VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

September 13, 2005

10CFR50.92

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 05-601
NL&OS/GDM R0
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATIONS CHANGE
REDEFINITION OF EXCLUSION AREA BOUNDARY

Pursuant to 10 CFR 50.90, Virginia Electric and Power Company (Dominion) requests an amendment to Facility Operating License Numbers DPR-32 and DPR-37 in the form of changes to the Technical Specifications (TS) for Surry Power Station Units 1 and 2, respectively. The proposed change redefines the exclusion area boundary (EAB) as the site boundary in Technical Specification 5.1, Site. The redefined EAB will significantly reduce the design basis accident Atmospheric Dispersion Factor (X/Q), which will consequently reduce the calculated EAB dose consequences for Updated Safety Analysis Report Chapter 14 accidents in future reanalyses. A discussion of the proposed TS change is provided in Attachment 1. The marked-up and proposed TS pages are provided in Attachments 2 and 3, respectively.

We have evaluated the proposed TS change and have determined that it does not involve a significant hazards consideration as defined in 10 CFR 50.92. The basis for our determination is provided in Attachment 1. We have also determined that operation with the proposed change will not result in any significant increase in the amount of effluents that may be released offsite and no significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change.

The proposed change has been reviewed and approved by the Station Nuclear Safety and Operating Committee, as well as the Management Safety Review Committee.

Approval of the proposed change is requested by July 31, 2006, with a 30-day implementation period following issuance of the TS amendments.

If you have any questions or require additional information regarding this TS change request, please contact Mr. Gary Miller at (804) 273-2771.

Very truly yours,

L. N. Hartz
Vice President – Nuclear Engineering

Attachments:
1. Discussion of Change
2. Marked-up Technical Specifications Pages
3. Proposed Technical Specifications Pages

Commitments made in this letter: None

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ATTACHMENT 1

Discussion of Change

Virginia Electric and Power Company
(Dominion)
Surry Power Station Units 1 and 2

DISCUSSION OF CHANGE

Introduction

Pursuant to 10CFR50.90, Virginia Electric and Power Company (Dominion) requests a change to the Technical Specifications for Surry Power Station Units 1 and 2. The proposed change redefines the exclusion area boundary (EAB) as the site boundary in Technical Specification 5.1, Site. This redefined EAB will significantly reduce the design basis accident Atmospheric Dispersion Factor (X/Q). Reducing the X/Q will, in turn, reduce the calculated EAB dose consequences for the UFSAR Chapter 14 accidents in future reanalyses.

The proposed change has been reviewed with respect to 10CFR50.92, and it has been determined that no significant hazards consideration exists. In addition, it has been determined that the change qualifies for categorical exclusion from an environmental assessment as set forth in 10CFR51.22(c)(9); therefore, no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change. This proposed change to Technical Specification 5.1 has no adverse safety impact and will result in an increase in margin to the dose consequence limits for future accident reanalyses.

Background Information/Licensing Basis

Dominion described the restricted area and the EAB in Preliminary Safety Analysis Report Amendment 22 of the Surry license application (Reference 1). The restricted area was described as the area enclosed by the site boundary. Dominion owns and controls access to the restricted area, exposure of individuals in this area is within the limits established in 10CFR20, and the boundary is clearly posted and monitored to ensure that unauthorized personnel will not transgress the boundary. In Figure S2.1-1 of Reference 1, the property line defines the restricted area thus establishing the site boundary as being equivalent to the property line. Reference 1 also describes the EAB as bounded by a 1650 ft. radius circle centered at the reactor containment building No. 1. This reference also states that this circle size was determined by the shortest distance to the site boundary and is sufficient, in conjunction with the plant design, to ensure that the dose limitations of 10CFR100 are met. This EAB definition was also used in the original Surry Technical Specifications dated March 17, 1972.

Currently, UFSAR Section 2.1.2.1 and Technical Specification 5.1 indicate that the minimum distance from a reactor centerline to the site EAB, as defined in 10CFR100, is 1650 ft. The UFSAR indicates that this distance is based on the distance from the Unit 1 containment centerline to the site boundary to the north, which is sufficient, in conjunction with the plant design, to ensure that the dose limitations of 10CFR50.67 are met.

Based on the Technical Specification 5.1 minimum distance to the EAB, 1650 ft. was the distance used to calculate the Atmospheric Dispersion Factor (X/Q) of 4.61E-03 sec/m^3 that was used in evaluating dose consequences at the EAB in the Surry Alternative Source Term (AST) license amendment request (References 2 - 9). This X/Q was based on the Regulatory Guide 1.145 methodology using the PAVAN code with meteorological data from 1994 – 1998. Use of the 4.61E-03 sec/m^3 EAB X/Q resulted in a LOCA EAB dose consequence of 24.01 Rem total effective dose equivalent (TEDE) versus a limit of 25 Rem TEDE and a Fuel Handling Accident (FHA) EAB dose consequence of 6.27 Rem TEDE versus a limit of 6.3 Rem TEDE. Reference 10 documents NRC approval of the Surry AST design basis, including the EAB X/Q.

Redefinition of the EAB as the Site Boundary

10CFR100 includes no requirement for the EAB to be a circle, but does require the licensee to have authority to determine all activities including exclusion or removal of personnel and property from the area. Surry Power Station controls access to all areas within the site boundary.

Distances from the various release points on the site to the site boundary in the sixteen wind sectors that are used in the PAVAN calculation of X/Q values vary considerably. In general, a shorter distance between the source release point and the receptor results in a higher X/Q. For future dose analyses that may be accommodated under 10CFR50.59, it is proposed that the source-to-receptor distances in Table 1 be used to define the EAB by wind sector, which will result in the lower EAB X/Q values listed in Table 2. The distance values in Table 1 are the minimum distances from the potential source release points for the LOCA and FHA to the site boundary in each wind sector.

Figure 1 is the site map that was used to determine the minimum distances from the potential source release points to the closest point on the site boundary within each wind sector. Figure 1 also shows the wind sector definition lines that were used to determine the sector dependent distances to the site boundary from the centerline of the Unit 1 Containment. Similarly, the wind sector definition lines were centered over the approximate location of each of the remaining source points in Table 1 in order to determine the minimum sector dependent distances to the site boundary from each source point.

Table 1: Surry EAB Source to Receptor Distance* Table with Sectors Defined with Respect to Each Source Location

Sector		Unit 1 Containment		Unit 2 Containment		Ventilation Vent No. 2		East Auxiliary Building Louvers		West Auxiliary Building Louvers	
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)
N	348.75 - 11.25	1623	495	1689	515	1696	517	1739	530	1715	523
NNE	11.25 – 33.75	1623	495	1689	515	1696	517	1739	530	1715	523
NE	33.75 – 56.25	1760	536	1832	558	1839	561	1894	577	1860	567
ENE	56.25 – 78.75	2254	687	2031	619	2104	641	2142	653	2227	679
E	78.75 – 101.25	2524	769	3529	1076	3565	1087	3649	1112	3652	1113
ESE	101.25 – 123.75	6617	2017	6438	1962	6545	1995	6501	1982	6579	2005
SE	123.75 – 146.25	4596	1401	4430	1350	4443	1354	4418	1347	4455	1358
SSE	146.25 – 168.75	2953	900	3101	945	3027	923	2957	901	2902	885
S	168.75 – 191.25	2086	636	2199	670	2134	650	2087	636	2052	625
SSW	191.25 – 213.75	1823	556	1915	584	1866	569	1817	554	1789	545
SW	213.75 – 236.25	1823	556	1915	584	1866	569	1817	554	1789	545
WSW	236.25 – 258.75	1860	567	1960	597	1910	582	1860	567	1832	558
W	258.75 – 281.25	1983	604	2299	701	2222	677	2210	674	2092	638
WNW	281.25 – 303.75	1845	562	2140	652	2062	628	2056	627	1949	594
NW	303.75 – 326.25	1845	562	2140	652	2062	628	2056	627	1949	594
NNW	326.25 – 348.75	1844	562	1840	561	1875	572	1936	590	1932	589

* These distances are approximations, based on a computer-aided design (CAD) drawing. The distance of 1623 ft used in the N and NNE sectors is bounding and represents a best approximation for the defined minimum distance in Technical Specification 5.1 of 1650 ft.

These new EAB distances from Table 1 were used to modify the PAVAN input decks submitted for the AST amendment in Reference 6. Table 2 contains the results of PAVAN runs completed using the 5 sets of source-to-receptor distances from Table 1 and joint frequency distribution (JFD) tables based on meteorological data from 1994-1998. Tables 3 and 4 contain the JFDs and PAVAN input decks, respectively, that were used in the calculation of new X/Q values for the EAB. The JFDs in Table 3 are identical to the JFDs for the 1994 – 1998 meteorological data previously submitted for the AST amendment (Attachment 2 to Reference 6). The PAVAN input decks in Table 4 have been revised from those used with the AST amendment to reflect the distances of Table 1. Table 5 contains the PAVAN output that results from the execution of the Table 4 input.

Based on Regulatory Guide 1.145, the X/Q value used in an accident analysis should be the limiting 0.5% sector-dependent X/Q or the 5% overall site X/Q values, whichever is higher. The PAVAN results in Table 2 are the limiting 0-2 hour 0.5% sector-dependent X/Q values, which were higher than the 5% overall site X/Q. The worst-case 0-2 hour X/Q (1.79E-03) at the redefined EAB occurred in the north direction as a result of release from the Unit 1 Containment.

