OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By:	
Reviewed By:	
OC Final Review Meeting: # 2242	Date: 11/02/2000
Approved By Plant Manager:	Date: 8/21/01

*This is a major rewrite, therefore, no sidelines are required.

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1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
1	October - 2000	Moved previous ODCM-04.01 (INFORMATION RELATED TO 40CFR190 and 40CFR141) into this document, changed the title to "DOSE FROM ALL URANIUM FUEL CYCLE SOURCES" and incorporated Tech Specs section 3.8.D and 4.8.D into document.

2.0 DOSE FROM ALL URANIUM FUEL CYCLE SOURCES

2.1 Dose Commitment

2.1.1 Controls

A. In accordance with T.S.6.8.D.10, the dose or dose commitment to any member of the public from all uranium fuel cycle sources is limited to less than or equal to 25 mrem to the total body or any organ, except for the thyroid, which ***SHALL*** be limited to less than or equal to 75 mrem over a period of 12 consecutive months.

2.1.2 Applicability

At all times

2.1.3 Action

A. With the calculated dose from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Controls ODCM-02.01 Section 2.2.1, ODCM-03.01 Section 2.2.1 or ODCM-03.01 Section 2.3.1, prepare and submit within 30 days a special report to the Commission which includes the following:

1. Defines corrective actions and calculates the highest radiation exposure to any member of the general public from all uranium fuel cycle sources (including all effluent pathways and direct radiation).

2. Unless this report shows that exposures are less than the 40CFR Part 190 standard, either apply to the Commission for a variance to continue releases which exceed the 40CFR Part 190 standard or reduce subsequent releases to permit the standard to be met.

2.1.4 Surveillance Requirements

A. Cumulative dose contributions from all liquid and gaseous effluents ***SHALL*** be determined in accordance with surveillance requirements ODCM-02.01 Section 2.2.4, ODCM-03.01 Section 2.2.4, and ODCM-03.01 Section 2.3.4 and in accordance with the ODCM.

2.2 Bases

2.2.1 Dose From All Uranium Fuel Cycle Sources

A. Dose Commitment

Control 2.1.1.A. is provided to meet the dose limitations of 40CFR190. The specification requires the preparation and submittal of a special report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. Submittal of the report is considered a timely request and a variance is granted until Staff action on the request is complete. For sites containing up to 4 reactors, it is highly unlikely that the resultant dose to a real individual will exceed 40CFR190 if the individual reactors remain with the reporting requirement level. For the purpose of the special report it may be assumed that the dose commitment to the real individual from other uranium fuel cycle source is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered.

OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By: [signature]	
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1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
1	October - 2000	Moved previous ODCM-05.01 (RADIATION ENVIRONMENTAL MONITORING PROGRAM) into this document, changed the title to "RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM" and incorporated Tech Spec section 4.16 "Radiation Environmental Monitoring Program" into this document.
2	November - 2001	Deleted incorrect reference in section 2.1.3.C.

2.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

2.1 Monitoring Program

2.1.1 Controls

A. In accordance with T.S.6.8.A, the Radiological Environmental Monitoring Program (REMP) ***SHALL*** be conducted as specified in Table 1.

B. Radioanalysis ***SHALL*** be conducted meeting the requirements of Table 3.

2.1.2 Applicability

At all times.

2.1.3 Action

A. Whenever the Radiological Environmental Monitoring Program is not being conducted as specified in Table 1 the Annual Radiological Environmental Operating Report ***SHALL*** include a description of the reasons for not conducting the program as required and plans for preventing a recurrence.

B. Deviations are permitted from the required sampling schedule if samples are unobtainable due to hazardous conditions, seasonable unavailability, or to malfunctions of automatic sampling equipment. If the latter occurs, every effort ***SHALL*** be made to complete corrective action prior to the end of the next sampling period.

C. With the level of radioactivity in an environmental sampling medium exceeding the reporting levels of Table 2 when averaged over any calendar quarter, submit a special report to the Commission within 30 days from the end of the affected calendar quarter. When more than one of the radionuclides in Table 2 are detected in the sampling medium, this report ***SHALL*** be submitted if:

$$\frac{\text{concentration (1)}}{\text{limit level (1)}} + \frac{\text{concentration (2)}}{\text{limit level (2)}} + \ldots > 1.0$$

When radionuclides other than those in Table 2 are detected and are the result of plant effluents, this report ***SHALL*** be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits of ODCM-02.01 Control 1.2.1.A, ODC-M-03.01 Control 1.2.1.A, or ODCM-03.01 Control 1.3.1.A. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition ***SHALL*** be reported and described in the Annual Radiological Environmental Operating Report.

D. Although deviations from the sampling schedule are permitted under Paragraph B. above, whenever milk or leafy green vegetation samples can no longer be obtained from the designated sample locations required by Table 1, the Annual Radiological Environmental Operating Report ***SHALL*** explain why the samples can no longer be obtained and identify the new locations which have been or will be added to and deleted from the monitoring program.

2.1.4 Surveillance Requirements

The radiological environmental monitoring samples ***SHALL*** be collected pursuant to Table 1 from the specific locations in Table 4 and ***SHALL*** be analyzed pursuant to the requirements of Table 1 and the detection capabilities required by Table 3.

