Attachment 7

Millstone Nuclear Power Station, Unit No. 3

Calculation WM(B)-04
Normalized X/Q at the Unit 3 Control Room For
Releases From the Unit 3 Containment and Turbine Bldg.

CALCULATION TITLE PAGE

Total Number of Pages: 49

Normalized X/Q at the Unit 3 Control Room For Releases From the Unit 3 Containment and Turbine Bldg

TITLE

N/A	0	RBVS/SLCRS
CALCULATION #	**REVISION No.**	**SYSTEM NAME**
WM(B)-04	CB,CE,TB	N/A
VENDOR CALCULATION NUMBER	**Structure**	**System Number**

NUCLEAR INDICATOR:

☒ CAT1 ☐ RWQA ☐ SBOQA
☐ FPQA ☐ ATWSQA ☐ NON-QA

Calc. Supports DCR/MMOD?
☒ YES ☐ NO
↓
M3-98-029
DCR/MMOD No.

Calc. Supports Ind. Analysis?
☐ YES ☒ NO
↓
N/A
Reference

N/A
Component

INCORPORATES:

CCN NO:	AGAINST REV.
N/A	N/A

Executive Summary

THIS IS FORMAL APPROVAL OF A QA APPROVED VENDOR CALCULATION. NO (NU) IR IS REQUIRED.

REC'D 6-8-98
ON HOLD
CDS 6/17/98
CDS QC 6/25/98
NRP ✓

6/10/98

Approvals (Print & Sign Name)		
Preparer::James L. Wheeler		Date: 5/27/98
Interdiscipline Reviewer:N/A	Discipline:	Date:
Interdiscipline Reviewer:N/A	Discipline:	Date:
Independent Reviewer:N/A		Date:
Supervisor: William Eakin		Date: 5/27/98

Installation Verification

☒ Calculation accurately reflects plant configuration, OR

☐ N/A does not affect plant configuration)

Preparer/Designer Engineer:JAMES L. WHEELER Date: 5/27/98

PassPort DATABASE INPUTs

CH #4

Calculation Number: N/A (prefix) N/A (sequence no.) N/A (suffix) Revision: N/A

Vendor Calculation Number/Other: 03703.7002-WM(B)-04 Revision: 0

CCN # N/A QA ☒ Yes ☐ No Calc Voided: ☐ Yes ☒ No

Superseded By: N/A Supersedes Calc: N/A

Discipline (Up to 10) N,A,Z

Unit	Project Reference (EWA)	Component Id	Computer Code	Rev. No./ Level No.
3	N/A	N/A	EN-200	0/0

PMMS CODES*				
Structure	System	Component	Reference Calculation	Rev No.
CB	RBV	N/A	ENVR-W210	0
CE			ENVR-W228	0
TB				

*The codes required must be alpha codes designed for structure, system and component.

Reference Drawing	Sheet	Rev. No.
25212-14045	B	15
25212-24215 ~~1~~	~~1~~ 01	14

Comments:

Table of Contents

Title page	1A
CTP Database	1B
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Vendor Calculation Pages	1 thru 10
Appendix 1	18 pages
Appendix 2	18 pages
Total number of pages	49

5010.65

STONE & WEBSTER ENGINEERING CORPORATION
CALCULATION TITLE PAGE

CLIENT & PROJECT:	PAGE 1 of 10 Total Pages: 46 w/attachments pages
NORTHEAST UTILITIES - MILLSTONE UNIT 3	
CALCULATION TITLE: Normalized Concentrations (X/Qs) at Unit 3 Control Room Air Intake for Releases from the Unit 3 Containment Structure and Turbine Bldg. Vent	QA CATEGORY (✓) ☑ I ☐ II

CALCULATION IDENTIFICATION NUMBER				OPTIONAL WORK PACKAGE NO.
JOB ORDER NO.	DISCIPLINE	CURRENT CALC NO	OPTIONAL TASK CODE	
03703.7002	WM(B)	04 new		

APPROVALS - SIGNATURE & DATE			REVISION NO. OR NEW CALCULATION NO.	SUPERSEDES CALCULATION NO. OR REVISON NO.	CONFIRMATION REQUIRED (✓)	
PREPARES(S) / DATE(S)	REVIEWER(S) / DATES(S)	INDEPENDENT REVIEWER(S) / DATE(S)			YES	NO
Stephen A. Vigeant Stephen A. Vigeant 5/21/98	Carl A. Mazzola Carl A. Mazzola 5/21/98	Carl A. Mazzola Carl A. Mazzola 5/21/98	0			✓

DISTRIBUTION

GROUP	NAME & LOCATION	COPY SENT (✓)	GROUP	NAME & LOCATION	COPY SENT (✓)
Record Mgmt. File (or Fire File if none)					
Lead Radiological Specialist	S. Ferguson Boston - 6	cc			
	Stephen A. Vigeant Boston - 3	cc			
~~Project Files~~	~~Charlie Cronan~~ ~~Boston - 7~~				
NU RAD ~~PROT~~ PROT	Schmidt, R.J. New Britain	cc			
NUNDS	MP3 Site	original e			

5010.65

STONE & WEBSTER ENGINEERING CORPORATION
CALCULATION SHEET

CALCULATION IDENTIFICATION NUMBER				
JOB ORDER NO. 037037002	DISCIPLINE WM(B)	CALCULATION NO. 04 Rev 0	OPTIONAL TASK CODE	PAGE 2 OF 10

CHANGE HISTORY PAGE

REVISION NO.	DESCRIPTION OF CHANGES	PAGES REVISED	PAGES ADDED	PAGES REPLACED
0	0	N/A	N/A	N/A

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OBJECTIVE

To calculate the normalized atmospheric dispersion values (X/Qs) at the Millstone Unit 3 control room air intake for gaseous radiological releases from the Unit 3 Containment Structure and Turbine Building Vent. These X/Q values will apply to the 0-2 hour through 30-day period for the containment and turbine building vent ground level release.

METHODOLOGY

The control room X/Q values are calculated using the methodology described in Murphy and Campe (Ref. 1). Given that the radiological releases are from the containment surface and from a point source (turbine bldg. vent) with a large elevation difference relative to the control room intake (see Data Section, p. 6), the diffuse source - point receptor technique for X/Q calculation from Section V(B)(1)(b) of Murphy and Campe (Ref. 1) is used. The X/Q equation is as follows:

$$X/Q = [u(\pi\sigma_y\sigma_z + A/(K+2))]^{-1}$$

where:

X/Q is relative concentration (sec/m^3)
σ_y, σ_z are horizontal and vertical dispersion coefficients based on stability class and horizontal distance (m)
u = wind speed at 10-meter elevation (m/sec)
A = projected building area (m^2)
k = $3/(s/d)^{1.4}$
s = source to receptor difference (m)
d = building width (m)

The above relationship is used to calculate the 0 - 2 hour X/Q value based on site meteorological data, selecting the condition that represents the 5 percentile worst dispersion condition at the site. In this case, 1974 to 1981 on-site meteorological data (Ref. 2) are used. From earlier control room X/Q calculations (Ref. 3), the 5 percentile worst site stability class is F stability. The corresponding 5 percentile low wind speed is determined from the on-site meteorological data considering only those wind directions resulting in receptor exposure. The number of wind direction sectors to be considered for each source-receptor relationship is determined using Figure 2 of Ref. 1 which is based on the ratio of the distance (s) between the source and receptor to the diameter (d) or width of the building from which the release emanates (s/d ratio). The dispersion coefficients (σ_y, σ_z) are determined from Ref. 4.

The intermediate averaging time X/Qs (8-24 hours, 1-4 days, and 4-30 days) are determined from the 0-2 hour X/Q value multiplying by occupancy, wind speed, and wind direction factors in accordance with Ref. 1. These factors are as follows:

Averaging Time	Occupancy Factor	Wind Speed Factor	Wind Direction Factor
0 - 2 Hours	1	1	1
8 - 24 Hours	1	5%/10% wind speed	0.75 + F/4
1 - 4 Days	0.6	5%/20% wind speed	0.50 + F/2
4 - 30 Days	0.4	5%/40% wind speed	F

F is the fraction of time the wind blows the activity toward the receptor.

The frequency of wind directions blowing in the appropriate range and at individual wind speeds is determined from the on-site meteorological data base (Ref. 2) using Stone & Webster computer program "Distribution of Two Parameters" (Ref. 5).

ASSUMPTIONS

1. It is conservatively assumed that each plume centerline is transported directly over the Unit 3 control room intake and that the plume dispersion is affected by the containment structure (containment release) and turbine building (turbine building vent).

2. For purposes of determining the appropriate dispersion equation to use in the analysis, the nature of the release and elevation difference between the release point and the control room air intake is compared to the appropriate building height. Point sources with elevation differences that are greater than 30 percent of the building height are evaluated using the diffuse source - point receptor equation from Ref. 1.

3. It is assumed that the Unit 3 control room air intake X/Q values are representative of the X/Q values for the center of the Unit 3 control room given that the distances and directions from the releases to these receptors are very similar.