Table 2: PAVAN Results
(Limiting 0.5% Sector-dependent X/Q Values -
1994-98 Meteorological Data)

Source Location	Receptor	Downwind Direction/Sector	Downwind Distance (m)	0-2 hr (sec/m^3)
Unit 1 Containment	EAB	N/348.75-11.25	495	1.79E-03
Unit 2 Containment	EAB	N/348.75-11.25	515	1.67E-03
Ventilation Vent No. 2	EAB	N/348.75-11.25	517	1.66E-03
West Auxiliary Building Louvers	EAB	N/348.75-11.25	523	1.63E-03
East Auxiliary Building Louvers	EAB	N/348.75-11.25	530	1.59E-03

Not shown in Tables 1 and 2 are source locations and X/Q values for the steam generator power operated relief valves (PORVs) and safety valves. These source release locations would be used for the Steam Generator Tube Rupture, Main Steam Line Break, and Locked Rotor Accident. As discussed above, the limiting EAB X/Q value among the 5 sources analyzed is the maximum 0.5% sector-dependent X/Q in the north direction from the Unit 1 containment. The occurrence of the maximum 0.5% sector-dependent X/Q value in the north direction is primarily due to the relatively short source-to-receptor distance.

Figure 2 is a simplified site plan that was originally included in Reference 8, which was updated to include the steam generator PORVs and safety valves. As shown on Figure 2, the steam generator PORVs and safety valves are located against the southern side of the Unit 1 and Unit 2 containments. Based on inspection of the site geometry shown in Figures 1 and 2 and the results of Table 5 (PAVAN output), atmospheric dispersion from the PORVs and safety valves to the site boundary would be bounded by the Unit 1 Containment source location. Hence, the value 1.79E-03 sec/m^3 would be appropriate to use as an EAB X/Q for all accidents that have source locations that are bounded by the dispersion from the Unit 1 Containment.

It is intended that the highest valued 0-2 hour X/Q in Table 2 (1.79E-03 sec/m^3) will be used in future EAB dose assessments as an approved change to an element of a methodology. Prior NRC review and approval of this change in the EAB X/Q is required, in accordance with 10CFR50.59, because the new value will result in a

significant increase in margin to the 10CFR50.67 offsite dose limit by changing an element of the methodology. The dose consequence accident analyses were not submitted with this change because the EAB results listed in the UFSAR are conservative with respect to consequences that would be calculated using this new EAB X/Q.

Description of Proposed TS Change

Details of the specific revisions are provided in the following paragraphs.

The last two sentences of Technical Specification 5.1 currently state:

> *The minimum distance from a reactor centerline to the site exclusion boundary as defined in 10CFR100 is 1,650 ft. This is the distance for Unit 1, which is controlling. A map of the site is shown in TS Figure 5.1-1.*

The last two sentences of Technical Specification 5.1 are revised as follows:

> The site exclusion area boundary is defined by the site boundary line shown on the site map in TS Figure 5.1-1. The minimum distance from a reactor centerline to the site exclusion area boundary as defined in 10CFR100 is 1,650 ft. This is the distance for Unit 1, which is controlling.

No Significant Hazards Consideration

The proposed change redefines the exclusion area boundary (EAB) as the site boundary. This redefined EAB will significantly reduce the design basis accident (DBA) Atmospheric Dispersion Factor (X/Q). Reducing the X/Q will, in turn, reduce the calculated EAB dose consequences for the UFSAR Chapter 14 accidents in future reanalyses. The proposed change does not involve a significant hazards consideration because operation of Surry Units 1 and 2 in accordance with this change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed redefinition of the EAB will significantly reduce the design basis accident X/Q, which will result in an increase in margin to the dose consequence limits for future accident analyses. The dose consequence accident analyses were not reanalyzed with this change because the EAB results currently documented in the UFSAR are conservative with respect to consequences that would be calculated using this redefined EAB. The EAB redefinition is not an initiator of any accident previously evaluated and has no impact on radiation levels, airborne activity, DBA source terms, or releases. Therefore, the proposed change does not involve a

significant increase in either the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously identified.

   The proposed change involves no physical changes to the plant, nor is there any impact on the design or operation of the plant. There is also no impact on any equipment relied upon to mitigate an accident. Therefore, the proposed change does not introduce any new failures that could create the possibility of a new or different kind of accident from any accident previously identified.

3. Involve a significant reduction in a margin of safety.

   The proposed change does not alter the condition or performance of equipment or systems used in accident mitigation or assumed in any accident analysis. The EAB redefinition has no impact on radiation levels, airborne activity, DBA source terms, or releases. Therefore, this proposed change does not involve a significant reduction in the margin of safety. However, the proposed redefinition of the EAB will significantly reduce the design basis accident X/Q, which will result in an increase in margin to the dose consequence limits for future accident analyses.

Environmental Assessment

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

(i) The amendment involves no significant hazards consideration.

As described above, the proposed change to Technical Specification 5.1 to redefine the EAB does not involve a significant hazards consideration.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed redefinition of the EAB does not involve the installation of any new equipment or the modification of any equipment that may affect the types or amounts of effluents that may be released offsite. Therefore, there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed redefinition of the EAB does not involve plant physical changes that affect radiation exposure. Radiation levels, airborne activity, design basis accident

sources terms, and releases are not impacted by the proposed change. Therefore, there is no significant increase in individual or cumulative occupational radiation exposure.

Based on the above assessment, Dominion concludes that the proposed change meets the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.22 relative to requiring a specific environmental assessment or impact statement by the Commission.

Conclusion

Changing the EAB boundary so that it is equivalent to the site boundary will not impact radiation levels, airborne activity, DBA source terms, or releases. The effectiveness of the Emergency Plan is not affected by changing the EAB definition from 1650 ft to being equivalent to the site boundary. 10CFR100 requires that the licensee have authority to determine all activities including exclusion or removal of personnel and property from the area and limit dose to members of the public. The redefined EAB meets these regulatory requirements.

Additionally, by redefining the EAB as the site boundary, the proposed changes to Technical Specification 5.1 would allow for a significant reduction of the EAB X/Q. Reducing the EAB X/Q will, in turn, reduce the calculated EAB dose consequences for Chapter 14 accidents in future reanalyses.

This proposed change to Technical Specification 5.1 has no adverse safety impact and will result in an increase in margin to the dose consequence limits for future accident reanalyses.

References

1. Letter Amending the Surry License Application, "Preliminary Safety Analysis Report - Amendment No. 22", May 28, 1971.

2. Letter Serial Number 00-123, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Proposed Technical Specifications and Bases Change - Alternate Source Term Implementation", April 11, 2000.

3. Letter Serial Number 00-123A, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", August 28, 2000.

4. Letter Serial Number 00-123B, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", November 20, 2000.

5. Letter Serial Number 01-037, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", April 11, 2001.

6. Letter Serial Number 01-037A, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Response to Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", July 31, 2001.

7. Letter Serial Number 01-037B"Virginia Electric and Power Company Surry Power Station Units 1 and 2, Response to Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", November 19, 2001.

8. Letter Serial Number 01-037C, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Response to Request for Additional Information: Alternate Source Term - Proposed Technical Specification Change", December 20, 2001.

9. Letter Serial Number 01-037D, "Virginia Electric and Power Company Surry Power Station Units 1 and 2, Technical Specification Basis Change - Alternate Source Term Implementation", February 8, 2002.

10. Letter Serial Number 02-170, "Surry Units 1 and 2 - Issuance of Amendments Re: Alternative Source Term (TAC NOS. MA8649 and MA8650)", March 8, 2002.

