6.00	0.019	0.011	0.000	0.000	0.004	0.019	0.004	0.019	0.000	0.031	0.031	0.004	0.015	0.019	0.023	0.008	0.207
8.00	8.00	0.034	0.019	0.015	0.000	0.008	0.000	0.004	0.000	0.000	0.004	0.015	0.008	0.000	0.038	0.000	0.027	0.172
10.00	10.00	0.011	0.008	0.011	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.042
20.00	20.00	0.000	0.000	0.015	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.80	0.71	0.64	0.51	0.65	0.88	1.34	1.20	3.38	3.88	3.26	1.62	2.38	2.52	1.36	0.84	25.97

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class F

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.006	0.005	0.007	0.008	0.015	0.012	0.011	0.014	0.038	0.060	0.043	0.044	0.117	0.124	0.051	0.012	0.567
0.75	0.75	0.015	0.011	0.027	0.019	0.054	0.011	0.023	0.031	0.038	0.046	0.080	0.050	0.119	0.103	0.077	0.046	0.751
1.00	1.00	0.015	0.019	0.011	0.031	0.061	0.031	0.031	0.042	0.153	0.207	0.157	0.230	0.337	0.441	0.188	0.034	1.989
1.25	1.25	0.000	0.011	0.015	0.015	0.004	0.034	0.019	0.023	0.054	0.153	0.054	0.077	0.203	0.268	0.092	0.015	1.039
1.50	1.50	0.023	0.004	0.011	0.011	0.023	0.031	0.027	0.034	0.103	0.142	0.103	0.046	0.414	0.322	0.107	0.015	1.418
2.00	2.00	0.004	0.011	0.008	0.011	0.031	0.023	0.027	0.008	0.019	0.096	0.092	0.031	0.345	0.222	0.050	0.015	0.993
3.00	3.00	0.000	0.008	0.000	0.000	0.008	0.023	0.008	0.004	0.004	0.034	0.065	0.034	0.096	0.119	0.034	0.015	0.452
4.00	4.00	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.008	0.000	0.004	0.004	0.000	0.038
5.00	5.00	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.011
6.00	6.00	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.023
8.00	8.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20.00	20.00	0.000	0.000	0.000	0.000	0.004	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.06	0.07	0.08	0.10	0.20	0.18	0.15	0.16	0.41	0.74	0.61	0.53	1.63	1.61	0.60	0.15	7.30

Joint Frequency Distribution of Wind Speed and Direction Atmospheric Stability Class G

Wind Speed (m/s)

Tower	Release	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
0.50	0.50	0.007	0.005	0.004	0.005	0.010	0.009	0.008	0.003	0.004	0.005	0.010	0.009	0.041	0.176	0.132	0.027	0.456
0.75	0.75	0.015	0.019	0.011	0.015	0.034	0.027	0.004	0.004	0.004	0.004	0.023	0.019	0.050	0.138	0.134	0.080	0.583
1.00	1.00	0.023	0.011	0.015	0.019	0.031	0.034	0.023	0.008	0.008	0.004	0.023	0.031	0.138	0.548	0.418	0.077	1.411
1.25	1.25	0.008	0.004	0.004	0.004	0.008	0.008	0.015	0.004	0.004	0.011	0.011	0.011	0.073	0.280	0.211	0.031	0.686
1.50	1.50	0.008	0.000	0.000	0.000	0.000	0.000	0.019	0.008	0.011	0.015	0.019	0.008	0.038	0.333	0.211	0.011	0.682
2.00	2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.015	0.015	0.000	0.034	0.119	0.046	0.000	0.234
3.00	3.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.004	0.000	0.004	0.015	0.011	0.000	0.038
4.00	4.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.00	5.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6.00	6.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8.00	8.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10.00	10.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20.00	20.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40.00	40.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		0.06	0.04	0.03	0.04	0.08	0.08	0.07	0.03	0.03	0.05	0.11	0.08	0.38	1.61	1.16	0.23	4.09

Wind Measured at 10.0 Meters.
Wind Speed Corrected to the Release Height of 10.0 Meters.