EQUATIONS

$X/Q = [u(\pi\sigma_y\sigma_z + A/(K+2))]^{-1}$ (Ref. 1)

where:

X/Q is relative concentration (sec/m^3) for point source - point receptor configurations
σ_y, σ_z are horizontal and vertical dispersion coefficients (m) (Ref. 4)
u = wind speed at 10-meter elevation (m/sec)
A = projected building area (m^2)
$k = 3/(s/d)^{1.4}$

Determination of Influencing Wind Directions (Ref. 1)

s = source to receptor distance (m)

d = release point diameter or width (m)

Calculate s/d ratio and use Figure 2 from Ref. 1

Determination of Intermediate Period Factors (Ref. 1)

Averaging Time	Occupancy Factor	Wind Speed Factor	Wind Direction Factor
0 - 2 Hours	1	1	1
8 - 24 Hours	1	5%/10% wind speed	0.75 + F/4
1 - 4 Days	0.6	5%/20% wind speed	0.50 + F/2
4 - 30 Days	0.4	5%/40% wind speed	F

F is the fraction of time the wind blows the activity toward the receptor.

DATA

1. Unit 3 Containment to Unit 3 Control Room Air Intake

Distance (s) from containment to Unit 3 control room air intake = 72.0 m (Ref. 6)
Wind direction from containment to Unit 3 control room air intake = 108 deg (Ref. 6)
Unit 3 control room air intake elevation = 94.6 ft (Ref. 8)
Containment structure enclosure height (top elevation - grade elevation) = 186.2 ft - 24.0 ft = 162.2 ft (Ref. 6)
Containment structure enclosure width (d) = 47.2 m (Ref. 6)
Containment structure enclosure area = 2336.4 m^2 (Ref. 6)

2. Unit 3 Turbine Bldg. to Unit 3 Control Room Air Intake

Distance from turbine bldg. vent to Unit 3 control room center = 38.1 m (Ref. 7)
Wind direction from turbine bldg. vent to Unit 3 control room center = 128 deg (Ref. 7)
d = turbine bldg. width = 36 m (Ref. 7)
Turbine bldg. vent elevation = 157 ft (Ref. 7)
Turbine bldg. roof height above grade = 113 ft (Ref. 7)
Unit 3 control room air intake elevation = 94.6 ft (Ref. 8)
Turbine bldg. vent-control room air intake elevation difference = 157 ft - 94.6 ft = 62.4 ft
Percentage difference in elevations = 62.4 ft/113 ft = 55 percent

CALCULATION

1. Unit 3 Containment to Unit 3 Control Room Air Intake

s = 72.0 m (Ref. 6)
direction = 108 deg (Ref. 6)
d =47.2 m (Ref. 6)
s/d = 72.0 m/47.2 m = 1.53 or 4 sectors (4 x 22.5° = 90° or 108° - 45° = 63° to 108° + 45° = 153°

A = 2336.4 m^2 (Ref. 6)
$k = 3/(s/d)^{1.4} = 3/(1.53)^{1.4} = 1.65$

σ_y @ 72.0 m for F stability class	= 3.43 m (Ref. 4)
σ_z @ 72.0 m for F stability class	= 1.72 m (Ref. 4)
u(5%) = 2.2 mph (1.0 m/sec)	(Appendix 1, p. 11)
u(10%) = 3.1 mph (1.4 m/sec)	(Appendix 1, p. 12)
u(20%) = 4.5 mph (2.0 m/sec)	(Appendix 1, p. 13)
u(40%) = 6.7 mph (3.0 m/sec)	(Appendix 1, p. 15)
F = 10,208/66332 = 0.16	(Appendix 1, p. 18)

Short-Term X/Q Value for Unit 3 Intake (0 - 2 Hours)

$X/Q = [(1.0 \text{ m/sec}) (3.14159275...) (3.43\text{m}) (1.72 \text{ m}) + (2336.4 \text{ m}^2)/(1.65 + 2)]^{-1}$

X/Q = 1.52 E- 3 sec/m^3

Intermediate Period X/Q Value for Unit 3 Intake

Averaging Period	Occupancy Factor	Wind Speed Factor	Wind Direction Factor	X/Q (sec/m³)
0 - 8 hours	1	1	1	**1.52 E- 3**
8 - 24 hours	1	2.2/3.1 = 0.71	0.75 + 0.16/4 = 0.79-	**8.53 E- 4**
1 - 4 days	0.6	2.2/4.5 = 0.49	0.50 + 0.16/2 = 0.58	**2.59 E- 4**
4 - 30 days	0.4	2.2/6.7 = 0.33	0.16	**3.21 E- 5**

2. Unit 3 Turbine Bldg. Vent to Unit 3 Control Room Air Intake

s = 38.1 m (Ref. 7)
direction = 128 deg (Ref. 7)
d = 36 m (Ref. 7)
s/d = 38.1 m/36 m = 1.06 or 5 sectors (5 x 22.5° = 113° or 128° - 57° = 71° to 128° + 57° = 185°

$k = 3/(s/d)^{1.4} = 3/(1.06)^{1.4} = 2.76$
A = 1239 m² (Ref. 7)
σ_y @ 38.1m for F stability class = 1.93 m (Ref. 4)
σ_z @ 38.1m for F stability class = 1.03 m (Ref. 4)
u(5%) = 2.2 mph (1.0 m/sec) (Appendix 2. P. 11)
u(10%) = 2.9 mph (1.3 m/sec) (Appendix 2, p. 12)
u(20%) = 4.0 mph (1.8 m/sec) (Appendix 2, p. 13)
u(40%) = 6.5 mph (2.9 m/sec) (Appendix 2, p. 15)
F = 12,724/66,332 = 0.19 (Appendix 2, p. 18)

Short-Term X/Q Value for Unit 3 Intake (0 - 2 Hours)

$X/Q = [\ (1.0\ m/sec)\ (3.14159275...)\ (1.93m)\ (1.03\ m) + (1239\ m^2)/(2.76 + 2)\ ]^{-1}$

X/Q = 3.75 E- 3 sec/m³

Intermediate Period X/Q Value for Unit 3 Intake

Averaging Period	Occupancy Factor	Wind Speed Factor	Wind Direction Factor	X/Q (sec/m³)
0 - 8 hours	1	1	1	**3.75 E- 3**
8 - 24 hours	1	2.2/2.9 = 0.76	0.75 + 0.19/4 = 0.80	**2.28 E- 3**
1 - 4 days	0.6	2.2/4.0 = 0.55	0.50 + 0.19/2 = 0.60	**7.43 E- 4**
4 - 30 days	0.4	2.2/6.5 = 0.34	0.19	**9.69 E- 5**

CONCLUSIONS

The Unit 3 control room X/Qs are summarized in the body of the calculation. The Unit 3 control room air intake X/Q values are representative of the X/Q values for the center of the Unit 3 control room given that the distances and directions from the releases to these receptors are very similar. The Unit 3 control room air intake X/Q values are also conservative when applied to the Technical Support Center which is located at a farther distance from the releases than the control room.

REFERENCES

1. Murphy, K.G. and K.M. Campe., "Nuclear Power Plant Control Room Ventilation System Design for Meeting General Design Criterion 19". Presented at the 13th AEC Air Cleaning Conference, August, 1974.

2. Millstone onsite meteorological data for the period 1974 - 1981 provided by H. L. Chamberlain, Jr. of Northeast Utilities, April 28, 1998. The data are hourly values represented by one 15-minute average value per hour. See Attachment 2 for transmittal letter.

3. Stone& Webster Calculation No. 12179.12-ENVR-W223, dated 11/29/82.

4. U. S. Nuclear Regulatory Commission, Subroutine "POLYN", Horizontal and Vertical Dispersion Coefficients as a Function of Downwind Distance (see Attachment 1 for F-stability values).

5. EN-200, Version 0, Level 0. SWEC computer code "Distribution of Two Parameters". Output is provided in Appendices 1 and 2.