Figure 1: Surry Site Map with Wind Sectors

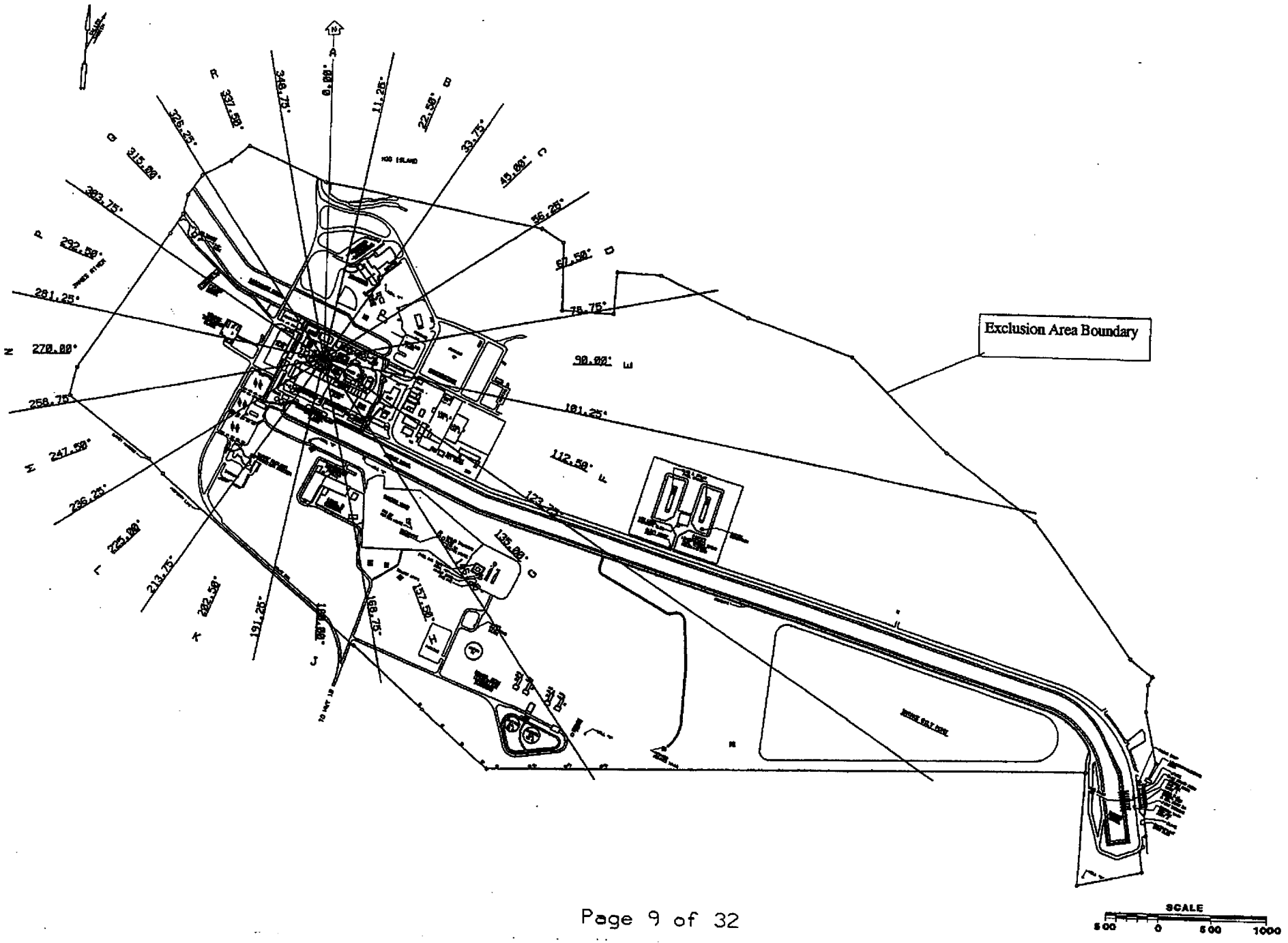
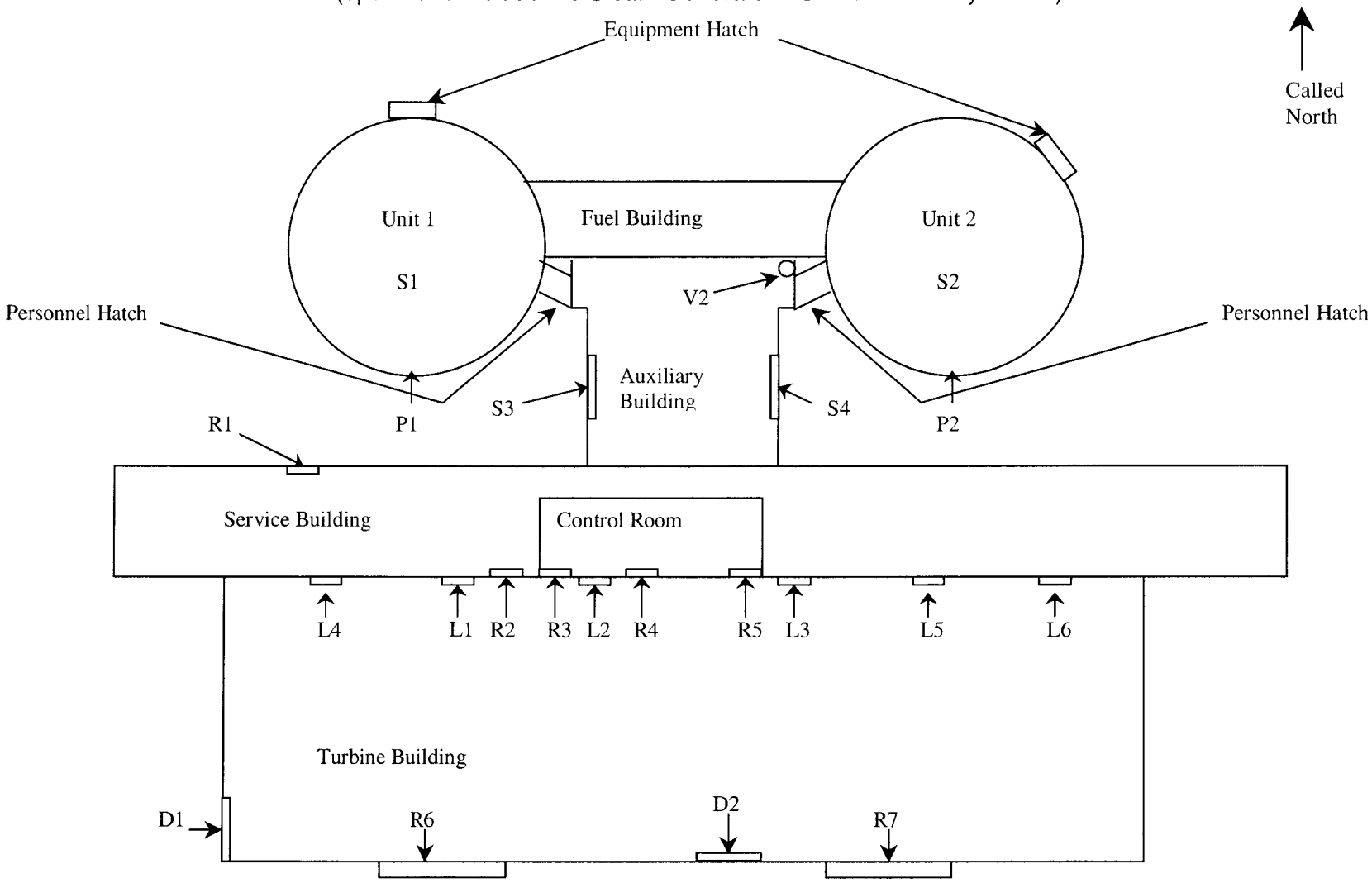


Figure 2: Simplified Surry Site Plan Including Potential Source and Onsite Receptor Locations
(updated to include the Steam Generator PORVs and safety valves)



Legend

Source		Receptor	
S1	Unit 1 Containment	D1, D2	Rollup Doors 1 and 2
S2	Unit 2 Containment	L1 through L6	Turbine Building Fresh Air Louvers 1 through 6
S3	Auxiliary Building West Louver	R1	Control Room Normal Intake
S4	Auxiliary Building East Louver	R2 through R5	Control Room Emergency Intakes
V2	Ventilation Vent No. 2	R6, R7	Turbine Building Fresh Air Intakes
P1	Unit 1 Steam Generator PORVs and Safeties		
P2	Unit 2 Steam Generator PORVs and Safeties		

Table 3: Joint Frequency Distribution Tables for 1994-1998 Meteorological Data with Standard M/S Bins

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 1

STABILITY CLASS A

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
A) 0.0-0.50	0	0	0	0	1	0	0	0	1
B) 0.51-.75	0	0	0	0	0	0	0	1	3
C) 0.76-1.0	0	1	3	0	1	2	1	3	15
D) 1.1-1.50	9	7	8	18	23	34	50	26	328
E) 1.51-2.0	41	42	65	95	163	186	158	35	1400
F) 2.1-3.00	131	173	170	197	352	379	159	32	3335
G) 3.1-5.00	64	89	58	95	319	10	3	0	2046
H) 5.1-7.00	0	0	3	2	24	0	0	0	130
I) 7.1-10.0	0	0	0	0	0	0	0	0	3
TOTAL	245	312	307	407	883	611	371	97	7261

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
A) 0.0-0.50	0	0	0	0	0	0	0	0	1
B) 0.51-.75	1	0	0	1	0	0	0	0	3
C) 0.76-1.0	1	1	0	0	0	2	0	0	15
D) 1.1-1.50	23	17	7	13	32	39	18	4	328
E) 1.51-2.0	35	49	38	43	135	174	95	46	1400
F) 2.1-3.00	41	128	260	157	229	407	371	149	3335
G) 3.1-5.00	6	69	370	156	98	208	300	201	2046
H) 5.1-7.00	1	1	20	8	6	1	49	15	130
I) 7.1-10.0	0	0	0	0	0	0	2	1	3
TOTAL	108	265	695	378	500	831	835	416	7261

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 2

STABILITY CLASS B

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
B) 0.51-.75	1	0	0	0	0	1	1	0	3
C) 0.76-1.0	0	0	0	1	2	3	6	0	16
D) 1.1-1.50	7	8	10	6	19	22	22	10	187
E) 1.51-2.0	13	21	19	20	48	47	19	7	367
F) 2.1-3.00	35	35	44	51	86	42	9	2	565
G) 3.1-5.00	13	10	11	12	53	4	0	3	328
H) 5.1-7.00	0	0	0	0	1	0	0	0	26
I) 7.1-10.0	0	0	0	0	2	0	0	0	3
TOTAL	69	74	84	90	211	119	57	22	1495

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
B) 0.51-.75	0	0	0	0	0	0	0	0	3
C) 0.76-1.0	2	0	1	0	0	1	0	0	16
D) 1.1-1.50	5	9	9	7	16	21	6	10	187
E) 1.51-2.0	8	20	11	18	34	34	29	19	367
F) 2.1-3.00	9	19	70	32	26	28	37	40	565
G) 3.1-5.00	2	17	62	45	14	9	31	42	328
H) 5.1-7.00	0	0	4	3	2	0	13	3	26
I) 7.1-10.0	0	0	0	0	0	0	1	0	3
TOTAL	26	65	157	105	92	93	117	114	1495

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 3

STABILITY CLASS C

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
B) 0.51-.75	0	1	0	0	0	0	0	0	8
C) 0.76-1.0	3	1	1	1	2	4	5	6	49
D) 1.1-1.50	15	6	14	19	19	28	25	13	252
E) 1.51-2.0	29	33	29	27	45	39	19	7	385
F) 2.1-3.00	57	32	40	57	83	36	9	4	583
G) 3.1-5.00	20	15	23	13	62	0	0	2	374
H) 5.1-7.00	0	0	0	1	6	0	0	0	36
I) 7.1-10.0	0	0	0	0	1	0	0	0	1
TOTAL	124	88	107	118	218	107	58	32	1688

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
B) 0.51-.75	2	1	0	1	1	1	1	0	8
C) 0.76-1.0	3	0	3	4	8	5	1	2	49
D) 1.1-1.50	5	9	11	17	19	15	17	20	252
E) 1.51-2.0	6	14	17	11	23	38	28	20	385
F) 2.1-3.00	5	21	61	43	29	26	45	35	583
G) 3.1-5.00	5	13	62	43	16	12	36	52	374
H) 5.1-7.00	0	0	2	8	3	1	8	7	36
I) 7.1-10.0	0	0	0	0	0	0	0	0	1
TOTAL	26	58	156	127	99	98	136	136	1688