2.2 Land Use Census

2.2.1 Controls

A Land Use Census ***SHALL*** be conducted and ***SHALL*** identify:

A. The location of the nearest milk animal, the nearest residence, and the nearest garden of greater than 500 ft^2 producing fresh leafy vegetables in each of the 16 meteorological sectors within a distance of 5 miles.

B. The location of ALL milk animals and ALL 500 ft^2 or greater gardens producing broad leaf vegetation in each of the meteorological sectors within a distance of 3 miles.

2.2.2 Applicability

At all times.

2.2.3 Action

A. With a Land Use Census identifying a location which yields a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained in accordance with Controls 2.1.1.A., the Annual Radioactive Effluent Release Report for this period ***SHALL*** identify the new location. The new location ***SHALL*** be added to the Radiological Environmental Monitoring Program within 30 days. The sampling location, excluding the control station location, having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this Land Use Census was conducted.

2.2.4 Surveillance Requirements

A. The Land Use Census ***SHALL*** be conducted at least once per year between the dates of May 1 and October 31 by door to door survey, aerial survey, or by consulting local agricultural authorities associations.

2.3 Sampling

Table 1 and Figure 1 specify the current sampling locations for the radiation environmental monitoring program. These sampling locations are based on the latest land use census.

If it is learned from an annual census that milk animals or gardens are present at the location which yields a calculated thyroid dose greater than those locations previously sampled, the new milk animal or garden locations resulting in the higher calculated doses ***SHALL*** be added to the surveillance program as soon as practicable. Sample locations (except the control) having lower calculated doses may be dropped from the program at the end of the grazing or growing season (October 31) to keep the total number of sample locations constant.

If the plant begins routine discharges of liquid radioactive effluent into the Mississippi River, a land use survey will be conducted to determine whether any crops are irrigated with water taken from the Mississippi River between the plant discharge canal and a point 5 miles downstream. If edible crops are being irrigated from Mississippi River water, appropriate samples will be collected and analyzed per Table 1.

2.4 Interlaboratory Comparison Program

2.4.1 Controls

A. Analyses ***SHALL*** be performed on radioactive materials supplied as part of an NRC approved cross-check program. This program involves the analyses of samples provided by a control laboratory and comparison of results with those of the control laboratory as well as with other laboratories which receive portions of the same samples. Media used in this program (air, milk, water, etc.) ***SHALL*** be limited to those found in the Radiological Environmental Monitoring Program.

2.4.2 Applicability

At all times.

2.4.3 Action

A. When required analyses are not performed, corrective action ***SHALL*** be reported in the Annual Radiological Environmental Operating Report.

2.4.4 Surveillance Requirements

A. The summary results of analyses performed as part of the above required program ***SHALL*** be included in the Annual Radiological Environmental Operating Report.

2.5 Bases

2.5.1 Monitoring Program

Control 2.1.1 provides measurements of radiation and radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the plant operation. This program thereby supplements the radiological effluent monitoring by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. After a specific program has been in effect for at least 3 years of operation, program changes may be initiated based on this experience.

The detection capabilities required by Table 1 are state-of-the art for routine environmental measurements in industrial laboratories. The LLDs for drinking water meet the requirement of 40CFR Part 141.

2.5.2 Land Use Census

Control 2.2.1 is provided to ensure that changes in the use of off-site areas are identified and that modifications to the monitoring program are made if required by the results of this census. The best survey information from door-to-door, aerial or consulting with local agricultural authorities ***SHALL*** be used. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10CFR Part 50. Restricting the census to gardens of greater than 500 square feet provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were used: 1) that 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) a vegetation yield of 2 kg/square meter.

2.5.3 Sampling

Section 2.3, paragraph 3, is worded to conform to LAR-39 and its associated NRC Safety Evaluation (SER).

2.5.4 Interlaboratory Comparison Program

The requirement for participation in an interlaboratory comparison program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of a quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.