6. Stone & Webster Calculation No. 12179.12-ENVR-W210, 11/23/82.

7. Stone & Webster Calculation No. 12179.12-ENVR-W228, 12/02/82.

8. Stone & Webster Drawing Nos. 12179-EA-1B-15 and 12179-EB-39L-14.

ATTACHMENTS

1. Subroutine "POLYN", Horizontal and Vertical Dispersion Coefficients as a Function of Downwind Distance (F-stability).

2. Millstone onsite meteorological data transmittal letter from H. L. Chamberlain to J. Creamer, April 28, 1998.

APPENDICES (36 pages)

EN-200 Wind Speed/Wind Direction Distribution Computer Output:

Release/Receptor Combination	Wind Direction Range	Job No
1. Unit 3 Containment to Unit 3 Control Room Intake	63 - 153 degrees	02236
2. Unit 3 Turbine Bldg. to Unit 3 Control Room Intake	71 - 185 degrees	00106

DISPERSION COEFFICIENTS AS A FUNCTION OF DOWNWIND DISTANCE
PASQUILL STABILITY CLASS (F)

DOWNWIND DISTANCE (METERS)	STONE & WEBSTER SIGMA Y	STONE & WEBSTER SIGMA Z	POLYN (LONG) SIGMA Y	POLYN (LONG) SIGMA Z	POLYN (DESERT) SIGMA Y	POLYN (DESERT) SIGMA Z	POLYN (XOQDOQ) SIGMA Y	POLYN (XOQDOQ) SIGMA Z
10.	0.4739	0.1971	0.4014	0.1395	2.4230	1.6073	0.5776	0.3454
20.	0.8969	0.4437	0.8020	0.3243	4.5718	1.9981	1.0802	0.6072
30.	1.3054	0.6928	1.2022	0.5313	6.6281	2.2694	1.5578	0.8446
40.	1.7048	0.9383	1.6022	0.7540	8.6265	2.4839	2.0200	1.0675
50.	2.0977	1.1786	2.0021	0.9893	10.5829	2.6642	2.4710	1.2801
60.	2.4855	1.4134	2.4019	1.2351	12.5064	2.8212	2.9133	1.4849
70.	2.8691	1.6427	2.8015	1.4900	14.4031	2.9611	3.3485	1.6834
80.	3.2490	1.8667	3.2011	1.7530	16.2771	3.0879	3.7776	1.8767
90.	3.6259	2.0857	3.6006	2.0232	18.1315	3.2043	4.2016	2.0655
100.	4.0000	2.3000	4.0000	2.3000	19.9686	3.3120	4.6210	2.2472
110.	4.3716	2.5098	4.3994	2.5829	21.7903	3.4126	5.0364	2.4369
120.	4.7409	2.7153	4.7987	2.7365	23.5981	3.5072	5.4481	2.6223
130.	5.1082	2.9169	5.1979	2.8894	25.3933	3.5964	5.8565	2.8037
140.	5.4736	3.1146	5.5971	3.0416	27.1769	3.6811	6.2619	2.9815
150.	5.8372	3.3088	5.9963	3.1930	28.9499	3.7617	6.6645	3.1560
160.	6.1991	3.4995	6.3954	3.3437	30.7129	3.8387	7.0644	3.3275
170.	6.5595	3.6870	6.7945	3.4937	32.4667	3.9125	7.4620	3.4962
180.	6.9184	3.8714	7.1936	3.6430	34.2119	3.9834	7.8573	3.6624
190.	7.2759	4.0528	7.5926	3.7916	35.9489	4.0516	8.2505	3.8261
200.	7.6321	4.2314	7.9916	3.9395	37.6782	4.1174	8.6417	3.9877
210.	7.9871	4.4073	8.3905	4.0867	39.4003	4.1809	9.0309	4.1472
220.	8.3409	4.5806	8.7895	4.2332	41.1156	4.2424	9.4184	4.3047
230.	8.6935	4.7514	9.1884	4.3790	42.8242	4.3021	9.8042	4.4603
240.	9.0451	4.9198	9.5872	4.5241	44.5267	4.3599	10.1884	4.6143
250.	9.3956	5.0860	9.9861	4.6685	46.2232	4.4162	10.5710	4.7665
260.	9.7451	5.2499	10.3425	4.8123	47.9140	4.4709	10.9521	4.9172
270.	10.0936	5.4117	10.6986	4.9553	49.5994	4.5242	11.3319	5.0664
280.	10.4412	5.5714	11.0542	5.0977	51.2795	4.5762	11.7102	5.2141
290.	10.7878	5.7292	11.4095	5.2395	52.9546	4.6269	12.0873	5.3605
300.	11.1337	5.8850	11.7643	5.3805	54.6248	4.6764	12.4631	5.5056
310.	11.4786	6.0390	12.1188	5.5209	56.2904	4.7248	12.8377	5.6494
320.	11.8228	6.1912	12.4729	5.6607	57.9515	4.7721	13.2111	5.7920
330.	12.1661	6.3416	12.8266	5.7997	59.6082	4.8185	13.5833	5.9335
340.	12.5087	6.4903	13.1799	5.9382	61.2607	4.8638	13.9546	6.0738
350.	12.8505	6.6374	13.5328	6.0759	62.9091	4.9083	14.3247	6.2131
360.	13.1916	6.7830	13.8854	6.2131	64.5535	4.9519	14.6938	6.3513
370.	13.5320	6.9269	14.2375	6.3496	66.1942	4.9947	15.0619	6.4886
380.	13.8718	7.0694	14.5893	6.4854	67.8311	5.0367	15.4291	6.6249
390.	14.2107	7.2104	14.9407	6.6206	69.4644	5.0780	15.7953	6.7603
400.	14.5491	7.3500	15.2917	6.7552	71.0942	5.1185	16.1606	6.8947
410.	14.8868	7.4882	15.6424	6.8892	72.7205	5.1503	16.5250	7.0283
420.	15.2239	7.6251	15.9927	7.0225	74.3436	5.1975	16.8886	7.1611
430.	15.5604	7.7607	16.3426	7.1552	75.9634	5.2360	17.2513	7.2930
440.	15.8963	7.8949	16.6921	7.2872	77.5800	5.2740	17.6132	7.4242
450.	16.2316	8.0280	17.0413	7.4187	79.1935	5.3113	17.9743	7.5545
460.	16.5663	8.1598	17.3901	7.5496	80.8041	5.3481	18.3347	7.6841
470.	16.9005	8.2904	17.7385	7.6798	82.4117	5.3843	18.6943	7.8130
480.	17.2340	8.4199	18.0865	7.8094	84.0164	5.4201	19.0531	7.9412
490.	17.5670	8.5482	18.4342	7.9384	85.6184	5.4553	19.4112	8.0687

"POLYN" Dispersion Coefficients

03 763.7012
WM(B)-04
Rev-0

P.9

Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

P.10
03703.700
VM(B)-04
RW-0

April 28, 1998

Mr. Joseph Creamer
Stone and Webster
245 Summer Street, 7th Floor
Boston, MA 02210

Dear Mr. Creamer:

Millstone Nuclear Power Station
Meteorological Data

Accompanying this memo are four computer diskettes containing the meteorological data from 1974 through 1981, for your use in the Millstone Unit 3 X/Q calculations. Each diskette contains two years of data, as noted on the labels. The year of data is represented in each dataset name.

Each line of the datasets represents one hour of data. There is a nine character "time stamp" on each line; columns 1 and 2 are the year, columns 3 through 5 are the Julian day, and columns 6 through 9 are the time (military time, always on Eastern Standard Time). Columns 10 through 54 are, in order, the AT033, WS033, WD033, WS142, WD142, DT142, WS374, WD374, & DT374 (AT = air temperature, WS = wind speed, WD = wind direction, DT = delta-temperature, and numbers are instrument height). These are all in "F5.1" format. Missing data are represented by "999.0."

The data generated by our meteorological monitoring system consist of four fifteen-minute averages per hour. However, the attached datasets only contain one fifteen-minute average per hour. Historically, most of our analyses involving meteorological data, including Category 1 X/Q calculations, have been based on one fifteen-minute average representing an entire hour of data. It was found that this methodology introduced very small errors into the analyses results, compared to calculating an average of the available fifteen-minute averages for each hour.

If you have any questions, please call me, at (860) 665-3183.