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 4

STABILITY CLASS D

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
A) 0.0-0.50	6	4	3	2	2	5	8	4	61
B) 0.51-.75	3	6	7	6	5	12	16	12	143
C) 0.76-1.0	21	21	39	23	27	33	59	36	500
D) 1.1-1.50	105	94	89	96	89	115	128	56	1477
E) 1.51-2.0	167	164	149	114	178	161	93	33	1860
F) 2.1-3.00	440	277	257	248	435	122	64	26	3489
G) 3.1-5.00	184	111	104	116	427	7	9	19	2458
H) 5.1-7.00	1	3	5	13	53	0	0	2	239
I) 7.1-10.0	0	0	0	0	5	0	0	0	10
TOTAL	927	680	653	618	1221	455	377	188	10237

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
A) 0.0-0.50	4	5	1	3	4	3	4	3	61
B) 0.51-.75	8	10	15	10	12	6	6	9	143
C) 0.76-1.0	27	28	33	36	37	40	22	18	500
D) 1.1-1.50	51	61	93	99	107	91	87	116	1477
E) 1.51-2.0	44	82	103	102	104	97	109	160	1860
F) 2.1-3.00	67	139	318	258	112	99	206	421	3489
G) 3.1-5.00	30	119	263	201	72	45	279	472	2458
H) 5.1-7.00	1	0	15	15	2	5	72	52	239
I) 7.1-10.0	0	0	0	1	0	0	4	0	10
TOTAL	232	444	841	725	450	386	789	1251	10237

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 5

STABILITY CLASS E

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
A) 0.0-0.50	9	5	11	9	19	31	56	52	315
B) 0.51-.75	21	14	19	14	19	40	74	54	465
C) 0.76-1.0	61	44	57	48	51	154	187	134	1260
D) 1.1-1.50	199	113	163	104	118	357	280	220	2823
E) 1.51-2.0	212	75	151	125	158	224	171	111	2843
F) 2.1-3.00	191	103	81	102	242	105	121	61	3686
G) 3.1-5.00	58	24	15	18	147	4	15	13	1311
H) 5.1-7.00	0	1	11	9	19	1	0	0	88
I) 7.1-10.0	0	0	0	1	9	1	0	0	11
J) 10.1-13.	0	0	0	0	3	0	0	0	3
TOTAL	751	379	508	430	785	917	904	645	12805

(CONTINUED)

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 6

STABILITY CLASS E

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
A) 0.0-0.50	24	14	17	22	14	12	10	10	315
B) 0.51-.75	43	29	33	42	20	18	11	14	465
C) 0.76-1.0	100	80	94	93	55	21	28	53	1260
D) 1.1-1.50	176	191	222	263	123	66	77	151	2823
E) 1.51-2.0	157	253	366	330	151	51	83	225	2843
F) 2.1-3.00	149	388	783	489	190	87	219	375	3686
G) 3.1-5.00	50	157	213	180	62	40	155	160	1311
H) 5.1-7.00	1	0	7	10	2	3	14	10	88
I) 7.1-10.0	0	0	0	0	0	0	0	0	11
J) 10.1-13.	0	0	0	0	0	0	0	0	3
TOTAL	700	1112	1735	1429	617	298	597	998	12805

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 7

STABILITY CLASS F

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
A) 0.0-0.50	11	19	28	27	40	68	128	100	671
B) 0.51-.75	17	20	18	16	24	55	149	78	661
C) 0.76-1.0	52	34	33	24	31	128	167	110	1089
D) 1.1-1.50	51	24	24	8	35	73	73	49	1069
E) 1.51-2.0	7	2	5	1	18	9	8	6	401
F) 2.1-3.00	1	1	0	1	3	0	2	0	123
G) 3.1-5.00	1	0	0	0	0	0	0	0	5
TOTAL	140	100	108	77	151	333	527	343	4019

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED SECTOR

FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
A) 0.0-0.50	58	32	31	24	36	27	22	20	671
B) 0.51-.75	59	50	32	37	32	26	20	28	661
C) 0.76-1.0	93	99	91	67	53	37	32	38	1089
D) 1.1-1.50	79	143	155	167	53	24	47	64	1069
E) 1.51-2.0	6	58	119	99	26	9	15	13	401
F) 2.1-3.00	0	8	56	31	7	0	8	5	123
G) 3.1-5.00	0	0	1	3	0	0	0	0	5
TOTAL	295	390	485	428	207	123	144	168	4019

1 1994-98 SURRY MET DATA 10:38 WEDNESDAY, FEBRUARY 28, 2001 8

STABILITY CLASS G

TABLE OF WINSPEED BY SECTOR

WINSPEED FREQUENCY	A) N	B) NNE	C) NE	D) ENE	E) E	F) ESE	G) SE	H) SSE	TOTAL
A) 0.0-0.50	160	74	84	74	154	166	254	249	3215
B) 0.51-.75	33	13	11	13	18	44	106	63	907
C) 0.76-1.0	31	12	3	11	15	25	36	23	753
D) 1.1-1.50	10	1	1	3	2	5	2	1	349
E) 1.51-2.0	1	0	0	1	0	1	0	0	34
F) 2.1-3.00	0	0	0	1	0	0	0	0	3
TOTAL	235	100	99	103	189	241	398	336	5261

(CONTINUED)

TABLE OF WINSPEED BY SECTOR

WINSPEED FREQUENCY	I) S	J) SSW	K) SW	L) WSW	M) W	N) WNW	O) NW	P) NNW	TOTAL
A) 0.0-0.50	261	194	198	179	253	332	377	206	3215
B) 0.51-.75	91	87	90	78	83	77	61	39	907
C) 0.76-1.0	47	145	155	75	59	40	38	38	753
D) 1.1-1.50	9	82	134	69	5	6	13	6	349
E) 1.51-2.0	1	1	14	10	1	3	0	1	34
F) 2.1-3.00	0	0	0	0	1	0	0	1	3
TOTAL	409	509	591	411	402	458	489	291	5261

Table 4: PAVAN input files

Unit 1 Containment Release:

```
0100 00001
Surry (new EAB)      1994-98 JFD          Ground-Level Release
  9.6 m              9.6 m - 44.9 m
Onsite
Unit 1 Reactor Release
   10     0
 960.  35.5   10.   9.6
    0     0     0     0     0     0     0
    0     0     0     0     1     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     1     1     0     0     1     0     0     0     0
    0     1     3     0     1     2     1     3     1     1     0     0     0     2     0     0
    9     7     8    18    23    34    50    26    23    17     7    13    32    39    18     4
   41    42    65    95   163   186   158    35    35    49    38    43   135   174    95    46
  131   173   170   197   352   379   159    32    41   128   260   157   229   407   371   149
   64    89    58    95   319    10     3     0     6    69   370   156    98   208   300   201
    0     0     3     2    24     0     0     0     1     1    20     8     6     1    49    15
    0     0     0     0     0     0     0     0     0     0     0     0     0     0     2     1
    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     0     0     1     1     0     0     0     0     0     0     0     0     0
    0     0     0     1     2     3     6     0     2     0     1     0     0     1     0     0
    7     8    10     6    19    22    22    10     5     9     9     7    16    21     6    10
   13    21    19    20    48    47    19     7     8    20    11    18    34    34    29    19
   35    35    44    51    86    42     9     2     9    19    70    32    26    28    37    40
   13    10    11    12    53     4     0     3     2    17    62    45    14     9    31    42
    0     0     0     0     1     0     0     0     0     0     4     3     2     0    13     3
    0     0     0     0     2     0     0     0     0     0     0     0     0     0     1     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     0     0     0     0     2     1     0     1     1     1     1     0
    3     1     1     1     2     4     5     6     3     0     3     4     8     5     1     2
   15     6    14    19    19    28    25    13     5     9    11    17    19    15    17    20
   29    33    29    27    45    39    19     7     6    14    17    11    23    38    28    20
   57    32    40    57    83    36     9     4     5    21    61    43    29    26    45    35
   20    15    23    13    62     0     0     2     5    13    62    43    16    12    36    52
    0     0     0     1     6     0     0     0     0     0     2     8     3     1     8     7
    0     0     0     0     1     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
    6     4     3     2     2     5     8     4     4     5     1     3     4     3     4     3
    3     6     7     6     5    12    16    12     8    10    15    10    12     6     6     9
   21    21    39    23    27    33    59    36    27    28    33    36    37    40    22    18
  105    94    89    96    89   115   128    56    51    61    93    99   107    91    87   116
  167   164   149   114   178   161    93    33    44    82   103   102   104    97   109   160
  440   277   257   248   435   122    64    26    67   139   318   258   112    99   206   421
  184   111   104   116   427     7     9    19    30   119   263   201    72    45   279   472
    1     3     5    13    53     0     0     2     1     0    15    15     2     5    72    52
    0     0     0     0     5     0     0     0     0     0     0     1     0     0     4     0
```