Figure 1 Radiation Environmental Monitoring Program Sampling Locations

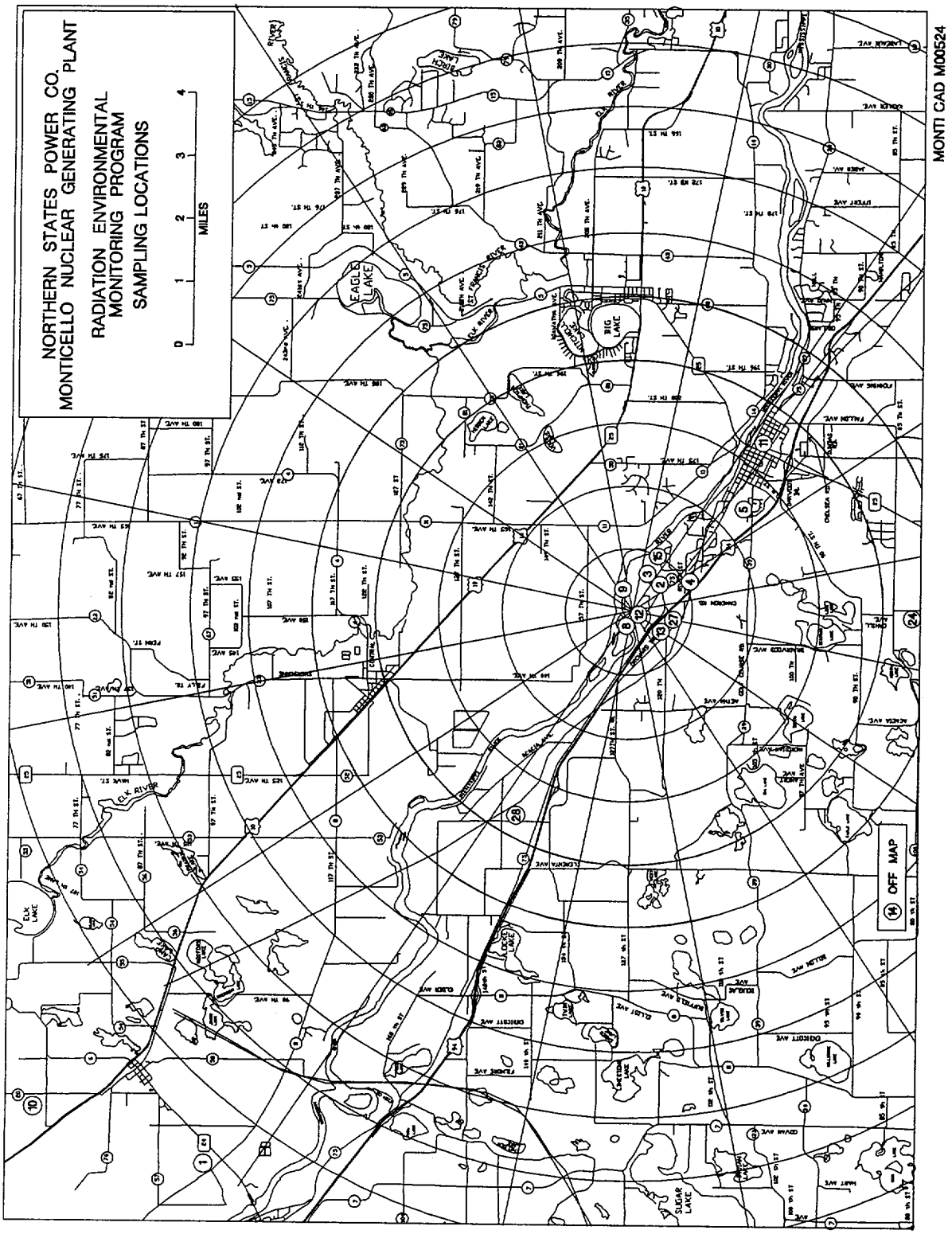

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Figure 2 4 - 5 Mile Ring, Control and Special Interest TLD Locations