Overall Wind Direction Frequency

Wind Direction:	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
Frequency:	8.3	5.5	4.5	3.9	4.6	4.3	3.8	2.8	7.5	10.9	8.7	4.7	6.6	9.0	7.9	7.0

Overall Wind Speed Frequency As Measured on the Tower:

Max Wind Speed (m/s):	0.500	0.750	1.000	1.250	1.500	2.000	3.000	4.000	5.000	6.000	8.000	10.000	20.000	40.000
Wind Speed Frequency:	1.97	3.25	9.38	6.21	10.96	15.97	25.19	14.27	7.23	3.23	1.77	0.40	0.17	0.00

Building and Release Characteristics:
Release Height: 10.00 Meters
Mixing Volume Coefficient: 0.50
Building Cross-Sectional Area: 0.00 Square Meters

Boundary Distances (meters) From The Source For Each Downwind Sector:

Downwind Sector	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE
BOUNDARY 1	954.	894.	872.	876.	872.	902.	988.	1164.	1399.	1420.	1454.	1474.	1433.	1420.	1338.	1166.
BOUNDARY 2	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.	8843.

THE CONVERSION FACTOR APPLIED TO THE WIND SPEED CLASSES IS 1.000

Windspeeds adjusted to 10.0 meters.
Percent of the Time a Given Windspeed is Lower:

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.50	1.97
0.75	5.22
1.00	14.59
1.25	20.81
1.50	31.77
2.00	47.74
3.00	72.93
4.00	87.20
5.00	94.43
6.00	97.67
8.00	99.43
10.00	99.83
20.00	100.00
40.00	100.00

Log-Normal Interpolation Percentiles

WINDSPEED (METER/SEC)	CUMULATIVE FREQUENCY (PERCENT)
0.39	1.00
0.59	3.00
0.74	5.00
0.89	10.00
1.02	15.00
1.22	20.00
1.35	25.00
1.46	30.00
1.59	35.00
1.75	40.00
1.91	45.00
2.07	50.00
2.23	55.00
2.41	60.00
2.62	65.00
2.85	70.00
3.11	75.00
3.40	80.00
3.79	85.00
4.29	90.00

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	954.	8.21E-05	4.68E-05	3.53E-05	1.92E-05	7.99E-06	2.73E-06	5.7	S
SSW	894.	8.41E-05	4.68E-05	3.49E-05	1.85E-05	7.41E-06	2.43E-06	5.7	SSW
SW	872.	8.62E-05	4.73E-05	3.50E-05	1.83E-05	7.16E-06	2.28E-06	6.6	SW
WSW	876.	8.89E-05	4.80E-05	3.53E-05	1.81E-05	6.92E-06	2.14E-06	6.8	WSW
W	872.	9.99E-05	5.53E-05	4.12E-05	2.17E-05	8.63E-06	2.80E-06	14.0	W
WNW	902.	9.69E-05	5.23E-05	3.84E-05	1.96E-05	7.50E-06	2.31E-06	9.3	WNW
NW	988.	9.51E-05	5.03E-05	3.66E-05	1.83E-05	6.80E-06	2.02E-06	6.1	NW
NNW	1164.	8.21E-05	4.15E-05	2.95E-05	1.40E-05	4.84E-06	1.32E-06	3.1	NNW
N	1399.	1.09E-04	5.85E-05	4.28E-05	2.17E-05	8.19E-06	2.49E-06	3.6	N
NNE	1420.	1.21E-04	6.58E-05	4.85E-05	2.51E-05	9.76E-06	3.07E-06	4.9	NNE
NE	1454.	1.15E-04	6.10E-05	4.44E-05	2.23E-05	8.28E-06	2.47E-06	5.2	NE
ENE	1474.	1.13E-04	5.55E-05	3.90E-05	1.81E-05	6.00E-06	1.56E-06	4.7	ENE
E	1433.	1.70E-04	8.86E-05	6.39E-05	3.15E-05	1.14E-05	3.29E-06	15.6	E
ESE	1420.	2.58E-04	1.36E-04	9.89E-05	4.94E-05	1.83E-05	5.41E-06	43.7	ESE
SE	1338.	2.40E-04	1.22E-04	8.71E-05	4.18E-05	1.46E-05	4.01E-06	37.0	SE
SSE	1166.	1.06E-04	5.59E-05	4.07E-05	2.04E-05	7.59E-06	2.26E-06	14.1	SSE
MAX X/Q		2.58E-04				TOTAL HOURS AROUND SITE:		186.2	
SRP 2.3.4	872.	1.09E-03	4.54E-04	2.93E-04	1.13E-04	2.88E-05	5.41E-06		
SITE LIMIT		1.56E-04	8.96E-05	6.79E-05	3.71E-05	1.56E-05	5.41E-06		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)
VERSUS
AVERAGING TIME