Very truly yours,

H. L. Chamberlain, Jr.
Environmental Services

Enclosures

```
 1 //DISTRIB JOB (0031,3),'VIGEANT-SA',                          01-MAY-90JOB02236
   //  MSGLEVEL=2,MSGCLASS=A
   //* RJETRAN.VIG7988.DATA(DISTRIB)
   /*JOBPARM  ROOM=3                                                  JOB02236
 2 //METRDISK EXEC METRPROC
 9 //DISK DD DISP=SHR,DSN=ENVIRONM.METDATA.MILSTONE.YR7481
12 //SYSIN     DD *                GENERATED STATEMENT
13 //DISTRIB EXEC PGM=DISTRB00,REGION=284K,TIME=1
14 //STEPLIB DD DSN=ENVIRONM.DISTRIB,DISP=SHR
15 //GO.FT06F001 DD DCB=PRINT1,SYSOUT=*
16 //GO.FT10F001 DD UNIT=DISK,DISP=(OLD,DELETE),DSN=&SAMPLE
17 //GO.FT05F001  DD  *
18 //IMBLIST EXEC PGM=IMBLIST
19 //SYSPRINT DD SYSOUT=*
20 //SYSLIB DD DSN=ENVIRONM.DISTRIB,DISP=SHR
21 //SYSIN     DD *                GENERATED STATEMENT
```

```
STMT NO. MESSAGE
       2 IEFC001I PROCEDURE METRPROC HAS EXPANDED USING SYSTEM LIBRARY SYS1.USER.PROCLIB
ICH70001I VIG7988  LAST ACCESS AT 12:52:23 ON THURSDAY, MAY 7, 1998
IEF236I ALLOC. FOR DISTRIB METRPROC METRDISK
IGD103I SMS ALLOCATED TO DDNAME STEPLIB
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I JES2 ALLOCATED TO SYSPRINT
IGD103I SMS ALLOCATED TO DDNAME SYS010
IGD101I SMS ALLOCATED TO DDNAME (SYS011.,),
       DSN (SYS98127.T125351.RA000.DISTRIB.SAMPLE.H01    )
       STORCLAS (TEMP) MGMTCLAS (         ) DATACLAS (         )
       VOL SER NOS= VIO
IEF237I JES2 ALLOCATED TO FT05F001
IEF142I DISTRIB METRPROC METRDISK - STEP HAS EXECUTED - COND CODE 0000
IGD104I ENVIRONM.METOLOGY                          RETAINED,  DDNAME=STEPLIB
IEF285I   VIG7988.DISTRIB.JOB02236.D0000104.?        SYSOUT
IEF285I   VIG7988.DISTRIB.JOB02236.D0000105.?        SYSOUT
IGD104I ENVIRONM.METDATA.MILSTONE.YR7481           RETAINED,  DDNAME=SYS010
IGD106I SYS98127.T125351.RA000.DISTRIB.SAMPLE.H01  PASSED,    DDNAME=SYS011
IEF285I   VIG7988.DISTRIB.JOB02236.D0000101.?        SYSIN
.......................................................................................................................
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   12.53.51,  05/07/98                V09 .
.STEP NUMBER -    1, STEP NAME - METRPROC, PROGRAM NAME - METHR01 , RAN FROM  12.53.52 TO  12.53.55                          .
.ENDING CONDITION - RETURN CODE      0, REGION USED -    376K, PERFORMANCE GROUP -  20, SWAPS -       0                    .
.PAGEINS -       0, PAGEOUTS -       0, VIO PAGEINS -       0, VIO PAGEOUTS -       0                                      .
.CPU TIME -       .51 VECTOR TIME -       .00 SECS, EXCPS -(        352 NON-VIO,      1,169 VIO), CPU UNITS -      1.88 SECS   .
.SYSIN RECORDS -      3, OPENS - (      0 TAPE,      0 TEMP,      0 PERM),                                  COST =     $3.13     .
.EXCPS/DDNAME -                                 9/STEPLIB          343/SYS010          1,169/SYS011                          .
.......................................................................................................................
IEF373I STEP/METRPROC/START 1998127.1253
IEF374I STEP/METRPROC/STOP  1998127.1253 CPU    0MIN 00.47SEC SRB    0MIN 00.02SEC VIRT    88K SYS   288K EXT       4K SYS    9956K
IEF236I ALLOC. FOR DISTRIB DISTRIB
IGD103I SMS ALLOCATED TO DDNAME STEPLIB
IEF237I JES2 ALLOCATED TO FT06F001
IGD103I SMS ALLOCATED TO DDNAME FT10F001
IEF237I JES2 ALLOCATED TO FT05F001
IEF142I DISTRIB DISTRIB - STEP HAS EXECUTED - COND CODE 0001
IGD104I ENVIRONM.DISTRIB                           RETAINED,  DDNAME=STEPLIB
IEF285I   VIG7988.DISTRIB.JOB02236.D0000106.?        SYSOUT
IGD105I SYS98127.T125351.RA000.DISTRIB.SAMPLE.H01  DELETED,   DDNAME=FT10F001
IEF285I   VIG7988.DISTRIB.JOB02236.D0000102.?        SYSIN
.......................................................................................................................
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   12.53.51,  05/07/98                V09 .
.STEP NUMBER -    2, STEP NAME - DISTRIB , PROGRAM NAME - DISTRB00, RAN FROM  12.53.55 TO  12.54.00                          .
.ENDING CONDITION - RETURN CODE      1, REGION USED -    336K, PERFORMANCE GROUP -  20, SWAPS -       0                    .
.PAGEINS -       0, PAGEOUTS -       0, VIO PAGEINS -       0, VIO PAGEOUTS -       0                                      .
.CPU TIME -      2.35 VECTOR TIME -       .00 SECS, EXCPS -(          8 NON-VIO,      1,170 VIO), CPU UNITS -      3.41 SECS   .
.SYSIN RECORDS -     16, OPENS - (      0 TAPE,      0 TEMP,      0 PERM),                                  COST =     $5.68     .
.EXCPS/DDNAME -                                 8/STEPLIB          1,170/FT10F001                                            .
.......................................................................................................................
IEF373I STEP/DISTRIB /START 1998127.1253
IEF374I STEP/DISTRIB /STOP  1998127.1254 CPU    0MIN 02.34SEC SRB    0MIN 00.01SEC VIRT    64K SYS   272K EXT       4K SYS    9964K
IEF236I ALLOC. FOR DISTRIB IMBLIST
IEF237I JES2 ALLOCATED TO SYSPRINT
IGD103I SMS ALLOCATED TO DDNAME SYSLIB
IEF237I JES2 ALLOCATED TO SYSIN
IEF142I DISTRIB IMBLIST - STEP HAS EXECUTED - COND CODE 0008
IEF285I   VIG7988.DISTRIB.JOB02236.D0000107.?        SYSOUT
IGD104I ENVIRONM.DISTRIB                           RETAINED,  DDNAME=SYSLIB
```

```
IEF285I   VIG7988.DISTRIB.JOB02236.D0000103.?          SYSIN
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   12.53.51,  05/07/98                    V09 .
.STEP NUMBER -   3, STEP NAME - IMBLIST , PROGRAM NAME - IMBLIST , RAN FROM  12.54.00 TO  12.54.00                              .
.ENDING CONDITION - RETURN CODE      8, REGION USED -    424K, PERFORMANCE GROUP -  20, SWAPS -      0                        .
.PAGEINS -       0, PAGEOUTS -       0, VIO PAGEINS -       0, VIO PAGEOUTS -       0                                          .
.CPU TIME -       .03 VECTOR TIME -       .00 SECS, EXCPS -(          0 NON-VIO,          0 VIO), CPU UNITS -       .03 SECS  .
.SYSIN RECORDS -      1, OPENS - (      0 TAPE,      0 TEMP,      0 PERM),                                COST =     $0.05        .
IEF373I STEP/IMBLIST /START 1998127.1254
IEF374I STEP/IMBLIST /STOP  1998127.1254 CPU    0MIN 00.03SEC SRB    0MIN 00.00SEC VIRT   156K SYS   268K EXT       4K SYS    9868K
IEF375I  JOB/DISTRIB /START 1998127.1253
IEF376I  JOB/DISTRIB /STOP  1998127.1254 CPU    0MIN 02.84SEC SRB    0MIN 00.03SEC
.TOTAL CPU TIME -       2.89 SECS,   TOTAL VECTOR TIME -       .00 SECS,   TOTAL CPU UNITS -      5.32 SECS                   .
.TOTAL EXCPS -(        360 NON-VIO,      2,339 VIO)                                                                            .
.TOTAL JOB COST EXCLUDING PRINT CHARGES =      $8.86       CHARGED TO AUTH = 0031 , JO/HO = 022685067                          .
```

STONE & WEBSTER ENGINEERING CORPORATION

ENVIRONMENTAL ENGINEERING DIVISION

COMPUTER CODE IDENTIFICATION

PROGRAM NAME: SITE DATA RETREIVAL PROGAM

VERSION OF PROGRAM: 00

LINK EDIT DATE (JULIAN): 80.184

DATE OF RUN (MO/DAY/YR): 5/07/98

JOB NAME OF RUN: DISTRIB

LIBRARY REFERENCE NUMBER: EN-112

LEVEL OF PROGRAM: 01

LINK EDIT TIME (HRS.MINS.SECS): 14.21.36

TIME OF RUN (MILITARY): 1253

JOB02236

Rev-0

INPUT DATA TRACEBACK

```
DATA SUBMITTED ON DEVICE: 5

CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    1
    2
    2   111 112
    3  74001     81365
CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8

 * * * * * * * * * * * * * * * END OF INPUT ON DEVICE 5 * * * * * * * * * * * * * *
```

Rev-0

```
INPUT TO METOHER PROGRAM
      2
  111 112
 74001    81365

EOF OF INPUT DATA REACHED

NUMBER OF CARDS SELECTED =  5844

NUMBER OF DAYS SELECTED  =  2922
```