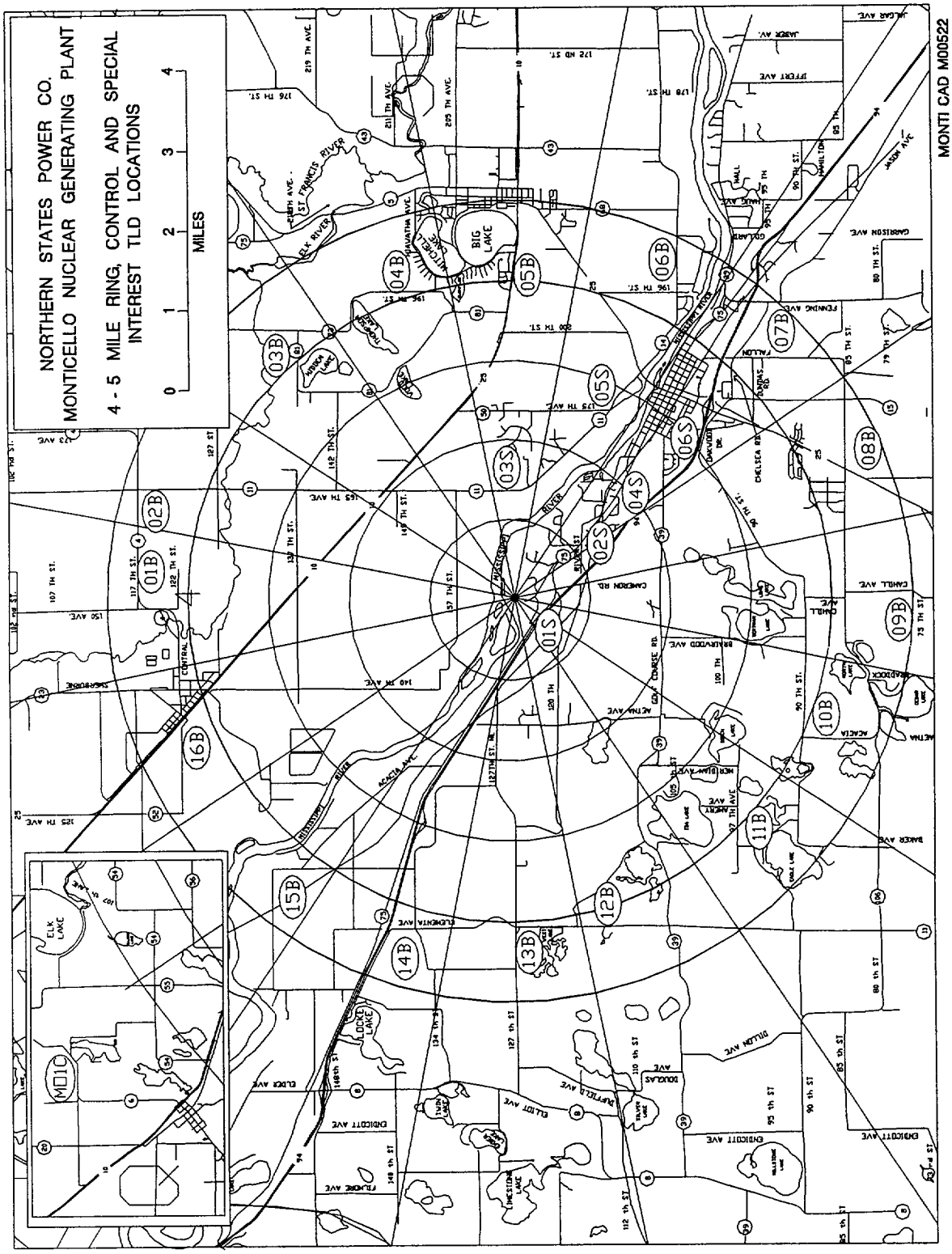

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Figure 3 Site Boundary TLD Locations

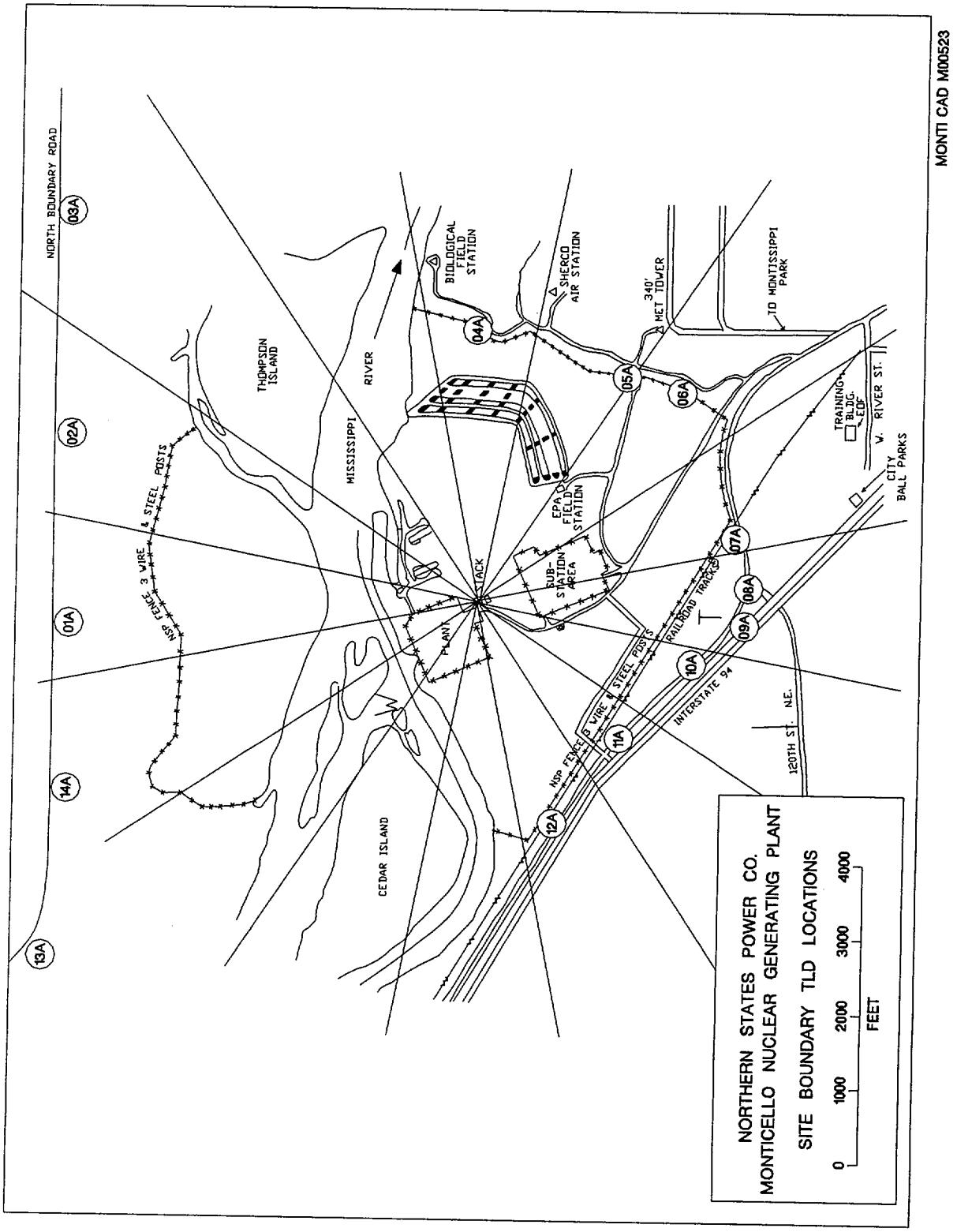

Table 1 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program
Sample Collection and Analysis