Table 4: PAVAN Input files, **Continued**

Unit 1 Containment Release, Continued:

```
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  9    5   11    9   19   31   56   52   24   14   17   22   14   12   10   10
 21   14   19   14   19   40   74   54   43   29   33   42   20   18   11   14
 61   44   57   48   51  154  187  134  100   80   94   93   55   21   28   53
199  113  163  104  118  357  280  220  176  191  222  263  123   66   77  151
212   75  151  125  158  224  171  111  157  253  366  330  151   51   83  225
191  103   81  102  242  105  121   61  149  388  783  489  190   87  219  375
 58   24   15   18  147    4   15   13   50  157  213  180   62   40  155  160
  0    1   11    9   19    1    0    0    1    0    7   10    2    3   14   10
  0    0    0    1    9    1    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    3    0    0    0    0    0    0    0    0    0    0    0
 11   19   28   27   40   68  128  100   58   32   31   24   36   27   22   20
 17   20   18   16   24   55  149   78   59   50   32   37   32   26   20   28
 52   34   33   24   31  128  167  110   93   99   91   67   53   37   32   38
 51   24   24    8   35   73   73   49   79  143  155  167   53   24   47   64
  7    2    5    1   18    9    8    6    6   58  119   99   26    9   15   13
  1    1    0    1    3    0    2    0    0    8   56   31    7    0    8    5
  1    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    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
160   74   84   74  154  166  254  249  261  194  198  179  253  332  377  206
 33   13   11   13   18   44  106   63   91   87   90   78   83   77   61   39
 31   12    3   11   15   25   36   23   47  145  155   75   59   40   38   38
 10    1    1    3    2    5    2    1    9   82  134   69    5    6   13    6
  1    0    0    1    0    1    0    0    1    1   14   10    1    3    0    1
  0    0    0    1    0    0    0    0    0    0    0    0    1    0    0    1
  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
 -1. 0.50 0.75  1.0  1.5  2.0  3.0  5.0  7.0 10.0 13.0
636. 556. 556. 567. 604. 562. 562. 562. 495. 495. 536. 687. 769.2017.1401. 900.
4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.4827.
```

Table 4: PAVAN Input files, **Continued**

Unit 2 Containment Release:

```
0100 00001
Surry (new EAB)      1994-98 JFD          Ground-Level Release
  9.6 m              9.6 m - 44.9 m
Onsite
Unit 2 Reactor Release
   10     0
 960.  35.5   10.   9.6
    0     0     0     0     0     0     0
    0     0     0     0     1     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     1     1     0     0     1     0     0     0     0
    0     1     3     0     1     2     1     3     1     1     0     0     0     2     0     0
    9     7     8    18    23    34    50    26    23    17     7    13    32    39    18     4
   41    42    65    95   163   186   158    35    35    49    38    43   135   174    95    46
  131   173   170   197   352   379   159    32    41   128   260   157   229   407   371   149
   64    89    58    95   319    10     3     0     6    69   370   156    98   208   300   201
    0     0     3     2    24     0     0     0     1     1    20     8     6     1    49    15
    0     0     0     0     0     0     0     0     0     0     0     0     0     0     2     1
    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     0     0     1     1     0     0     0     0     0     0     0     0     0
    0     0     0     1     2     3     6     0     2     0     1     0     0     1     0     0
    7     8    10     6    19    22    22    10     5     9     9     7    16    21     6    10
   13    21    19    20    48    47    19     7     8    20    11    18    34    34    29    19
   35    35    44    51    86    42     9     2     9    19    70    32    26    28    37    40
   13    10    11    12    53     4     0     3     2    17    62    45    14     9    31    42
    0     0     0     0     1     0     0     0     0     0     4     3     2     0    13     3
    0     0     0     0     2     0     0     0     0     0     0     0     0     0     1     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     0     0     0     0     2     1     0     1     1     1     1     0
    3     1     1     1     2     4     5     6     3     0     3     4     8     5     1     2
   15     6    14    19    19    28    25    13     5     9    11    17    19    15    17    20
   29    33    29    27    45    39    19     7     6    14    17    11    23    38    28    20
   57    32    40    57    83    36     9     4     5    21    61    43    29    26    45    35
   20    15    23    13    62     0     0     2     5    13    62    43    16    12    36    52
    0     0     0     1     6     0     0     0     0     0     2     8     3     1     8     7
    0     0     0     0     1     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
    6     4     3     2     2     5     8     4     4     5     1     3     4     3     4     3
    3     6     7     6     5    12    16    12     8    10    15    10    12     6     6     9
   21    21    39    23    27    33    59    36    27    28    33    36    37    40    22    18
  105    94    89    96    89   115   128    56    51    61    93    99   107    91    87   116
  167   164   149   114   178   161    93    33    44    82   103   102   104    97   109   160
  440   277   257   248   435   122    64    26    67   139   318   258   112    99   206   421
  184   111   104   116   427     7     9    19    30   119   263   201    72    45   279   472
    1     3     5    13    53     0     0     2     1     0    15    15     2     5    72    52
```

Table 4: PAVAN Input files, **Continued**

Unit 2 Containment Release, Continued:

```
  0    0    0    0    5    0    0    0    0    0    0    1    0    0    4    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  9    5   11    9   19   31   56   52   24   14   17   22   14   12   10   10
 21   14   19   14   19   40   74   54   43   29   33   42   20   18   11   14
 61   44   57   48   51  154  187  134  100   80   94   93   55   21   28   53
199  113  163  104  118  357  280  220  176  191  222  263  123   66   77  151
212   75  151  125  158  224  171  111  157  253  366  330  151   51   83  225
191  103   81  102  242  105  121   61  149  388  783  489  190   87  219  375
 58   24   15   18  147    4   15   13   50  157  213  180   62   40  155  160
  0    1   11    9   19    1    0    0    1    0    7   10    2    3   14   10
  0    0    0    1    9    1    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    3    0    0    0    0    0    0    0    0    0    0    0
 11   19   28   27   40   68  128  100   58   32   31   24   36   27   22   20
 17   20   18   16   24   55  149   78   59   50   32   37   32   26   20   28
 52   34   33   24   31  128  167  110   93   99   91   67   53   37   32   38
 51   24   24    8   35   73   73   49   79  143  155  167   53   24   47   64
  7    2    5    1   18    9    8    6    6   58  119   99   26    9   15   13
  1    1    0    1    3    0    2    0    0    8   56   31    7    0    8    5
  1    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    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
160   74   84   74  154  166  254  249  261  194  198  179  253  332  377  206
 33   13   11   13   18   44  106   63   91   87   90   78   83   77   61   39
 31   12    3   11   15   25   36   23   47  145  155   75   59   40   38   38
 10    1    1    3    2    5    2    1    9   82  134   69    5    6   13    6
  1    0    0    1    0    1    0    0    1    1   14   10    1    3    0    1
  0    0    0    1    0    0    0    0    0    0    0    0    1    0    0    1
  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
 -1.  0.50 0.75  1.0  1.5  2.0  3.0  5.0  7.0 10.0 13.0
670.  584.  584.  597.  701.  652.  652.  561.  515.  515.  558.  619.1076.1962.1350.  945.
4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.4744.
```

Table 4: PAVAN Input files, **Continued**

Ventilation Vent No. 2 Release:

```
0100 00001
Surry (new EAB)      1994-98 JFD          Ground-Level Release
  9.6 m              9.6 m - 44.9 m
Onsite
Vent Release (no plume rise)
   10     0
 960. 35.5  10.   9.6
    0     0     0     0     0     0     0
    0     0     0     0     1     0     0     0     0     0     0     0     0     0     0     0
    0     0     0     0     0     0     0     1     1     0     0     1     0     0     0     0
    0     1     3     0     1     2     1     3     1     1     0     0     0     2     0     0
    9     7     8    18    23    34    50    26    23    17     7    13    32    39    18     4
   41    42    65    95   163   186   158    35    35    49    38    43   135   174    95    46
  131   173   170   197   352   379   159    32    41   128   260   157   229   407   371   149
   64    89    58    95   319    10     3     0     6    69   370   156    98   208   300   201
    0     0     3     2    24     0     0     0     1     1    20     8     6     1    49    15
    0     0     0     0     0     0     0     0     0     0     0     0     0     0     2     1
    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     0     0     1     1     0     0     0     0     0     0     0     0     0
    0     0     0     1     2     3     6     0     2     0     1     0     0     1     0     0
    7     8    10     6    19    22    22    10     5     9     9     7    16    21     6    10
   13    21    19    20    48    47    19     7     8    20    11    18    34    34    29    19
   35    35    44    51    86    42     9     2     9    19    70    32    26    28    37    40
   13    10    11    12    53     4     0     3     2    17    62    45    14     9    31    42
    0     0     0     0     1     0     0     0     0     0     4     3     2     0    13     3
    0     0     0     0     2     0     0     0     0     0     0     0     0     0     1     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     0     0     0     0     2     1     0     1     1     1     1     0
    3     1     1     1     2     4     5     6     3     0     3     4     8     5     1     2
   15     6    14    19    19    28    25    13     5     9    11    17    19    15    17    20
   29    33    29    27    45    39    19     7     6    14    17    11    23    38    28    20
   57    32    40    57    83    36     9     4     5    21    61    43    29    26    45    35
   20    15    23    13    62     0     0     2     5    13    62    43    16    12    36    52
    0     0     0     1     6     0     0     0     0     0     2     8     3     1     8     7
    0     0     0     0     1     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
    6     4     3     2     2     5     8     4     4     5     1     3     4     3     4     3
    3     6     7     6     5    12    16    12     8    10    15    10    12     6     6     9
   21    21    39    23    27    33    59    36    27    28    33    36    37    40    22    18
  105    94    89    96    89   115   128    56    51    61    93    99   107    91    87   116
  167   164   149   114   178   161    93    33    44    82   103   102   104    97   109   160
  440   277   257   248   435   122    64    26    67   139   318   258   112    99   206   421
  184   111   104   116   427     7     9    19    30   119   263   201    72    45   279   472
    1     3     5    13    53     0     0     2     1     0    15    15     2     5    72    52
```