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	8843.	6.13E-06	2.97E-06	2.07E-06	9.40E-07	3.04E-07	7.63E-08	2.1	S
SSW	8843.	5.29E-06	2.53E-06	1.75E-06	7.86E-07	2.49E-07	6.12E-08	2.2	SSW
SW	8843.	5.50E-06	2.57E-06	1.76E-06	7.72E-07	2.36E-07	5.56E-08	1.4	SW
WSW	8843.	5.86E-06	2.69E-06	1.82E-06	7.83E-07	2.33E-07	5.28E-08	1.9	WSW
W	8843.	7.44E-06	3.44E-06	2.34E-06	1.01E-06	3.05E-07	7.03E-08	4.0	W
WNW	8843.	7.34E-06	3.33E-06	2.24E-06	9.51E-07	2.77E-07	6.15E-08	3.3	WNW
NW	8843.	8.38E-06	3.74E-06	2.50E-06	1.04E-06	2.97E-07	6.39E-08	2.0	NW
NNW	8843.	8.36E-06	3.65E-06	2.41E-06	9.84E-07	2.71E-07	5.60E-08	1.0	NNW
N	8843.	1.53E-05	7.08E-06	4.81E-06	2.08E-06	6.27E-07	1.44E-07	1.6	N
NNE	8843.	1.81E-05	8.47E-06	5.79E-06	2.54E-06	7.77E-07	1.83E-07	2.1	NNE
NE	8843.	1.76E-05	8.02E-06	5.42E-06	2.32E-06	6.85E-07	1.54E-07	3.5	NE
ENE	8843.	1.71E-05	7.32E-06	4.80E-06	1.91E-06	5.12E-07	1.02E-07	3.5	ENE
E	8843.	3.19E-05	1.40E-05	9.23E-06	3.76E-06	1.04E-06	2.14E-07	13.0	E
ESE	8843.	5.51E-05	2.40E-05	1.58E-05	6.42E-06	1.76E-06	3.61E-07	43.7	ESE
SE	8843.	4.84E-05	2.01E-05	1.30E-05	5.02E-06	1.28E-06	2.40E-07	32.6	SE
SSE	8843.	1.19E-05	5.36E-06	3.60E-06	1.52E-06	4.41E-07	9.69E-08	9.7	SSE
MAX X/Q		5.51E-05				TOTAL HOURS AROUND SITE:		127.9	
SRP 2.3.4	8843.	4.02E-05	1.85E-05	1.25E-05	5.37E-06	1.59E-06	3.61E-07		
SITE LIMIT		2.79E-05	1.36E-05	9.49E-06	4.35E-06	1.42E-06	3.61E-07		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

PARAMETER VALUES FOR THE CHI/Q CALCULATIONS FOR THE ESE SECTOR.