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
1. Airborne Radioiodine & Particulates	Samples from 5 locations: 3 samples from offsite locations (in different sectors) of the highest calculated annual average ground level D/Q, 1 sample from the vicinity of a community having the highest calculated annual average ground-level D/Q, and 1 sample from a control location specified in Table 4.	Continuous Sampler operation with sample collection weekly.	Radioiodine analysis Weekly for I-131 Particulate: Gross beta activity on each filter weekly*. Analysis ***SHALL*** be performed more than 24 hours following filter change. Perform gamma isotopic analysis on composite (by location) sample quarterly.
2. Direct Radiation	40 TLD stations established with duplicate dosimeters placed at the following locations:****	Quarterly	Gamma Dose quarterly

* If gross beta activity in any indication sample exceeds 10 times the yearly average of the control sample, a gamma isotopic analysis is required.

** Sample locations are further described in Table 4.

**** Three control TLD locations have only one dosimeter.

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Table 1 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program
Sample Collection and Analysis (cont'd)

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
2. Direct Radiation (cont'd)	1. Using the 16 meterological wind sectors as guidelines, an inner ring of stations in the general area of the site boundary is established and an outer ring of stations at 4 to 5 mile distance from the plant site is established. Because of inaccessibility, two sectors in the inner ring are not covered. 2. Ten dosimeters are established at special interest areas and four control stations.		
3. Waterborne a. Surface	Upstream & downstream locations.	Monthly composite of weekly samples (water & ice conditions permitting)	Gamma Isotopic analysis of each monthly composite Tritium analysis of quarterly composites of monthly composites

** Sample locations are further described in Table 4.

Table 1 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program
Sample Collection and Analysis (cont'd)

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
3. Waterborne (cont'd)			
b. Ground	Three samples from wells within 5 miles of the plant site and one sample from a well greater than 10 miles from the plant site.	Quarterly	Gamma Isotopic and tritium analyses of each sample
c. Drinking	One sample from the City of Minneapolis water supply.	Monthly composite of weekly samples	I-131 Analysis and Gross beta and Gamma isotopic analysis of each monthly composite Tritium analysis of quarterly composites of monthly composites
d. Sediment from Shoreline	One sample upstream of plant, one sample downstream of plant, and one sample from shoreline of recreational area.	Semiannually	Gamma isotopic analysis of each sample

** Sample locations are further described in Table 4.

Table 1 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program
Sample Collection and Analysis (cont'd)

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
4. Ingestion			
a. Milk	One sample from dairy farm having highest D/Q, one sample from each of three dairy farms (if available) calculated to have doses from I-131 >1 mrem/yr,and one sample from 10-20 miles.	Monthly or biweekly if animals are on pasture	Gamma isotopic and I-131 analysis of each sample
b. Fish and Invertebrates	One sample of one game specie of fish located upstream and downstream of the plant site. One sample of Invertebrates upstream and downstream of the plant site.	Samples collected semi-annually	Gamma isotopic analysis on each sample (edible portion only on fish).

** Sample locations are further described in Table 4.

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Table 1 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program
Sample Collection and Analysis (cont'd)

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
4. Ingestion (cont'd)			
c. Food Products	One sample of corn and potatoes from any area that is irrigated by water in which liquid radioactive effluent has been discharged.***	At time of harvest	Gamma isotopic analysis of edible portion of each sample
	One sample of broad leaf vegetation from highest D/Q garden and one sample from 10-20 miles.	At time of harvest	I-131 analysis of edible portion of each sample

** Sample locations are further described by in Table 4.

*** As determined by methods outlined in section 2.3.

Table 2 Reporting Levels for Radioactivity Concentrations in Environmental Samples (Reporting Levels)

Analyis	Water (pCi/1)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/1)	Vegetables (pCi/kg, wet)
H-3	2×10^4(a)				
Mn-54	1×10^3		3×10^4		
Fe-59	4×10^2		1×10^4		
Co-58	1×10^3		3×10^4		
Co-60	3×10^2		1×10^4		
Zn-65	3×10^2		2×10^4		
Zr-Nb-95	4×10^2(b)				
I-131	2(c)	0.9		3	1×10^2
Cs-134	30	10	1×10^3	60	1×10^3
Cs-137	50	20	2×10^3	70	2×10^3
Ba-La-140	2×10^2(b)			3×10^2(b)	

a - For drinking water samples
b - Total for parent and daughter
c - If no drinking water pathways exist, a value of 20 pCi/l may be used.

Table 3 Maximum Values for the Lower Limits of Detection (LLD)[a,e]

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)	Sediment (pCi/kg, dry)
gross beta	4[b]	1×10^{-2}				
^{3}H	2000(1000[b])					
^{54}Mn	15		130			
^{59}Fe	30		260			
$^{58,60}Co$	15		130			
^{65}Zn	30		260			
$^{95}Zr\text{-}Nb$	15[c]					
^{131}I[d]	1[b]	7×10^{-2}		1	60	
$^{134,137}Cs$	15(10[b]), 18	1×10^{-2}	130	15	60	150
$^{140}Ba\text{-}La$	15[c]			15[c]		

Table 3 Maximum Values for the Lower Limits of Detection (LLD)[a,e] (cont'd)

TABLE NOTATION

a - The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66\, s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

where:

LLD is the apriori lower limit of detection as defined above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute). Typical values of E, V, Y and Δt ***SHALL*** be used in the calculations.