Table 4: PAVAN Input files, **Continued**

Ventilation Vent No. 2 Release, Continued:

```
  0    0    0    0    5    0    0    0    0    0    0    1    0    0    4    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  9    5   11    9   19   31   56   52   24   14   17   22   14   12   10   10
 21   14   19   14   19   40   74   54   43   29   33   42   20   18   11   14
 61   44   57   48   51  154  187  134  100   80   94   93   55   21   28   53
199  113  163  104  118  357  280  220  176  191  222  263  123   66   77  151
212   75  151  125  158  224  171  111  157  253  366  330  151   51   83  225
191  103   81  102  242  105  121   61  149  388  783  489  190   87  219  375
 58   24   15   18  147    4   15   13   50  157  213  180   62   40  155  160
  0    1   11    9   19    1    0    0    1    0    7   10    2    3   14   10
  0    0    0    1    9    1    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    3    0    0    0    0    0    0    0    0    0    0    0
 11   19   28   27   40   68  128  100   58   32   31   24   36   27   22   20
 17   20   18   16   24   55  149   78   59   50   32   37   32   26   20   28
 52   34   33   24   31  128  167  110   93   99   91   67   53   37   32   38
 51   24   24    8   35   73   73   49   79  143  155  167   53   24   47   64
  7    2    5    1   18    9    8    6    6   58  119   99   26    9   15   13
  1    1    0    1    3    0    2    0    0    8   56   31    7    0    8    5
  1    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    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
160   74   84   74  154  166  254  249  261  194  198  179  253  332  377  206
 33   13   11   13   18   44  106   63   91   87   90   78   83   77   61   39
 31   12    3   11   15   25   36   23   47  145  155   75   59   40   38   38
 10    1    1    3    2    5    2    1    9   82  134   69    5    6   13    6
  1    0    0    1    0    1    0    0    1    1   14   10    1    3    0    1
  0    0    0    1    0    0    0    0    0    0    0    0    1    0    0    1
  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
 -1.  0.50 0.75  1.0  1.5  2.0  3.0  5.0  7.0 10.0 13.0
650. 569. 569. 582. 677. 628. 628. 572. 517. 517. 561. 641.1087.1995.1354. 923.
4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.4721.
```

Table 4: PAVAN Input files, **Continued**

Auxiliary Building West Louver Release:

```
0100 00001
Surry (new EAB)      1994-98 JFD          Ground-Level Release
  9.6 m              9.6 m - 44.9 m
Onsite
Aux Bldg West Louver Release
   10    0
 960. 35.5  10.   9.6
    0    0    0    0    0    0    0
    0    0    0    0    1    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    1    1    0    0    1    0    0    0    0
    0    1    3    0    1    2    1    3    1    1    0    0    0    2    0    0
    9    7    8   18   23   34   50   26   23   17    7   13   32   39   18    4
   41   42   65   95  163  186  158   35   35   49   38   43  135  174   95   46
  131  173  170  197  352  379  159   32   41  128  260  157  229  407  371  149
   64   89   58   95  319   10    3    0    6   69  370  156   98  208  300  201
    0    0    3    2   24    0    0    0    1    1   20    8    6    1   49   15
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    2    1
    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    0    0    1    1    0    0    0    0    0    0    0    0    0
    0    0    0    1    2    3    6    0    2    0    1    0    0    1    0    0
    7    8   10    6   19   22   22   10    5    9    9    7   16   21    6   10
   13   21   19   20   48   47   19    7    8   20   11   18   34   34   29   19
   35   35   44   51   86   42    9    2    9   19   70   32   26   28   37   40
   13   10   11   12   53    4    0    3    2   17   62   45   14    9   31   42
    0    0    0    0    1    0    0    0    0    0    4    3    2    0   13    3
    0    0    0    0    2    0    0    0    0    0    0    0    0    0    1    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    0    0    0    0    2    1    0    1    1    1    1    0
    3    1    1    1    2    4    5    6    3    0    3    4    8    5    1    2
   15    6   14   19   19   28   25   13    5    9   11   17   19   15   17   20
   29   33   29   27   45   39   19    7    6   14   17   11   23   38   28   20
   57   32   40   57   83   36    9    4    5   21   61   43   29   26   45   35
   20   15   23   13   62    0    0    2    5   13   62   43   16   12   36   52
    0    0    0    1    6    0    0    0    0    0    2    8    3    1    8    7
    0    0    0    0    1    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
    6    4    3    2    2    5    8    4    4    5    1    3    4    3    4    3
    3    6    7    6    5   12   16   12    8   10   15   10   12    6    6    9
   21   21   39   23   27   33   59   36   27   28   33   36   37   40   22   18
  105   94   89   96   89  115  128   56   51   61   93   99  107   91   87  116
  167  164  149  114  178  161   93   33   44   82  103  102  104   97  109  160
  440  277  257  248  435  122   64   26   67  139  318  258  112   99  206  421
  184  111  104  116  427    7    9   19   30  119  263  201   72   45  279  472
    1    3    5   13   53    0    0    2    1    0   15   15    2    5   72   52
```

Table 4: PAVAN Input files, **Continued**

Auxiliary Building West Louver Release, Continued:

```
  0    0    0    0    5    0    0    0    0    0    0    1    0    0    4    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  9    5   11    9   19   31   56   52   24   14   17   22   14   12   10   10
 21   14   19   14   19   40   74   54   43   29   33   42   20   18   11   14
 61   44   57   48   51  154  187  134  100   80   94   93   55   21   28   53
199  113  163  104  118  357  280  220  176  191  222  263  123   66   77  151
212   75  151  125  158  224  171  111  157  253  366  330  151   51   83  225
191  103   81  102  242  105  121   61  149  388  783  489  190   87  219  375
 58   24   15   18  147    4   15   13   50  157  213  180   62   40  155  160
  0    1   11    9   19    1    0    0    1    0    7   10    2    3   14   10
  0    0    0    1    9    1    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    3    0    0    0    0    0    0    0    0    0    0    0
 11   19   28   27   40   68  128  100   58   32   31   24   36   27   22   20
 17   20   18   16   24   55  149   78   59   50   32   37   32   26   20   28
 52   34   33   24   31  128  167  110   93   99   91   67   53   37   32   38
 51   24   24    8   35   73   73   49   79  143  155  167   53   24   47   64
  7    2    5    1   18    9    8    6    6   58  119   99   26    9   15   13
  1    1    0    1    3    0    2    0    0    8   56   31    7    0    8    5
  1    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    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
160   74   84   74  154  166  254  249  261  194  198  179  253  332  377  206
 33   13   11   13   18   44  106   63   91   87   90   78   83   77   61   39
 31   12    3   11   15   25   36   23   47  145  155   75   59   40   38   38
 10    1    1    3    2    5    2    1    9   82  134   69    5    6   13    6
  1    0    0    1    0    1    0    0    1    1   14   10    1    3    0    1
  0    0    0    1    0    0    0    0    0    0    0    0    1    0    0    1
  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
 -1.  0.50 0.75  1.0  1.5  2.0  3.0  5.0  7.0 10.0 13.0
625. 545. 545. 558. 638. 594. 594. 589. 523. 523. 567. 679.1113.2005.1358. 885.
4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.4793.
```

Auxiliary Building East Louver Release:

```
0100 00001
Surry (new EAB)      1994-98 JFD          Ground-Level Release
  9.6 m              9.6 m - 44.9 m
Onsite
Aux Bldg East Louver Release
   10    0
 960. 35.5  10.   9.6
    0    0    0    0    0    0    0
    0    0    0    0    1    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    1    1    0    0    1    0    0    0    0
    0    1    3    0    1    2    1    3    1    1    0    0    0    2    0    0
    9    7    8   18   23   34   50   26   23   17    7   13   32   39   18    4
   41   42   65   95  163  186  158   35   35   49   38   43  135  174   95   46
  131  173  170  197  352  379  159   32   41  128  260  157  229  407  371  149
   64   89   58   95  319   10    3    0    6   69  370  156   98  208  300  201
    0    0    3    2   24    0    0    0    1    1   20    8    6    1   49   15
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    2    1
    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    0    0    1    1    0    0    0    0    0    0    0    0    0
    0    0    0    1    2    3    6    0    2    0    1    0    0    1    0    0
    7    8   10    6   19   22   22   10    5    9    9    7   16   21    6   10
   13   21   19   20   48   47   19    7    8   20   11   18   34   34   29   19
   35   35   44   51   86   42    9    2    9   19   70   32   26   28   37   40
   13   10   11   12   53    4    0    3    2   17   62   45   14    9   31   42
    0    0    0    0    1    0    0    0    0    0    4    3    2    0   13    3
    0    0    0    0    2    0    0    0    0    0    0    0    0    0    1    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    0    0    0    0    2    1    0    1    1    1    1    0
    3    1    1    1    2    4    5    6    3    0    3    4    8    5    1    2
   15    6   14   19   19   28   25   13    5    9   11   17   19   15   17   20
   29   33   29   27   45   39   19    7    6   14   17   11   23   38   28   20
   57   32   40   57   83   36    9    4    5   21   61   43   29   26   45   35
   20   15   23   13   62    0    0    2    5   13   62   43   16   12   36   52
    0    0    0    1    6    0    0    0    0    0    2    8    3    1    8    7
    0    0    0    0    1    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
    6    4    3    2    2    5    8    4    4    5    1    3    4    3    4    3
    3    6    7    6    5   12   16   12    8   10   15   10   12    6    6    9
   21   21   39   23   27   33   59   36   27   28   33   36   37   40   22   18
  105   94   89   96   89  115  128   56   51   61   93   99  107   91   87  116
  167  164  149  114  178  161   93   33   44   82  103  102  104   97  109  160
  440  277  257  248  435  122   64   26   67  139  318  258  112   99  206  421
  184  111  104  116  427    7    9   19   30  119  263  201   72   45  279  472
    1    3    5   13   53    0    0    2    1    0   15   15    2    5   72   52
```