STABILITY CLASS	WINDSPEED METER/SEC AT 10.0 METERS	FREQUENCY PERCENT	DISTANCE METERS	TERRAIN HT METERS	EFF PLUME HT METERS	SIGMA-Y METERS	SIGMA-Z METERS	MEANDER-SY METERS	** CHI/Q VALUES (SEC/CUBIC METER) MEANDER	BLDG WAKE CA= 0.SQ.METERS	USED
A	1.0	0.13	1420.	0.	0.	257.1	947.8	257.1	1.306E-06	1.306E-06	1.306E-06
A	1.2	0.04	1420.	0.	0.	257.1	947.8	257.1	1.045E-06	1.045E-06	1.045E-06
A	1.5	0.26	1420.	0.	0.	257.1	947.8	257.1	8.709E-07	8.709E-07	8.709E-07
A	2.0	1.07	1420.	0.	0.	257.1	947.8	257.1	6.532E-07	6.532E-07	6.532E-07
A	3.0	1.96	1420.	0.	0.	257.1	947.8	257.1	4.354E-07	4.354E-07	4.354E-07
A	4.0	1.92	1420.	0.	0.	257.1	947.8	257.1	3.266E-07	3.266E-07	3.266E-07
A	5.0	1.70	1420.	0.	0.	257.1	947.8	257.1	2.613E-07	2.613E-07	2.613E-07
A	6.0	1.41	1420.	0.	0.	257.1	947.8	257.1	2.177E-07	2.177E-07	2.177E-07
A	8.0	0.26	1420.	0.	0.	257.1	947.8	257.1	1.633E-07	1.633E-07	1.633E-07
B	0.5	0.00	1420.	0.	0.	193.3	161.1	193.3	2.044E-05	2.044E-05	2.044E-05
B	1.0	0.09	1420.	0.	0.	193.3	161.1	193.3	1.022E-05	1.022E-05	1.022E-05
B	1.5	0.13	1420.	0.	0.	193.3	161.1	193.3	6.814E-06	6.814E-06	6.814E-06
B	2.0	0.30	1420.	0.	0.	193.3	161.1	193.3	5.111E-06	5.111E-06	5.111E-06
B	3.0	0.89	1420.	0.	0.	193.3	161.1	193.3	3.407E-06	3.407E-06	3.407E-06
B	4.0	0.89	1420.	0.	0.	193.3	161.1	193.3	2.555E-06	2.555E-06	2.555E-06
B	5.0	0.38	1420.	0.	0.	193.3	161.1	193.3	2.044E-06	2.044E-06	2.044E-06
B	6.0	0.55	1420.	0.	0.	193.3	161.1	193.3	1.704E-06	1.704E-06	1.704E-06
B	8.0	0.09	1420.	0.	0.	193.3	161.1	193.3	1.278E-06	1.278E-06	1.278E-06
B	10.0	0.13	1420.	0.	0.	193.3	161.1	193.3	1.022E-06	1.022E-06	1.022E-06
C	1.0	0.17	1420.	0.	0.	146.8	84.1	146.8	2.578E-05	2.578E-05	2.578E-05
C	1.2	0.09	1420.	0.	0.	146.8	84.1	146.8	2.062E-05	2.062E-05	2.062E-05
C	1.5	0.17	1420.	0.	0.	146.8	84.1	146.8	1.719E-05	1.719E-05	1.719E-05
C	2.0	0.34	1420.	0.	0.	146.8	84.1	146.8	1.289E-05	1.289E-05	1.289E-05
C	3.0	0.81	1420.	0.	0.	146.8	84.1	146.8	8.593E-06	8.593E-06	8.593E-06
C	4.0	0.77	1420.	0.	0.	146.8	84.1	146.8	6.445E-06	6.445E-06	6.445E-06
C	5.0	0.77	1420.	0.	0.	146.8	84.1	146.8	5.156E-06	5.156E-06	5.156E-06
C	6.0	0.21	1420.	0.	0.	146.8	84.1	146.8	4.296E-06	4.296E-06	4.296E-06
C	8.0	0.04	1420.	0.	0.	146.8	84.1	146.8	3.222E-06	3.222E-06	3.222E-06
C	10.0	0.04	1420.	0.	0.	146.8	84.1	146.8	2.578E-06	2.578E-06	2.578E-06
D	0.5	0.09	1420.	0.	0.	103.4	40.3	165.0	9.570E-05	1.527E-04	9.570E-05
D	0.8	0.17	1420.	0.	0.	103.4	40.3	165.0	6.380E-05	1.018E-04	6.380E-05
D	1.0	1.41	1420.	0.	0.	103.4	40.3	165.0	4.785E-05	7.635E-05	4.785E-05
D	1.2	0.85	1420.	0.	0.	103.4	40.3	165.0	3.828E-05	6.108E-05	3.828E-05
D	1.5	1.96	1420.	0.	0.	103.4	40.3	165.0	3.190E-05	5.090E-05	3.190E-05
D	2.0	3.20	1420.	0.	0.	103.4	40.3	164.9	2.393E-05	3.817E-05	2.393E-05
D	3.0	4.39	1420.	0.	0.	103.4	40.3	137.2	1.918E-05	2.545E-05	1.918E-05
D	4.0	2.81	1420.	0.	0.	103.4	40.3	121.3	1.626E-05	1.909E-05	1.626E-05
D	5.0	2.86	1420.	0.	0.	103.4	40.3	110.9	1.424E-05	1.527E-05	1.424E-05
D	6.0	1.41	1420.	0.	0.	103.4	40.3	103.4	1.272E-05	1.272E-05	1.272E-05
D	8.0	1.11	1420.	0.	0.	103.4	40.3	103.4	9.544E-06	9.544E-06	9.544E-06
D	10.0	0.30	1420.	0.	0.	103.4	40.3	103.4	7.635E-06	7.635E-06	7.635E-06
D	20.0	0.09	1420.	0.	0.	103.4	40.3	103.4	3.817E-06	3.817E-06	3.817E-06
E	0.5	0.95	1420.	0.	0.	73.5	27.6	161.1	1.433E-04	3.140E-04	1.433E-04
E	0.8	1.19	1420.	0.	0.	73.5	27.6	161.1	9.552E-05	2.093E-04	9.552E-05