E is the counting efficiency (as counts per transformation)

V is the sample size (in units of mass or volume)

2.22 is the number of transformations per minute per picocurie

Y is the fraction radiochemical yield (when applicable)

λ is the radioactive decay constant for the particular radionuclide

Δt is the elapsed time between sample collection (or end the sample collection period) and time of counting

b - LLD for drinking water.

c - Total for parent and daughter

d - These LLDs apply only where "I-131 analysis" is specified.

e - Where "Gamma Isotopic Analysis" is specified, the LLD specifications applies to the following radionuclides: H-3, Mn-54, Fe-59, Co-58, Co-60, Zn-65, Zr-Nb-95, Cs-134, Cs-137 and Ba-La-140. Other peaks which are measurable and identifiable, together with the above nuclides ***SHALL*** be identified and reported.

Table 4 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program Sampling Locations

			Location		
Type of Sample	Code	Collection Site	Distance Miles	Compass Heading	Sector
River water	M-8c	Upstream of plant	w/in 1000 ft upstream of plant intake		
River water	M-9	Downstream of plant	w/in 1000 ft downstream of plant discharge		
Drinking water	M-14	City of Minneapolis	37.0	132	SE
Well water	M-10c	Goenner Farm	12.4	322	NW
Well water	M-11	City of Monticello	3.4	126	SE
Well water	M-12	Plant Well No. 11	0.2	232	SW
Well water	M-27	Wise Residence	0.6	198	SSW
Sediment-River	M-8c	Upstream of plant	w/in 1000 ft upstream of plant intake		
Sediment-River	M-9	Downstream of plant	w/in 1000 ft downstream of plant discharge		
Sediment-Shoreline	M-15	Montissippi Park	1.4	114	ESE
Periphyton or Macroinvertebrates	M-8c	Upstream of plant	w/in 1000 ft upstream of plant intake		
	M-9	Downstream of plant	w/in 1000 ft downstream of plant discharge		
Fish	M-8c	Upstream of plant	w/in 1000 ft upstream of plant intake		
Fish	M-9	Downstream of plant	w/in 1000 ft downstream of plant discharge		
Milk	M-10c	Goenner Farm	12.4	322	NW
Milk	M-24	Weinand Farm	4.8	178	S
Milk	M-28	Hoglund Farm	3.6	300	WNW

Table 4 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program Sampling Locations (cont'd)

			Location		
Type of Sample	Code	Collection Site	Distance Miles	Compass Heading	Sector
Cultivated crops (leafy green vegetables)	a. M-27	a. Available Producer Highest D/Q Garden	>10.0 0.6	a. 198	a. SSW
(corn)*					
(potatoes)*					
Particulates and Radio-iodine					
(air)	M-1c	Air Station M-1	11.0	307	NW
(air)	M-2	Air Station M-2	0.9	137	SE
(air)	M-3	Air Station M-3	0.7	104	ESE
(air)	M-4	Air Station M-4	0.9	146	SSE
(air)	M-5	Air Station M-5	2.7	134	SE
Direct Radiation - (general area of the site boundary)					
(TLD)	M01A	Sherburne Ave. So.	0.7	1	N
(TLD)	M02A	Sherburne Ave. So.	0.8	31	NNE
(TLD)	M03A	Sherburne Ave. So.	1.3	55	NE
(TLD)	M04A	Biology Station Rd.	0.6	91	E
(TLD)	M05A	Biology Station Rd.	0.6	118	ESE
(TLD)	M06A	Biology Station Rd.	0.7	130	SE
(TLD)	M07A	County Road 75	0.6	148	SSE
(TLD)	M08A	County Road 75	0.6	170	S
(TLD)	M09A	County Road 75	0.6	192	SSW
(TLD)	M10A	County Road 75	0.5	218	SW
(TLD)	M11A	County Road 75	0.4	240	WSW
(TLD)	M12A	County Road 75	0.4	260	W
(TLD)	M13A	North Boundary Rd.	0.8	324	NW

* Collected only if plant discharges radioactive effluent into the river, then only from river irrigated fields. (See Section 2.1)

Table 4 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program Sampling Locations (cont'd)