Table 4: PAVAN Input files, **Continued**

Auxiliary Building East Louver Release, Continued:

```
  0    0    0    0    5    0    0    0    0    0    0    1    0    0    4    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  9    5   11    9   19   31   56   52   24   14   17   22   14   12   10   10
 21   14   19   14   19   40   74   54   43   29   33   42   20   18   11   14
 61   44   57   48   51  154  187  134  100   80   94   93   55   21   28   53
199  113  163  104  118  357  280  220  176  191  222  263  123   66   77  151
212   75  151  125  158  224  171  111  157  253  366  330  151   51   83  225
191  103   81  102  242  105  121   61  149  388  783  489  190   87  219  375
 58   24   15   18  147    4   15   13   50  157  213  180   62   40  155  160
  0    1   11    9   19    1    0    0    1    0    7   10    2    3   14   10
  0    0    0    1    9    1    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    3    0    0    0    0    0    0    0    0    0    0    0
 11   19   28   27   40   68  128  100   58   32   31   24   36   27   22   20
 17   20   18   16   24   55  149   78   59   50   32   37   32   26   20   28
 52   34   33   24   31  128  167  110   93   99   91   67   53   37   32   38
 51   24   24    8   35   73   73   49   79  143  155  167   53   24   47   64
  7    2    5    1   18    9    8    6    6   58  119   99   26    9   15   13
  1    1    0    1    3    0    2    0    0    8   56   31    7    0    8    5
  1    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    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
160   74   84   74  154  166  254  249  261  194  198  179  253  332  377  206
 33   13   11   13   18   44  106   63   91   87   90   78   83   77   61   39
 31   12    3   11   15   25   36   23   47  145  155   75   59   40   38   38
 10    1    1    3    2    5    2    1    9   82  134   69    5    6   13    6
  1    0    0    1    0    1    0    0    1    1   14   10    1    3    0    1
  0    0    0    1    0    0    0    0    0    0    0    0    1    0    0    1
  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
 -1.  0.50 0.75  1.0  1.5  2.0  3.0  5.0  7.0 10.0 13.0
636. 554. 554. 567. 674. 627. 627. 590. 530. 530. 577. 653.1112.1982.1347. 901.
4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.4765.
```

Table 5: PAVAN output

PAVAN Output - X/Q values at the EAB (Unit 1 Reactor Release, 1994-1998)

1USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE:12/20/2001

/PLANT NAME: Surry (new EAB) METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: 1994-98 JFD WIND SENSORS HEIGHT: 9.6 m
TYPE OF RELEASE: Ground-Level Release DELTA-T HEIGHTS: 9.6 m - 44.9 m
SOURCE OF DATA: Onsite
COMMENTS: Unit 1 Reactor Release
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

0 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	636.	6.24E-04	4.19E-04	3.43E-04	2.23E-04	1.20E-04	5.60E-05	21.8	S
SSW	556.	3.19E-04	2.26E-04	1.90E-04	1.31E-04	7.62E-05	3.94E-05	10.9	SSW
SW	556.	3.60E-04	2.55E-04	2.15E-04	1.48E-04	8.69E-05	4.52E-05	12.1	SW
WSW	567.	2.99E-04	2.13E-04	1.80E-04	1.25E-04	7.38E-05	3.88E-05	9.8	WSW
W	604.	6.90E-04	4.64E-04	3.80E-04	2.47E-04	1.33E-04	6.22E-05	20.9	W
WNW	562.	9.83E-04	6.64E-04	5.46E-04	3.57E-04	1.94E-04	9.18E-05	20.3	WNW
NW	562.	1.34E-03	9.18E-04	7.60E-04	5.05E-04	2.81E-04	1.37E-04	26.8	NW
NNW	562.	1.36E-03	9.00E-04	7.31E-04	4.66E-04	2.44E-04	1.11E-04	30.8	NNW
N	495.	1.79E-03	1.17E-03	9.44E-04	5.94E-04	3.06E-04	1.36E-04	43.7	N
NNE	495.	1.39E-03	9.40E-04	7.74E-04	5.08E-04	2.77E-04	1.32E-04	31.3	NNE
NE	536.	1.23E-03	8.51E-04	7.07E-04	4.74E-04	2.66E-04	1.31E-04	26.4	NE
ENE	687.	7.29E-04	4.96E-04	4.10E-04	2.70E-04	1.48E-04	7.12E-05	15.5	ENE
E	769.	8.41E-04	5.38E-04	4.30E-04	2.65E-04	1.32E-04	5.62E-05	20.3	E
ESE	2017.	5.95E-04	2.88E-04	2.01E-04	9.14E-05	2.96E-05	7.43E-06	22.0	ESE
SE	1401.	1.26E-03	6.36E-04	4.52E-04	2.16E-04	7.47E-05	2.04E-05	36.7	SE
SSE	900.	5.56E-04	3.55E-04	2.84E-04	1.75E-04	8.70E-05	3.71E-05	20.7	SSE
MAX X/Q		1.79E-03				TOTAL HOURS AROUND SITE:		370.0	
SRP 2.3.4	495.	1.56E-02	7.12E-03	4.81E-03	2.06E-03	6.08E-04	1.37E-04		
SITE LIMIT		2.20E-04	2.03E-04	1.95E-04	1.79E-04	1.59E-04	1.37E-04		

00.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
0**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.

PAVAN Output - X/Q values at the EAB (Unit 2 Reactor Release, 1994-1998)

1USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE:12/20/2001

/PLANT NAME: Surry (new EAB) METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: 1994-98 JFD WIND SENSORS HEIGHT: 9.6 m
TYPE OF RELEASE: Ground-Level Release DELTA-T HEIGHTS: 9.6 m - 44.9 m
SOURCE OF DATA: Onsite
COMMENTS: Unit 2 Reactor Release
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145
0 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	670.	5.72E-04	3.83E-04	3.14E-04	2.04E-04	1.09E-04	5.10E-05	21.5	S
SSW	584.	2.94E-04	2.08E-04	1.75E-04	1.20E-04	6.99E-05	3.61E-05	10.7	SSW
SW	584.	3.32E-04	2.35E-04	1.98E-04	1.36E-04	7.98E-05	4.14E-05	11.9	SW
WSW	597.	2.74E-04	1.96E-04	1.65E-04	1.14E-04	6.74E-05	3.53E-05	9.5	WSW
W	701.	5.39E-04	3.61E-04	2.95E-04	1.91E-04	1.02E-04	4.76E-05	17.8	W
WNW	652.	7.65E-04	5.16E-04	4.24E-04	2.76E-04	1.49E-04	7.04E-05	15.7	WNW
NW	652.	1.04E-03	7.11E-04	5.88E-04	3.90E-04	2.16E-04	1.05E-04	19.1	NW
NNW	561.	1.37E-03	9.02E-04	7.33E-04	4.68E-04	2.45E-04	1.11E-04	33.8	NNW
N	515.	1.67E-03	1.09E-03	8.82E-04	5.55E-04	2.85E-04	1.26E-04	43.7	N
NNE	515.	1.30E-03	8.79E-04	7.23E-04	4.74E-04	2.58E-04	1.23E-04	31.3	NNE
NE	558.	1.15E-03	7.94E-04	6.60E-04	4.42E-04	2.48E-04	1.22E-04	26.4	NE
ENE	619.	8.70E-04	5.93E-04	4.89E-04	3.23E-04	1.78E-04	8.57E-05	20.9	ENE
E	1076.	5.80E-04	3.56E-04	2.79E-04	1.65E-04	7.70E-05	3.04E-05	14.6	E
ESE	1962.	6.05E-04	2.95E-04	2.06E-04	9.49E-05	3.11E-05	7.93E-06	23.1	ESE
SE	1350.	1.28E-03	6.58E-04	4.71E-04	2.28E-04	8.04E-05	2.25E-05	38.3	SE
SSE	945.	5.30E-04	3.37E-04	2.68E-04	1.64E-04	8.08E-05	3.40E-05	21.1	SSE
MAX X/Q		1.67E-03				TOTAL HOURS AROUND SITE:		359.6	
SRP 2.3.4	515.	1.46E-02	6.64E-03	4.49E-03	1.91E-03	5.63E-04	1.26E-04		
SITE LIMIT		2.23E-04	2.03E-04	1.93E-04	1.75E-04	1.51E-04	1.26E-04		

00.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
0**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.

PAVAN Output - X/Q values at the EAB (Ventilation Vent No. 2 Release, 1994-1998)

1USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE:12/20/2001

/PLANT NAME: Surry (new EAB) METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: 1994-98 JFD WIND SENSORS HEIGHT: 9.6 m
TYPE OF RELEASE: Ground-Level Release DELTA-T HEIGHTS: 9.6 m - 44.9 m
SOURCE OF DATA: Onsite
COMMENTS: Vent Release (no plume rise)
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145
0 RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)

		VERSUS AVERAGING TIME						HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED	
DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	IN SECTOR	DOWNWIND SECTOR
S	650.	6.02E-04	4.04E-04	3.31E-04	2.15E-04	1.15E-04	5.39E-05	22.4	S
SSW	569.	3.07E-04	2.17E-04	1.83E-04	1.25E-04	7.32E-05	3.78E-05	11.2	SSW
SW	569.	3.46E-04	2.46E-04	2.07E-04	1.43E-04	8.35E-05	4.34E-05	12.5	SW
WSW	582.	2.86E-04	2.04E-04	1.72E-04	1.19E-04	7.05E-05	3.70E-05	10.1	WSW
W	677.	5.71E-04	3.83E-04	3.13E-04	2.03E-04	1.09E-04	5.07E-05	18.9	W
WNW	628.	8.15E-04	5.50E-04	4.52E-04	2.95E-04	1.59E-04	7.53E-05	17.4	WNW
NW	628.	1.11E-03	7.59E-04	6.28E-04	4.16E-04	2.31E-04	1.12E-04	21.8	NW
NNW	572.	1.32E-03	8.73E-04	7.09E-04	4.52E-04	2.37E-04	1.07E-04	32.7	NNW
N	517.	1.66E-03	1.08E-03	8.76E-04	5.51E-04	2.83E-04	1.25E-04	43.7	N
NNE	517.	1.29E-03	8.73E-04	7.18E-04	4.71E-04	2.56E-04	1.22E-04	31.3	NNE
NE	561.	1.14E-03	7.87E-04	6.54E-04	4.37E-04	2.46E-04	1.21E-04	26.3	NE
ENE	641.	8.20E-04	5.59E-04	4.61E-04	3.04E-04	1.67E-04	8.05E-05	19.6	ENE
E	1087.	5.75E-04	3.53E-04	2.76E-04	1.62E-04	7.59E-05	2.99E-05	14.6	E
ESE	1995.	5.99E-04	2.91E-04	2.03E-04	9.28E-05	3.02E-05	7.63E-06	23.1	ESE
SE	1354.	1.28E-03	6.56E-04	4.69E-04	2.27E-04	7.99E-05	2.23E-05	38.4	SE
SSE	923.	5.43E-04	3.46E-04	2.76E-04	1.69E-04	8.38E-05	3.55E-05	21.5	SSE
MAX X/Q		1.66E-03				TOTAL HOURS AROUND SITE:		365.4	
SRP 2.3.4	517.	1.45E-02	6.60E-03	4.46E-03	1.90E-03	5.60E-04	1.25E-04		
SITE LIMIT		2.24E-04	2.03E-04	1.94E-04	1.75E-04	1.50E-04	1.25E-04		

00.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
0**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.