E	1.0	4.35	1420.	0.	0.	73.5	27.6	161.1	7.164E-05	1.570E-04	7.164E-05
E	1.2	2.47	1420.	0.	0.	73.5	27.6	161.1	5.731E-05	1.256E-04	5.731E-05
E	1.5	5.84	1420.	0.	0.	73.5	27.6	161.1	4.776E-05	1.047E-04	4.776E-05
E	2.0	5.20	1420.	0.	0.	73.5	27.6	161.1	3.582E-05	7.849E-05	3.582E-05
E	3.0	4.39	1420.	0.	0.	73.5	27.6	117.3	3.279E-05	5.233E-05	3.279E-05
E	4.0	1.83	1420.	0.	0.	73.5	27.6	95.4	3.024E-05	3.924E-05	3.024E-05
E	5.0	1.07	1420.	0.	0.	73.5	27.6	82.3	2.805E-05	3.140E-05	2.805E-05
E	6.0	0.21	1420.	0.	0.	73.5	27.6	73.5	2.616E-05	2.616E-05	2.616E-05
E	8.0	0.43	1420.	0.	0.	73.5	27.6	73.5	1.962E-05	1.962E-05	1.962E-05
E	10.0	0.04	1420.	0.	0.	73.5	27.6	73.5	1.570E-05	1.570E-05	1.570E-05
F	0.5	1.38	1420.	0.	0.	50.7	18.1	141.4	2.492E-04	6.946E-04	2.492E-04
F	0.8	1.15	1420.	0.	0.	50.7	18.1	141.4	1.662E-04	4.630E-04	1.662E-04
F	1.0	4.90	1420.	0.	0.	50.7	18.1	141.4	1.246E-04	3.473E-04	1.246E-04
F	1.2	2.98	1420.	0.	0.	50.7	18.1	141.4	9.969E-05	2.778E-04	9.969E-05
F	1.5	3.58	1420.	0.	0.	50.7	18.1	141.4	8.308E-05	2.315E-04	8.308E-05
F	2.0	2.47	1420.	0.	0.	50.7	18.1	141.4	6.231E-05	1.736E-04	6.231E-05
F	3.0	1.32	1420.	0.	0.	50.7	18.1	93.0	6.316E-05	1.158E-04	6.316E-05
F	4.0	0.04	1420.	0.	0.	50.7	18.1	70.9	6.211E-05	8.682E-05	6.211E-05
F	6.0	0.09	1420.	0.	0.	50.7	18.1	50.7	5.788E-05	5.788E-05	5.788E-05
G	0.5	1.96	1420.	0.	0.	35.0	11.8	139.3	3.863E-04	1.537E-03	3.863E-04
G	0.8	1.53	1420.	0.	0.	35.0	11.8	139.3	2.575E-04	1.024E-03	2.575E-04
G	1.0	6.09	1420.	0.	0.	35.0	11.8	139.3	1.931E-04	7.683E-04	1.931E-04
G	1.2	3.11	1420.	0.	0.	35.0	11.8	139.3	1.545E-04	6.146E-04	1.545E-04
G	1.5	3.71	1420.	0.	0.	35.0	11.8	139.3	1.288E-04	5.122E-04	1.288E-04
G	2.0	1.32	1420.	0.	0.	35.0	11.8	139.3	9.657E-05	3.841E-04	9.657E-05
G	3.0	0.17	1420.	0.	0.	35.0	11.8	78.8	1.139E-04	2.561E-04	1.139E-04

Site Excusion Boundary Calculations:

ESE Sector Boundary Distance = 1420.0 meters

LATERAL PLUME MEANDER/BUILDING WAKE CREDIT ALLOWED
AS A FUNCTION OF DOWNWIND DISTANCE.
MEANDER CREDIT IS FOR WINDSPEEDS LESS THAN 6 MPS.
BUILDING WAKE CREDIT ALLOWED: C= 0.5 A= 0. D= 0.0

BELOW ARE PRINTED THE ORDERED VALUES OF CHI/Q AND THE FREQUENCY WITH WHICH THAT VALUE IS REACHED OR EXCEEDED.
THE TOP NUMBER IS THE CHI/Q. THE MIDDLE NUMBER IS THE FREQUENCY NORMALIZED TO THIS SECTOR.
THE THIRD NUMBER IS THE FREQUENCY WITH RESPECT TO ALL TIME.

3.863E-04	2.575E-04	2.492E-04	1.931E-04	1.662E-04	1.545E-04	1.433E-04	1.288E-04	1.246E-04	1.139E-04
1.960	3.494	4.871	10.965	12.116	15.227	16.172	19.880	24.780	24.951
0.17633	0.31433	0.43817	0.98634	1.08984	1.36967	1.45474	1.78824	2.22907	2.24440
9.969E-05	9.657E-05	9.570E-05	9.552E-05	8.308E-05	7.164E-05	6.380E-05	6.316E-05	6.231E-05	6.211E-05
27.934	29.255	29.342	30.535	34.115	38.461	38.632	39.953	42.425	42.467
2.51273	2.63157	2.63939	2.74672	3.06872	3.45972	3.47506	3.59389	3.81622	3.82005
5.788E-05	5.731E-05	4.785E-05	4.776E-05	3.828E-05	3.582E-05	3.279E-05	3.190E-05	3.024E-05	2.805E-05
42.552	45.024	46.430	52.269	53.121	58.320	62.709	64.670	66.502	67.567
3.82772	4.05005	4.17655	4.70172	4.77839	5.24605	5.64089	5.81722	5.98205	6.07788
2.616E-05	2.578E-05	2.393E-05	2.062E-05	2.044E-05	1.962E-05	1.918E-05	1.719E-05	1.626E-05	1.570E-05
67.780	67.951	71.147	71.232	71.235	71.661	76.050	76.221	79.034	79.076
6.09705	6.11238	6.39988	6.40755	6.40780	6.44613	6.84097	6.85630	7.10930	7.11313
1.424E-05	1.289E-05	1.272E-05	1.022E-05	9.544E-06	8.593E-06	7.635E-06	6.814E-06	6.445E-06	5.156E-06
81.931	82.272	83.679	83.764	84.872	85.681	85.980	86.108	86.875	87.642
7.36997	7.40063	7.52713	7.53480	7.63447	7.70730	7.73413	7.74563	7.81463	7.88363
5.111E-06	4.296E-06	3.817E-06	3.407E-06	3.222E-06	2.578E-06	2.555E-06	2.044E-06	1.704E-06	1.306E-06
87.940	88.153	88.238	89.133	89.176	89.218	90.113	90.497	91.051	91.179
7.91047	7.92963	7.93730	8.01780	8.02163	8.02547	8.10597	8.14047	8.19030	8.20180
1.278E-06	1.045E-06	1.022E-06	8.709E-07	6.532E-07	4.354E-07	3.266E-07	2.613E-07	2.177E-07	1.633E-07
91.264	91.307	91.434	91.690	92.755	94.716	96.633	98.338	99.744	100.000
8.20947	8.21330	8.22480	8.24780	8.34363	8.51997	8.69247	8.84580	8.97230	8.99530

4.916E-04	0.090	1.000
3.291E-04	0.270	3.000
2.692E-04	0.450	5.000
2.011E-04	0.900	10.000
1.642E-04	1.349	15.000
1.405E-04	1.799	20.000
1.233E-04	2.249	25.000
9.845E-05	2.699	30.000
8.096E-05	3.148	35.000
6.811E-05	3.598	40.000
5.838E-05	4.048	45.000
5.072E-05	4.498	50.000
4.344E-05	4.947	55.000
3.686E-05	5.397	60.000
3.161E-05	5.847	65.000
2.545E-05	6.297	70.000
2.012E-05	6.746	75.000
1.567E-05	7.196	80.000
2.578E-04	0.5	5.56

Annual Average = 5.41E-06

k= 14 FiveXQ(k)= 2.578E-04 Fivepr(k)= 5.558