			Location		
Type of Sample	Code	Collection Site	Distance Miles	Compass Heading	Sector
(TLD)	M14A	North Boundary Rd.	0.7	340	NNW
Direct Radiation - (about 4 to 5 miles distant from the plant)					
(TLD)	M01B	Sherco No. 1 Air Sta.	4.6	3	N
(TLD)	M02B	County Road 11	4.4	20	NNE
(TLD)	M03B	County Rd. 73 & 81	4.3	53	NE
(TLD)	M04B	County Rd. 73 (196n Street)	4.3	68	ENE
(TLD)	M05B	City of Big Lake	4.4	90	E
(TLD)	M06B	County Rd 14 & 196th Street	4.4	117	ESE
(TLD)	M07B	Monte Industrial Dr.	4.4	136	SE
(TLD)	M08B	Residence Hwy 25 & Davidson Ave	4.7	161	SSE
(TLD)	M09B	Weinand Farm	4.8	178	S
(TLD)	M10B	Reisewitz Farm - Acacia Ave	4.2	204	SSW
(TLD)	M11B	Vanlith Farm - 97th Ave	4.0	226	SW
(TLD)	M12B	Lake Maria St. Park	4.2	254	WSW
(TLD)	M13B	Bridgewater Sta.	4.0	270	W
(TLD)	M14B	Anderson Res. - Cty Rd 111	4.3	289	WNW
(TLD)	M15B	Red Oak Wild Bird Farm	4.3	309	NW
(TLD)	M16B	Sand Plain Research Farm	4.3	341	NNW
Direct Radiation - (special interest locations)					
(TLD)	M01S	Osowski Fun Market	0.6	234	SW
(TLD)	M02S	Edgar Klucas Res.	1.1	143	SE
(TLD)	M03S	Big Oaks Park	1.6	102	ESE
(TLD)	M04S	Pinewood School	2.4	129	SE

			Location		
Type of Sample	Code	Collection Site	Distance Miles	Compass Heading	Sector
(TLD)	M05S	Rivercrest Christian Academy	3.1	118	ESE
(TLD)	M06S	Monte Public Works	2.7	134	SE
(TLD)	M01C	Kirchenbauer Farm	11.5	323	NW
(TLD)	M02C	Cty Rd 4 & 15	11.2	47	NE
(TLD)	M03C	Cty Rd 19 & Jason Ave	13.0	100	E
(TLD)	M04C	Maple Lake Water Tower	10.3	226	SW

Table 4 Monticello Nuclear Generating Plant Radiological Environmental Monitoring Program Sampling Locations (cont'd)

Notes on Table 4:

"c" denotes control locations. All other locations are indicator locations.
a. Control "leafy green" vegetable will be taken in locations as available outside 10 mi. EPZ.

The letters after TLD code numbers have the following meanings:

A Locations in the general area of the site boundary;
B Locations about 4 to 5 miles distant from the plant;
S Special interest locations.

OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By: B Peterson	
Reviewed By: M Johnson	
OC Final Review Meeting: # 2242	Date: 11/02/2000
Approved By Plant Manager: J Pelan	Date: 8/21/01

*This is a major rewrite, therefore, no sidelines are required.

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1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
2	October - 2000	Moved previous ODCM-08.01 contents to ODCM-APP-B, Rev 0. Changed this section name to "REPORTING REQUIREMENTS" and incorporated applicable sections of T.S. sections 6.6.A, 6.6.B, 6.7.A.4, 6.7.A.5, and 6.7.C into this document.

2.0 REPORTING REQUIREMENTS

2.1 Radioactive Effluent Release Report

In accordance with T.S. 6.7.A.4 the Radioactive Effluent Release Report covering the operation of the unit ***SHALL*** be submitted in accordance with 10CFR 50.36A.

2.1.1 The Radioactive Effluent Release Report covering the operation of the unit during the previous calendar year ***SHALL*** be submitted prior to May 15 of each calendar year.

2.1.2 The Radioactive Effluent Release Report ***SHALL*** include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released as outlined in Appendix B of Regulatory Guide 1.21, Revision 1, June, 1974, with the data summarized on a quarterly basis. In the event that some results are not available for inclusion with the report, the report ***SHALL*** be submitted noting and explaining the reasons for the missing results. The missing data ***SHALL*** be submitted as soon as possible in a supplementary report.

2.1.3 The Radioactive Effluent Release Report ***SHALL*** include an assessment of the radiation doses from radioactive effluents released from the unit during the previous calendar year. This report ***SHALL*** also include an assessment of the radiation doses from radioactive liquid and gaseous effluents to the individuals due to their activities inside the site boundary (ODCM-02.01 Figure 1 and ODCM-03.01 Figure 1) during the report period. All assumptions used in making these assessments (i.e., specific activity, exposure time and location) ***SHALL*** be included in the reports. The assessment of radiation doses ***SHALL*** be performed in accordance with the ODCM or standard NRC computer codes.

2.1.4 The Radioactive Effluent Release Report ***SHALL*** also include an assessment of radiation doses to the most likely exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show compliance with 40CFR190, Environmental Radiation Protection Standards for Nuclear Power Operation.

2.1.5 The Radioactive Effluent Release Report ***SHALL*** include the following information for solid waste shipped off-site during the report period.

A. Container volume

B. Total curie quantity (specify whether determined by measurements or estimate),

C. Principal radionuclides (specify whether determined by measurement or estimate),

D. Type of waste (e.g., spent resin, compacted dry waste),

E. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and

F. Solidification agent (e.g., cement, urea formaldehyde).

2.1.6 The Radioactive Effluent Release Report ***SHALL*** include unplanned releases from the site of radioactive materials in gaseous and liquid effluents on a quarterly basis.

2.1.7 The Radioactive Effluent Release Report ***SHALL*** include a description of changes to the PCP.

2.1.8 The Radioactive Effluent Release Report ***SHALL*** contain a report of when milk or leafy green vegetable samples specified in ODCM-07.01 Table 1 cannot be obtained from the designated sample locations, and identify the new locations added to and deleted from the monitoring program.