STONE & WEBSTER ENGINEERING CORPORATION

ENVIRONMENTAL ENGINEERING DIVISION

COMPUTER CODE IDENTIFICATION

PROGRAM NAME: FREQ OF OCCUR OF TWO PARAMETERS

VERSION OF PROGRAM: 00

LOAD MODULE: ENVIRONM.DISTRIB

LINK EDIT DATE (JULIAN): 81.182

DATE OF RUN (MO/DAY/YR): 5/07/98

JOB NAME OF RUN: DISTRIB

LIBRARY REFERENCE NUMBER: EN-200

LEVEL OF PROGRAM: 00

MEMBER (PGM): DISTRB00

LINK EDIT TIME (HRS.MINS.SECS): 12.11.26

TIME OF RUN (MILITARY): 1253

JOB02236

Rev-d

INPUT DATA TRACEBACK

```
DATA SUBMITTED ON DEVICE:  5

CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
   1      2
   2          MILLSTONE NUCLEAR POWER STATION 1974 - 1981 ONSITE DATA
   3          33-FT WIND DIRECTION VS. 33-FT WIND SPEED DISTRIBUTION
   4               WIND DIRECTION (DEGREES)                3      0  999
   5    62 153 360
   6  0                                                                          0
   7  WIND SPEED     (MPH)      (TENTHS)                  99      0 1000
   8     5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24
   9    25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40  41  42  43  44
  10    45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60  61  62  63  64

CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  11    65  66  67  68  69  70  71  72  73  74  75  76  77  78  79  80  81  82  83  84
  12    85  86  87  88  89  90  91  92  93  94  95  96  97  98  99 100 110 120 130 140
  13  1  999
  14     74
  15  7400181365    0    0
  16    112       0.0       0.0  111       0.0       0.0
CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8

      * * * * * * * * * * * * * END OF INPUT ON DEVICE   5 * * * * * * * * * * * * *
```

```
***** SITE WEATHER DATA *****

FIRST YEAR = 1974, JSYR = 74001, JNYR = 81365, JMO1 =  0, JMO2 =  0

 TOP PARAMETER CODE = 112     MULT =   1.00000     ADD =   0.0

SIDE PARAMETER CODE = 111     MULT =   1.00000     ADD =   0.0

FIRST DATE RETURNED = 74001

 LAST DATE RETURNED = 81365
```

HILLSTONE NUCLEAR POWER STATION 1974 - 1981 ONSITE DATA

33-FT WIND DIRECTION VS. 33-FT WIND SPEED DISTRIBUTION

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)		0- 62	63- 153	154- 360	361- 999	TOTAL
0 - 5		0	0	0	87	87
	PCT CLASS	0.0	0.0	0.0	100.00	100.00
	PCT TOTAL	0.0	0.0	0.0	0.13	0.13
6 - 6		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
7 - 7		0	0	0	123	123
	PCT CLASS	0.0	0.0	0.0	100.00	100.00
	PCT TOTAL	0.0	0.0	0.0	0.19	0.19
8 - 8		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
9 - 9		0	0	0	237	237
	PCT CLASS	0.0	0.0	0.0	100.00	100.00
	PCT TOTAL	0.0	0.0	0.0	0.36	0.36
10 - 10		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
11 - 11		0	0	0	367	367
	PCT CLASS	0.0	0.0	0.0	100.00	100.00
	PCT TOTAL	0.0	0.0	0.0	0.55	0.55
12 - 12		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
13 - 13		147	109	265	14	535
	PCT CLASS	27.48	20.37	49.53	2.62	100.00
	PCT TOTAL	0.22	0.16	0.40	0.02	0.81
14 - 14		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
15 - 15		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)		0- 62	63- 153	154- 360	361- 999	TOTAL
16 - 16		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
17 - 17		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
18 - 18		215	136	359	11	721
	PCT CLASS	29.82	18.86	49.79	1.53	100.00
	PCT TOTAL	0.32	0.21	0.54	0.02	1.09
19 - 19		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
20 - 20		241	139	428	13	821
	PCT CLASS	29.35	16.93	52.13	1.58	100.00
	PCT TOTAL	0.36	0.21	0.65	0.02	1.24
21 - 21		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
22 - 22		206	133	328	6	673
	PCT CLASS	30.61	19.76	48.74	0.89	100.00
	PCT TOTAL	0.31	0.20	0.49	0.01	1.01
23 - 23		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
24 - 24		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
25 - 25		269	165	553	11	998
	PCT CLASS	26.95	16.53	55.41	1.10	100.00
	PCT TOTAL	0.41	0.25	0.83	0.02	1.50
26 - 26		0	0	0	0	0
	PCT CLASS	0.0	0.0	0.0	0.0	0.0
	PCT TOTAL	0.0	0.0	0.0	0.0	0.0
27 - 27		0	0	1	0	1
	PCT CLASS	0.0	0.0	100.00	0.0	100.00
	PCT TOTAL	0.0	0.0	0.00	0.0	0.00

63' → 153'
Cumulative Hours = 517
Total Hours = 10,208

APPENDIX 1
Distribution Program Output
Unit 3 Containment Structure to Unit 3 Control Room Air Intake

P. 12
03703.7002
WM(B)-04

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
28 - 28	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
29 - 29	320	214	629	8	1171
PCT CLASS	27.33	18.27	53.71	0.68	100.00
PCT TOTAL	0.48	0.32	0.95	0.01	1.77
30 - 30	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
31 - 31	298	213	643	6	1160
PCT CLASS	25.69	18.36	55.43	0.52	100.00
PCT TOTAL	0.45	0.32	0.97	0.01	1.75
32 - 32	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
33 - 33	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
34 - 34	334	204	733	10	1281
PCT CLASS	26.07	15.93	57.22	0.78	100.00
PCT TOTAL	0.50	0.31	1.11	0.02	1.93
35 - 35	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
36 - 36	342	223	793	11	1369
PCT CLASS	24.98	16.29	57.93	0.80	100.00
PCT TOTAL	0.52	0.34	1.20	0.02	2.06
37 - 37	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
38 - 38	0	1	1	0	2
PCT CLASS	0.0	50.00	50.00	0.0	100.00
PCT TOTAL	0.0	0.00	0.00	0.0	0.00
39 - 39	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

63° → 153°
Cumulative Hours = 1,109
Total Hours = 10,208
1,109/10,208 = 10.9%

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
40 - 40	286	220	808	8	1322
PCT CLASS	21.63	16.64	61.12	0.61	100.00
PCT TOTAL	0.43	0.33	1.22	0.01	1.99
41 - 41	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
42 - 42	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
43 - 43	328	240	868	7	1443
PCT CLASS	22.73	16.63	60.15	0.49	100.00
PCT TOTAL	0.49	0.36	1.31	0.01	2.18
44 - 44	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
45 - 45	211	141	579	7	938
PCT CLASS	22.49	15.03	61.73	0.75	100.00
PCT TOTAL	0.32	0.21	0.87	0.01	1.41
46 - 46	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
47 - 47	331	211	918	9	1469
PCT CLASS	22.53	14.36	62.49	0.61	100.00
PCT TOTAL	0.50	0.32	1.38	0.01	2.21
48 - 48	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
49 - 49	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
50 - 50	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
51 - 51	297	245	870	9	1421
PCT CLASS	20.90	17.24	61.22	0.63	100.00
PCT TOTAL	0.45	0.37	1.31	0.01	2.14

63-153°
Cumulative Hours = 2,138
Total Hours = 10,208
2,138/10,208 = 20.9%

MW-0

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
52 - 52	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
53 - 53	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
54 - 54	266	242	905	6	1419
PCT CLASS	18.75	17.05	63.78	0.42	100.00
PCT TOTAL	0.40	0.36	1.36	0.01	2.14
55 - 55	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
56 - 56	282	243	901	13	1439
PCT CLASS	19.60	16.89	62.61	0.90	100.00
PCT TOTAL	0.43	0.37	1.36	0.02	2.17
57 - 57	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
58 - 58	290	244	902	5	1441
PCT CLASS	20.12	16.93	62.60	0.35	100.00
PCT TOTAL	0.44	0.37	1.36	0.01	2.17
59 - 59	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
60 - 60	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
61 - 61	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
62 - 62	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
63 - 63	257	235	915	6	1413
PCT CLASS	18.19	16.63	64.76	0.42	100.00
PCT TOTAL	0.39	0.35	1.38	0.01	2.13

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
64 - 64	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
65 - 65	263	236	971	8	1478
PCT CLASS	17.79	15.97	65.70	0.54	100.00
PCT TOTAL	0.40	0.36	1.46	0.01	2.23
66 - 66	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
67 - 67	187	171	651	5	1014
PCT CLASS	18.44	16.86	64.20	0.49	100.00
PCT TOTAL	0.28	0.26	0.98	0.01	1.53
68 - 68	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
69 - 69	248	255	977	10	1490
PCT CLASS	16.64	17.11	65.57	0.67	100.00
PCT TOTAL	0.37	0.38	1.47	0.02	2.25
70 - 70	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
71 - 71	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
72 - 72	0	2	0	0	2
PCT CLASS	0.0	100.00	0.0	0.0	100.00
PCT TOTAL	0.0	0.00	0.0	0.0	0.00
73 - 73	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
74 - 74	240	245	970	10	1465
PCT CLASS	16.38	16.72	66.21	0.68	100.00
PCT TOTAL	0.36	0.37	1.46	0.02	2.21
75 - 75	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