PAVAN Output - X/Q values at the EAB (West Auxiliary Building Louver Release, 1994-1998)

1USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE:12/20/2001

/PLANT NAME: Surry (new EAB) METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: 1994-98 JFD WIND SENSORS HEIGHT: 9.6 m
TYPE OF RELEASE: Ground-Level Release DELTA-T HEIGHTS: 9.6 m - 44.9 m
SOURCE OF DATA: Onsite
COMMENTS: Aux Bldg West Louver Release
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145
0 RELATIVE CONCENTRATION (X/Q) VALUES (SEC/CUBIC METER)

		VERSUS AVERAGING TIME						HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED	
DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	IN SECTOR	DOWNWIND SECTOR
S	625.	6.43E-04	4.32E-04	3.54E-04	2.30E-04	1.23E-04	5.78E-05	23.7	S
SSW	545.	3.30E-04	2.33E-04	1.96E-04	1.35E-04	7.89E-05	4.09E-05	12.2	SSW
SW	545.	3.72E-04	2.64E-04	2.23E-04	1.54E-04	9.00E-05	4.68E-05	13.6	SW
WSW	558.	3.07E-04	2.19E-04	1.85E-04	1.28E-04	7.59E-05	3.99E-05	11.1	WSW
W	638.	6.30E-04	4.23E-04	3.46E-04	2.25E-04	1.21E-04	5.64E-05	20.9	W
WNW	594.	8.96E-04	6.05E-04	4.97E-04	3.24E-04	1.76E-04	8.31E-05	20.3	WNW
NW	594.	1.22E-03	8.35E-04	6.91E-04	4.59E-04	2.54E-04	1.24E-04	26.7	NW
NNW	589.	1.26E-03	8.30E-04	6.74E-04	4.30E-04	2.25E-04	1.02E-04	31.4	NNW
N	523.	1.63E-03	1.06E-03	8.58E-04	5.40E-04	2.77E-04	1.23E-04	43.7	N
NNE	523.	1.26E-03	8.56E-04	7.04E-04	4.61E-04	2.51E-04	1.20E-04	31.3	NNE
NE	567.	1.12E-03	7.73E-04	6.42E-04	4.29E-04	2.41E-04	1.19E-04	26.4	NE
ENE	679.	7.44E-04	5.06E-04	4.18E-04	2.75E-04	1.51E-04	7.27E-05	17.8	ENE
E	1113.	5.62E-04	3.44E-04	2.69E-04	1.58E-04	7.32E-05	2.87E-05	14.7	E
ESE	2005.	5.97E-04	2.90E-04	2.02E-04	9.21E-05	2.99E-05	7.54E-06	23.4	ESE
SE	1358.	1.28E-03	6.54E-04	4.68E-04	2.26E-04	7.94E-05	2.21E-05	38.8	SE
SSE	885.	5.65E-04	3.62E-04	2.90E-04	1.79E-04	8.93E-05	3.82E-05	22.3	SSE
MAX X/Q		1.63E-03				TOTAL HOURS AROUND SITE:		378.3	
SRP 2.3.4	523.	1.42E-02	6.47E-03	4.38E-03	1.87E-03	5.51E-04	1.24E-04		
SITE LIMIT		2.21E-04	2.01E-04	1.91E-04	1.72E-04	1.49E-04	1.24E-04		

00.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
0**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.

PAVAN Output - X/Q values at the EAB (East Auxiliary Building Louver Release, 1982-1986)

1USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE:12/20/2001

/PLANT NAME: Surry (new EAB) METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: 1994-98 JFD WIND SENSORS HEIGHT: 9.6 m
TYPE OF RELEASE: Ground-Level Release DELTA-T HEIGHTS: 9.6 m - 44.9 m
SOURCE OF DATA: Onsite
COMMENTS: Aux Bldg East Louver Release
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145
0 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	636.	6.24E-04	4.19E-04	3.43E-04	2.23E-04	1.20E-04	5.60E-05	23.6	S
SSW	554.	3.21E-04	2.27E-04	1.91E-04	1.31E-04	7.67E-05	3.97E-05	12.1	SSW
SW	554.	3.62E-04	2.57E-04	2.17E-04	1.49E-04	8.75E-05	4.55E-05	13.6	SW
WSW	567.	2.99E-04	2.13E-04	1.80E-04	1.25E-04	7.38E-05	3.88E-05	11.1	WSW
W	674.	5.75E-04	3.86E-04	3.16E-04	2.04E-04	1.10E-04	5.11E-05	19.7	W
WNW	627.	8.18E-04	5.51E-04	4.53E-04	2.95E-04	1.60E-04	7.55E-05	18.5	WNW
NW	627.	1.11E-03	7.61E-04	6.30E-04	4.17E-04	2.31E-04	1.12E-04	23.6	NW
NNW	590.	1.25E-03	8.27E-04	6.72E-04	4.28E-04	2.24E-04	1.02E-04	32.2	NNW
N	530.	1.59E-03	1.04E-03	8.39E-04	5.27E-04	2.71E-04	1.20E-04	43.7	N
NNE	530.	1.24E-03	8.36E-04	6.88E-04	4.51E-04	2.46E-04	1.17E-04	31.3	NNE
NE	577.	1.09E-03	7.50E-04	6.23E-04	4.17E-04	2.34E-04	1.15E-04	26.1	NE
ENE	653.	7.94E-04	5.41E-04	4.47E-04	2.95E-04	1.62E-04	7.79E-05	19.9	ENE
E	1112.	5.63E-04	3.44E-04	2.69E-04	1.58E-04	7.33E-05	2.87E-05	15.1	E
ESE	1982.	6.01E-04	2.93E-04	2.04E-04	9.36E-05	3.05E-05	7.74E-06	23.8	ESE
SE	1347.	1.29E-03	6.59E-04	4.72E-04	2.29E-04	8.07E-05	2.26E-05	39.3	SE
SSE	901.	5.55E-04	3.55E-04	2.84E-04	1.75E-04	8.69E-05	3.70E-05	22.4	SSE
MAX X/Q		1.59E-03				TOTAL HOURS AROUND SITE:		375.8	
SRP 2.3.4	530.	1.39E-02	6.32E-03	4.27E-03	1.82E-03	5.36E-04	1.20E-04		
SITE LIMIT		2.22E-04	2.00E-04	1.90E-04	1.71E-04	1.46E-04	1.20E-04		

00.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.
0**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.

ATTACHMENT 2

Marked-up Technical Specifications Page

Virginia Electric and Power Company
(Dominion)
Surry Power Station Units 1 and 2

5.0 DESIGN FEATURES

5.1 SITE

Applicability

Applies to the location and boundaries of the site for the Surry Power Station.

Objective

To define those aspects of the site which will affect the overall safety of the installation.

Specification

The Surry Power Station is located in Surry County, Virginia, on property owned by Virginia Electric and Power Company on a point of land called Gravel Neck which juts into the James River. It is approximately 46 miles SE of Richmond, Virginia, 17 miles NW of Newport News, Virginia, and 25 miles NW of Norfolk, Virginia. The minimum distance from a reactor centerline to the site exclusion area boundary as defined in 10CFR100 is 1,650 ft. This is the distance for Unit 1, which is controlling. ~~A map of the site is shown in TS Figure 5.1-1.~~

References

FSAR section 2.0 Site

FSAR Section 2.1 General Description

The site exclusion area boundary is defined by the site boundary line shown on the site map in TS Figure 5.1-1.

ATTACHMENT 3

Proposed Technical Specifications Page

Virginia Electric and Power Company
(Dominion)
Surry Power Station Units 1 and 2

5.0 DESIGN FEATURES

5.1 SITE

Applicability

Applies to the location and boundaries of the site for the Surry Power Station.

Objective

To define those aspects of the site which will affect the overall safety of the installation.

Specification

The Surry Power Station is located in Surry County, Virginia, on property owned by Virginia Electric and Power Company on a point of land called Gravel Neck which juts into the James River. It is approximately 46 miles SE of Richmond, Virginia, 17 miles NW of Newport News, Virginia, and 25 miles NW of Norfolk, Virginia. The site exclusion area boundary is defined by the site boundary line shown on the site map in TS Figure 5.1-1. The minimum distance from a reactor centerline to the site exclusion area boundary as defined in 10 CFR 100 is 1,650 ft. This is the distance for Unit 1, which is controlling.

References

FSAR section 2.0 Site

FSAR Section 2.1 General Description