63°-153°
Cumulative Hours = 3,965
Total Hours = 10,206
3,965/10,206 = 38.8%

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
76 - 76	226	229	969	8	1432
PCT CLASS	15.78	15.99	67.67	0.56	100.00
PCT TOTAL	0.34	0.35	1.46	0.01	2.16
77 - 77	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
78 - 78	244	213	885	8	1350
PCT CLASS	18.07	15.78	65.56	0.59	100.00
PCT TOTAL	0.37	0.32	1.33	0.01	2.04
79 - 79	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
80 - 80	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
81 - 81	189	228	912	8	1337
PCT CLASS	14.14	17.05	68.21	0.60	100.00
PCT TOTAL	0.28	0.34	1.37	0.01	2.02
82 - 82	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
83 - 83	0	2	2	0	4
PCT CLASS	0.0	50.00	50.00	0.0	100.00
PCT TOTAL	0.0	0.00	0.00	0.0	0.01
84 - 84	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
85 - 85	204	234	900	6	1344
PCT CLASS	15.18	17.41	66.96	0.45	100.00
PCT TOTAL	0.31	0.35	1.36	0.01	2.03
86 - 86	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
87 - 87	202	221	943	4	1370
PCT CLASS	14.74	16.13	68.83	0.29	100.00
PCT TOTAL	0.30	0.33	1.42	0.01	2.07

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
88 - 88	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
89 - 89	140	145	636	5	926
PCT CLASS	15.12	15.66	68.68	0.54	100.00
PCT TOTAL	0.21	0.22	0.96	0.01	1.40
90 - 90	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
91 - 91	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
92 - 92	182	177	871	5	1235
PCT CLASS	14.74	14.33	70.53	0.40	100.00
PCT TOTAL	0.27	0.27	1.31	0.01	1.86
93 - 93	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
94 - 94	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
95 - 95	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
96 - 96	193	201	880	6	1280
PCT CLASS	15.08	15.70	68.75	0.47	100.00
PCT TOTAL	0.29	0.30	1.33	0.01	1.93
97 - 97	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
98 - 98	184	191	937	7	1319
PCT CLASS	13.95	14.48	71.04	0.53	100.00
PCT TOTAL	0.28	0.29	1.41	0.01	1.99
99 - 99	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 62	63- 153	154- 360	361- 999	TOTAL
100 - 100	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
101 - 110	614	643	3411	14	4682
PCT CLASS	13.11	13.73	72.85	0.30	100.00
PCT TOTAL	0.93	0.97	5.14	0.02	7.06
111 - 120	352	385	2128	8	2873
PCT CLASS	12.25	13.40	74.07	0.28	100.00
PCT TOTAL	0.53	0.58	3.21	0.01	4.33
121 - 130	373	517	2822	20	3732
PCT CLASS	9.99	13.85	75.62	0.54	100.00
PCT TOTAL	0.56	0.78	4.25	0.03	5.63
131 -1000	863	2355	12791	139	16148
PCT CLASS	5.34	14.58	79.21	0.86	100.00
PCT TOTAL	1.30	3.55	19.28	0.21	24.34
TOTAL	9824	10208	45055	1245	66332
PCT CLASS	14.81	15.39	67.92	1.88	100.00
PCT TOTAL	14.81	15.39	67.92	1.88	100.00

← Total Valid Observations

Total Hours for 63° → 153°

```
 1 //DISTRIB JOB (0031,3),'VIGEANT-SA',                          01-MAY-98JOB00106
   //  MSGLEVEL=2,MSGCLASS=A
   //* RJETRAN.VIG7988.DATA(DISTRIB)
   /*JOBPARM  ROOM=3                                                  JOB00106
 2 //METRDISK EXEC METRPROC
 9 //DISK DD DISP=SHR,DSN=ENVIRONM.METDATA.MILSTONE.YR7481
12 //SYSIN     DD *                GENERATED STATEMENT
13 //DISTRIB EXEC PGM=DISTRB00,REGION=284K,TIME=1
14 //STEPLIB DD DSN=ENVIRONM.DISTRIB,DISP=SHR
15 //GO.FT06F001 DD DCB=PRINT1,SYSOUT=*
16 //GO.FT10F001 DD UNIT=DISK,DISP=(OLD,DELETE),DSN=&SAMPLE
17 //GO.FT05F001  DD  *
18 //IMBLIST EXEC PGM=IMBLIST
19 //SYSPRINT DD SYSOUT=*
20 //SYSLIB DD DSN=ENVIRONM.DISTRIB,DISP=SHR
21 //SYSIN     DD *                GENERATED STATEMENT
```

Rev 0

```
 STMT NO. MESSAGE
        2 IEFC001I PROCEDURE METRPROC WAS EXPANDED USING SYSTEM LIBRARY SYS1.USER.PROCLIB
ICH70001I VIG7988  LAST ACCESS AT 15:43:00 ON FRIDAY, MAY 1, 1998
IEF236I ALLOC. FOR DISTRIB METRPROC METRDISK
IGD103I SMS ALLOCATED TO DDNAME STEPLIB
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I JES2 ALLOCATED TO SYSPRINT
IGD103I SMS ALLOCATED TO DDNAME SYS010
IGD101I SMS ALLOCATED TO DDNAME (SYS011  ),
        DSN (SYS98121.T154342.RA000.DISTRIB.SAMPLE.H01    )
        STORCLAS (TEMP) MGMTCLAS (         ) DATACLAS (         )
        VOL SER NOS= VIO
IEF237I JES2 ALLOCATED TO FT05F001
IEF142I DISTRIB METRPROC METRDISK - STEP WAS EXECUTED - COND CODE 0000
IGD104I ENVIRONM.METOLOGY                          RETAINED,  DDNAME=STEPLIB
IEF285I   VIG7988.DISTRIB.JOB00106.D0000104.?        SYSOUT
IEF285I   VIG7988.DISTRIB.JOB00106.D0000105.?        SYSOUT
IGD104I ENVIRONM.METDATA.MILSTONE.YR7481           RETAINED,  DDNAME=SYS010
IGD106I SYS98121.T154342.RA000.DISTRIB.SAMPLE.H01  PASSED,    DDNAME=SYS011
IEF285I   VIG7988.DISTRIB.JOB00106.D0000101.?        SYSIN
.......................................................................................................................
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   15.43.41,  05/01/98                V09 .
.STEP NUMBER -    1, STEP NAME - METRPROC, PROGRAM NAME - METWR01 , RAN FROM  15.43.43 TO  15.43.45                          .
.ENDING CONDITION - RETURN CODE      0, REGION USED -    380K, PERFORMANCE GROUP -  20, SWAPS -      0                      .
.PAGEINS -       0, PAGEOUTS -       0, VIO PAGEINS -       0, VIO PAGEOUTS -       0                                       .
.CPU TIME -       .49 VECTOR TIME -       .00 SECS, EXCPS -(       352 NON-VIO,      1,169 VIO), CPU UNITS -      1.86 SECS  .
.SYSIN RECORDS -      3, OPENS - (      0 TAPE,      0 TEMP,      0 PERM),                                  COST =     $3.10   .
.EXCPS/DDNAME -                              9/STEPLIB          343/SYS010          1,169/SYS011                            .
.......................................................................................................................
IEF373I STEP/METRPROC/START 1998121.1543
IEF374I STEP/METRPROC/STOP  1998121.1543 CPU    0MIN 00.46SEC SRB    0MIN 00.02SEC VIRT    88K SYS   292K EXT       4K SYS'  10132K
IEF236I ALLOC. FOR DISTRIB DISTRIB
IGD103I SMS ALLOCATED TO DDNAME STEPLIB
IEF237I JES2 ALLOCATED TO FT06F001
IGD103I SMS ALLOCATED TO DDNAME FT10F001
IEF237I JES2 ALLOCATED TO FT05F001
IEF142I DISTRIB DISTRIB - STEP WAS EXECUTED - COND CODE 0001
IGD104I ENVIRONM.DISTRIB                           RETAINED,  DDNAME=STEPLIB
IEF285I   VIG7988.DISTRIB.JOB00106.D0000106.?        SYSOUT
IGD105I SYS98121.T154342.RA000.DISTRIB.SAMPLE.H01  DELETED,   DDNAME=FT10F001
IEF285I   VIG7988.DISTRIB.JOB00106.D0000102.?        SYSIN
.......................................................................................................................
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   15.43.41,  05/01/98                V09 .
.STEP NUMBER -    2, STEP NAME - DISTRIB , PROGRAM NAME - DISTRB00, RAN FROM  15.43.45 TO  15.43.49                          .
.ENDING CONDITION - RETURN CODE      1, REGION USED -    340K, PERFORMANCE GROUP -  20, SWAPS -      0                      .
.PAGEINS -       0, PAGEOUTS -       0, VIO PAGEINS -       0, VIO PAGEOUTS -       0                                       .
.CPU TIME -      2.34 VECTOR TIME -       .00 SECS, EXCPS -(         8 NON-VIO,      1,170 VIO), CPU UNITS -      3.40 SECS  .
.SYSIN RECORDS -     16, OPENS - (      0 TAPE,      0 TEMP,      0 PERM),                                  COST =     $5.67   .
.EXCPS/DDNAME -                              8/STEPLIB          1,170/FT10F001                                              .
.......................................................................................................................
IEF373I STEP/DISTRIB /START 1998121.1543
IEF374I STEP/DISTRIB /STOP  1998121.1543 CPU    0MIN 02.33SEC SRB    0MIN 00.01SEC VIRT    64K SYS   276K EXT       4K SYS   10140K
IEF236I ALLOC. FOR DISTRIB IMBLIST
IEF237I JES2 ALLOCATED TO SYSPRINT
IGD103I SMS ALLOCATED TO DDNAME SYSLIB
IEF237I JES2 ALLOCATED TO SYSIN
IEF142I DISTRIB IMBLIST - STEP WAS EXECUTED - COND CODE 0008
IEF285I   VIG7988.DISTRIB.JOB00106.D0000107.?        SYSOUT
IGD104I ENVIRONM.DISTRIB                           RETAINED,  DDNAME=SYSLIB
```

```
IEF285I   VIG7988.DISTRIB.JOB00106.D0000103.?          SYSIN
.JOB - DISTRIB , SUBMITTER - VIGEANT-SA          , FLOOR - 3    , READER TIME, DATE -   15.43.41,  05/01/98                    V09 .
.STEP NUMBER -   3, STEP NAME - IMBLIST , PROGRAM NAME - IMBLIST , RAN FROM  15.43.49 TO  15.43.49                              .
.ENDING CONDITION - RETURN CODE      8, REGION USED -    428K, PERFORMANCE GROUP -  20, SHAPS -      0                        .
.PAGEINS -      0, PAGEOUTS -      0, VIO PAGEINS -      0, VIO PAGEOUTS -      0                                                 .
.CPU TIME -      .03 VECTOR TIME -      .00 SECS, EXCPS -(          0 NON-VIO,          0 VIO), CPU UNITS -       .03 SECS    .
.SYSIN RECORDS -     1, OPENS - (     0 TAPE,     0 TEMP,     0 PERM),                                COST =     $0.05          .
IEF373I STEP/IMBLIST /START 1998121.1543
IEF374I STEP/IMBLIST /STOP  1998121.1543 CPU    0MIN 00.03SEC SRB    0MIN 00.00SEC VIRT   156K SYS   272K EXT       4K SYS   10044K
IEF375I  JOB/DISTRIB /START 1998121.1543
IEF376I  JOB/DISTRIB /STOP  1998121.1543 CPU    0MIN 02.82SEC SRB    0MIN 00.03SEC
.TOTAL CPU TIME -      2.86 SECS,   TOTAL VECTOR TIME -       .00 SECS,   TOTAL CPU UNITS -      5.29 SECS                    .
.TOTAL EXCPS -(       360 NON-VIO,     2,339 VIO)                                                                               .
.TOTAL JOB COST EXCLUDING PRINT CHARGES =      $8.82       CHARGED TO AUTH = 0031 , JO/HO = 022685067                           .
```

STONE & WEBSTER ENGINEERING CORPORATION

ENVIRONMENTAL ENGINEERING DIVISION

COMPUTER CODE IDENTIFICATION

PROGRAM NAME: SITE DATA RETREIVAL PROGAM

VERSION OF PROGRAM: 00

LINK EDIT DATE (JULIAN): 80.184

DATE OF RUN (MO/DAY/YR): 5/01/98

JOB NAME OF RUN: DISTRIB

LIBRARY REFERENCE NUMBER: EN-112

LEVEL OF PROGRAM: 01

LINK EDIT TIME (HRS.MINS.SECS): 14.21.36

TIME OF RUN (MILITARY): 1543

JOB00106

INPUT DATA TRACEBACK

DATA SUBMITTED ON DEVICE: 5

```
CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
   1       2
   2   111 112
   3  74001     81365
CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8

      * * * * * * * * * * * * * END OF INPUT ON DEVICE 5 * * * * * * * * * * * * *
```

Rev-0

```
INPUT TO METOWER PROGRAM
      0
  111 112
 74001    81365

EOF OF INPUT DATA REACHED

NUMBER OF CARDS SELECTED =  5844

NUMBER OF DAYS SELECTED  =  2922
```

STONE & WEBSTER ENGINEERING CORPORATION

ENVIRONMENTAL ENGINEERING DIVISION

COMPUTER CODE IDENTIFICATION

PROGRAM NAME: FREQ OF OCCUR OF TWO PARAMETERS

VERSION OF PROGRAM: 00

LOAD MODULE: ENVIRONM.DISTRIB

LINK EDIT DATE (JULIAN): 81.182

DATE OF RUN (MO/DAY/YR): 5/01/98

JOB NAME OF RUN: DISTRIB

LIBRARY REFERENCE NUMBER: EN-200

LEVEL OF PROGRAM: 00

MEMBER (PGM): DISTRB00

LINK EDIT TIME (HRS.MINS.SECS): 12.11.26

TIME OF RUN (MILITARY): 1543

JOB00006

INPUT DATA TRACEBACK

```
DATA SUBMITTED ON DEVICE:  5

CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
   1      2
   2          MILLSTONE NUCLEAR POWER STATION 1974 - 1981 ONSITE DATA
   3          33-FT WIND DIRECTION VS. 33-FT WIND SPEED DISTRIBUTION
   4              WIND DIRECTION (DEGREES)                3      0  999
   5    70 185 360
   6  0                                                                          0
   7  WIND SPEED      (MPH)      (TENTHS)                 99      0 1000
   8     5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24
   9    25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40  41  42  43  44
  10    45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60  61  62  63  64

CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
  11    65  66  67  68  69  70  71  72  73  74  75  76  77  78  79  80  81  82  83  84
  12    85  86  87  88  89  90  91  92  93  94  95  96  97  98  99 100 110 120 130 140
  13  1  999
  14     74
  15  7400181365    0    0
  16    112       0.0       0.0  111       0.0       0.0
CARD# ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8

      * * * * * * * * * * * * * END OF INPUT ON DEVICE   5 * * * * * * * * * * * * *
```

```
----- SITE WEATHER DATA *****

FIRST YEAR = 1974, JSYR = 74001, JNYR = 81365, JMO1 =  0, JMO2 =  0

TOP PARAMETER CODE = 112     MULT =  1.00000     ADD =   0.0

SIDE PARAMETER CODE = 111    MULT =  1.00000     ADD =   0.0

FIRST DATE RETURNED = 74001

LAST DATE RETURNED = 81365
```

MILLSTONE NUCLEAR POWER STATION 1974 - 1981 ONSITE DATA

33-FT WIND DIRECTION VS. 33-FT WIND SPEED DISTRIBUTION

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
0 - 5	0	0	0	87	87
PCT CLASS	0.0	0.0	0.0	100.00	100.00
PCT TOTAL	0.0	0.0	0.0	0.13	0.13
6 - 6	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
7 - 7	0	0	0	123	123
PCT CLASS	0.0	0.0	0.0	100.00	100.00
PCT TOTAL	0.0	0.0	0.0	0.19	0.19
8 - 8	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
9 - 9	0	0	0	237	237
PCT CLASS	0.0	0.0	0.0	100.00	100.00
PCT TOTAL	0.0	0.0	0.0	0.36	0.36
10 - 10	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
11 - 11	0	0	0	367	367
PCT CLASS	0.0	0.0	0.0	100.00	100.00
PCT TOTAL	0.0	0.0	0.0	0.55	0.55
12 - 12	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
13 - 13	165	123	233	14	535
PCT CLASS	30.84	22.99	43.55	2.62	100.00
PCT TOTAL	0.25	0.19	0.35	0.02	0.81
14 - 14	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
15 - 15	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

APPENDIX 2
Distribution Program Output
Unit 3 Turbine Bldg. Vent to Unit 3 Control Room Air Intake

P. 11
03703.7002
WM(B)-04

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
16 - 16	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
17 - 17	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
18 - 18	237	162	311	11	721
PCT CLASS	32.87	22.47	43.13	1.53	100.00
PCT TOTAL	0.36	0.24	0.47	0.02	1.09
19 - 19	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
20 - 20	258	201	349	13	821
PCT CLASS	31.43	24.48	42.51	1.58	100.00
PCT TOTAL	0.39	0.30	0.53	0.02	1.24
21 - 21	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
22 - 22	220	175	272	6	673
PCT CLASS	32.69	26.00	40.42	0.89	100.00
PCT TOTAL	0.33	0.26	0.41	0.01	1.01
23 - 23	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
24 - 24	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
25 - 25	292	232	463	11	998
PCT CLASS	29.26	23.25	46.39	1.10	100.00
PCT TOTAL	0.44	0.35	0.70	0.02	1.50
26 - 26	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
27 - 27	0	0	1	0	1
PCT CLASS	0.0	0.0	100.00	0.0	100.00
PCT TOTAL	0.0	0.0	0.00	0.0	0.00

71° → 185°
← Cumulative Hours = 661
Total Hours = 12,724
661 / 12,724 = 5.2%

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
26 - 28	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
29 - 29	346	303	514	8	1171
PCT CLASS	29.55	25.88	43.89	0.68	100.00
PCT TOTAL	0.52	0.46	0.77	0.01	1.77
30 - 30	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
31 - 31	315	309	530	6	1160
PCT CLASS	27.16	26.64	45.69	0.52	100.00
PCT TOTAL	0.47	0.47	0.80	0.01	1.75
32 - 32	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
33 - 33	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
34 - 34	352	309	610	10	1281
PCT CLASS	27.48	24.12	47.62	0.78	100.00
PCT TOTAL	0.53	0.47	0.92	0.02	1.93
35 - 35	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
36 - 36	366	298	694	11	1369
PCT CLASS	26.73	21.77	50.69	0.80	100.00
PCT TOTAL	0.55	0.45	1.05	0.02	2.06
37 - 37	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
38 - 38	0	1	1	0	2
PCT CLASS	0.0	50.00	50.00	0.0	100.00
PCT TOTAL	0.0	0.00	0.00	0.0	0.00
39 - 39	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

71° → 185°
Cumulative Hours = 1,196
Total Hours = 12,724
1,196 / 12,724 = 9.4%

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Distribution Program Output
Unit 3 Turbine Bldg. Vent to Unit 3 Control Room Air Intake

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WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
40 - 40	304	309	701	8	1322
PCT CLASS	23.00	23.37	53.03	0.61	100.00
PCT TOTAL	0.46	0.47	1.06	0.01	1.99
41 - 41	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
42 - 42	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
43 - 43	347	334	755	7	1443
PCT CLASS	24.05	23.15	52.32	0.49	100.00
PCT TOTAL	0.52	0.50	1.14	0.01	2.18
44 - 44	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
45 - 45	219	209	503	7	938
PCT CLASS	23.35	22.28	53.62	0.75	100.00
PCT TOTAL	0.33	0.32	0.76	0.01	1.41
46 - 46	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
47 - 47	343	303	814	9	1469
PCT CLASS	23.35	20.63	55.41	0.61	100.00
PCT TOTAL	0.52	0.46	1.23	0.01	2.21
48 - 48	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
49 - 49	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
50 - 50	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
51 - 51	312	338	762	9	1421
PCT CLASS	21.96	23.79	53.62	0.63	100.00
PCT TOTAL	0.47	0.51	1.15	0.01	2.14

71° → 185°
Cumulative Hours = 2,422
Total Hours = 12,724
2,422 / 12,724 = 19.0%

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Unit 3 Turbine Bldg. Vent to Unit 3 Control Room Air Intake

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WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
52 - 52	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
53 - 53	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
54 - 54	274	333	806	6	1419
PCT CLASS	19.31	23.47	56.80	0.42	100.00
PCT TOTAL	0.41	0.50	1.22	0.01	2.14
55 - 55	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
56 - 56	298	309	819	13	1439
PCT CLASS	20.71	21.47	56.91	0.90	100.00
PCT TOTAL	0.45	0.47	1.23	0.02	2.17
57 - 57	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
58 - 58	309	325	802	5	1441
PCT CLASS	21.44	22.55	55.66	0.35	100.00
PCT TOTAL	0.47	0.49	1.21	0.01	2.17
59 - 59	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
60 - 60	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
61 - 61	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
62 - 62	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
63 - 63	269	313	825	6	1413
PCT CLASS	19.04	22.15	58.39	0.42	100.00
PCT TOTAL	0.41	0.47	1.24	0.01	2.13

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WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
64 - 64	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
65 - 65	274	308	888	8	1478
PCT CLASS	18.54	20.84	60.08	0.54	100.00
PCT TOTAL	0.41	0.46	1.34	0.01	2.23
66 - 66	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
67 - 67	194	210	605	5	1014
PCT CLASS	19.13	20.71	59.66	0.49	100.00
PCT TOTAL	0.29	0.32	0.91	0.01	1.53
68 - 68	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
69 - 69	263	317	900	10	1490
PCT CLASS	17.65	21.28	60.40	0.67	100.00
PCT TOTAL	0.40	0.48	1.36	0.02	2.25
70 - 70	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
71 - 71	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
72 - 72	0	2	0	0	2
PCT CLASS	0.0	100.00	0.0	0.0	100.00
PCT TOTAL	0.0	0.00	0.0	0.0	0.00
73 - 73	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
74 - 74	256	301	898	10	1465
PCT CLASS	17.47	20.55	61.30	0.68	100.00
PCT TOTAL	0.39	0.45	1.35	0.02	2.21
75 - 75	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

71° → 185°
Cumulative Hours = 5,194
Total Hours = 12,724
5,194/12,724 = 40.8 %

Nur 1

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
76 - 76	248	259	917	8	1432
PCT CLASS	17.32	18.09	64.04	0.56	100.00
PCT TOTAL	0.37	0.39	1.38	0.01	2.16
77 - 77	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
78 - 78	263	266	813	8	1350
PCT CLASS	19.48	19.70	60.22	0.59	100.00
PCT TOTAL	0.40	0.40	1.23	0.01	2.04
79 - 79	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
80 - 80	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
81 - 81	204	269	856	8	1337
PCT CLASS	15.26	20.12	64.02	0.60	100.00
PCT TOTAL	0.31	0.41	1.29	0.01	2.02
82 - 82	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
83 - 83	0	2	2	0	4
PCT CLASS	0.0	50.00	50.00	0.0	100.00
PCT TOTAL	0.0	0.00	0.00	0.0	0.01
84 - 84	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
85 - 85	213	282	843	6	1344
PCT CLASS	15.85	20.98	62.72	0.45	100.00
PCT TOTAL	0.32	0.43	1.27	0.01	2.03
86 - 86	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
87 - 87	224	255	887	4	1370
PCT CLASS	16.35	18.61	64.74	0.29	100.00
PCT TOTAL	0.34	0.38	1.34	0.01	2.07

APPENDIX 2
Distribution Program Output
Unit 3 Turbine Bldg. Vent to Unit 3 Control Room Air Intake

WIND SPEED (MPH) (TENTHS)	WIND DIRECTION (DEGREES) 0- 70	71- 185	186- 360	361- 999	TOTAL
88 - 88	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
89 - 89	150	175	596	5	926
PCT CLASS	16.20	18.90	64.36	0.54	100.00
PCT TOTAL	0.23	0.26	0.90	0.01	1.40
90 - 90	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
91 - 91	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
92 - 92	190	213	827	5	1235
PCT CLASS	15.38	17.25	66.96	0.40	100.00
PCT TOTAL	0.29	0.32	1.25	0.01	1.86
93 - 93	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
94 - 94	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
95 - 95	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
96 - 96	205	236	833	6	1280
PCT CLASS	16.02	18.44	65.08	0.47	100.00
PCT TOTAL	0.31	0.36	1.26	0.01	1.93
97 - 97	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
98 - 98	198	223	891	7	1319
PCT CLASS	15.01	16.91	67.55	0.53	100.00
PCT TOTAL	0.30	0.34	1.34	0.01	1.99
99 - 99	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0

WIND DIRECTION (DEGREES)

WIND SPEED (MPH) (TENTHS)	0- 70	71- 185	186- 360	361- 999	TOTAL
100 - 100	0	0	0	0	0
PCT CLASS	0.0	0.0	0.0	0.0	0.0
PCT TOTAL	0.0	0.0	0.0	0.0	0.0
101 - 110	654	767	3247	14	4682
PCT CLASS	13.96	16.38	69.35	0.30	100.00
PCT TOTAL	0.99	1.16	4.90	0.02	7.06
111 - 120	382	439	2044	8	2873
PCT CLASS	13.30	15.28	71.15	0.28	100.00
PCT TOTAL	0.58	0.66	3.08	0.01	4.33
121 - 130	421	569	2722	20	3732
PCT CLASS	11.28	15.25	72.94	0.54	100.00
PCT TOTAL	0.63	0.86	4.10	0.03	5.63
131 -1000	975	2745	12289	139	16148
PCT CLASS	6.04	17.00	76.10	0.86	100.00
PCT TOTAL	1.47	4.14	18.53	0.21	24.34
TOTAL	10540	12724	41823	1245	66332
PCT CLASS	15.89	19.18	63.05	1.88	100.00
PCT TOTAL	15.89	19.18	63.05	1.88	100.00

Total Valid Observations (All Sectors)

Total Hours of Winds Between 71°→185°

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Distribution Program Output
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Docket No. 50-423
B18209

Attachment 8

Millstone Nuclear Power Station, Unit No. 3

Containment Spray Zone Description and Data, and
Identification of Mixing Zones Within Containment

Millstone Unit 3
Containment Spray Zone Description and Data

Zone	Zone Description	Sprayed Volume (ft^3)	Unsprayed Volume (ft^3)	Sprayed Volume Percentage
I	Above Operating Floor (Excluding Anulus)	724274	716703	50.26%
II	Below Operating Floor, but above 3' - 8" Level (Excluding Anulus)	71097	837926	7.82%
III	Containment Anulus Above the Operating Deck			
I, II, III plus Balance of Contianment	Entire Containment	795371	1554629	33.85%