2.1.9 The Radioactive Effluent Release Report ***SHALL*** identify Land Use Census identified locations which yield a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained in accordance with ODCM-07.01 Control 2.1.1.

2.2 Radiological Environmental Operating Report

In accordance with T.S.6.7.C.1, the Radiological Environmental Operating Report covering the operation of the off-site monitoring program ***SHALL*** be submitted and ***SHALL*** include:

2.2.1 The Annual Radiological Environmental Operating Report covering the operation of the site during the previous calendar year ***SHALL*** be submitted by May 15 of each year. The report ***SHALL*** include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided ***SHALL*** be consistent with the objectives outlined in the Offsite Dose Cclculation Manual (ODCM), and in 10CFR50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

2.2.2 The Annual Radiological Environmental Operating Report ***SHALL*** include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report ***SHALL*** be submitted noting and explaining the reasons for the missing results. The missing data ***SHALL*** be submitted in a supplementary report as soon as possible.

2.2.3 The report ***SHALL*** also include the results of the land use census required by ODCM-07.01 Control 2.2.1. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report ***SHALL*** provide an analysis of the problem and a planned course of action to alleviate the problem.

2.2.4 The Radiological Environmental Operating Report ***SHALL*** include the following: a summary description of the Radiological Environmental Monitoring Program; a map of sampling locations keyed to a table giving distances and directions from the reactor; and the results of licensee participation in the Interlaboratory Comparison Program, required by ODCM-07.01 Control 2.4.1.A.

2.2.5 The Radiological Environmental Operating Report ***SHALL*** include reasons for all deviations from the REMP sampling program as specified in ODCM-07.01 Table 1 and plans for the prevention of a recurrence, if applicable.

2.2.6 If the level of radioactivity in an environmental sampling medium at a specified location exceeds the reporting levels of ODCM-07.01 Table 2 for the sample type specified in ODCM-07.01 Table 1 and is NOT the result of plant effluents, the condition ***SHALL*** be reported in the Radiological Environmental Operating Report.

2.2.7 A summary of the Interlaboratory Comparison Program ***SHALL*** be included in the Radiological Environmental Operating Report. If the required Interlaboratory Comparison Program analyses are NOT performed, corrective action ***SHALL*** be reported in the Radiological Environmental Operating Report.

2.2.8 The Radiological Environmental Operating Report ***SHALL NOT*** include the complete analysis data tables. These tables contain the results of each sample analysis and ***SHALL*** be maintained by the licensee.

2.3 Annual Summary of Meteorological Data

The annual summary of meteorological data ***SHALL*** be submitted for the previous calendar year in the form of joint frequency tables of wind speed, wind direction, and atmospheric stability at the request of the Nuclear Regulatory Commission.

2.4 Record Retention

2.4.1 In accordance with T.S.6.6.A, the following records ***SHALL*** be retained for a minimum of five years:

A. Periodic checks, inspections, tests and calibrations of components and systems as related to the specifications and treatment systems defined in the ODCM.

B. Records of wind speed and direction.

C. Records of reviews performed for changes made to the Offsite Dose Calculation Manual.

2.4.2 In accordance with T.S.6.6.B, the following records ***SHALL*** be retained for the life of the plant:

A. Liquid and gaseous radioactive releases to the environs.

B. Off-site environmental surveys

C. Radioactive shipments

OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By: B Peterson	
Reviewed By:	
OC Final Review Meeting: # 2242	Date: 11/02/2000
Approved By Plant Manager:	Date: 8/21/01

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3087 (DOCUMENT CHANGE, HOLD, AND COMMENT FORM) incorporated: None

Resp Supv: CHEM	Assoc Ref: CHEM-I		SR: N	Freq: 2 yrs
ARMS: ODCM-APP-A	Doc Type: 7030	Admin Initials:		Date: 8/23/01

l/plr

1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
0	October - 2000	Moved previous ODCM-06.01 tables into this Appendix to make the ODCM easier to use.

2.0 SUMMARY OF DISPERSION CALCULATION PROCEDURES

Updepleted, undecayed dispersion parameters were computed using the computer program XOQDOQ (Sagendorf and Goll, 1977). Specifically, sector average χ/Q and D/Q values were obtained for a sector width of 22.5 degrees. Credit was taken for momentum plume rise and effective plume height was adjusted for local terrain height for elevated releases. Building wake corrections were used to adjust calculations for ground-level releases. Standard open terrain recirculation correction factors were also applied as available as default values in XOQDOQ.

Dispersion calculations were based on mixed mode releases for the reactor vent and on elevated releases for the offgas stack. A summary of release conditions used as input to XOQDOQ is presented in Table 1 and controlling site boundary distances are defined in Table 2. Computed χ/Q and D/Q values for unrestricted area boundary locations (relative to release points) and for standard distances (to five miles from the source in 0.1 mile increments) are presented in Tables 3 through 11.

For certain meteorological and release conditions, the enveloping interpolation routines in XOQDOQ used to compute short-term χ/Q and D/Q values do not provide reasonable results. Because of this, results were reviewed for consistency and where possible, the distributions of calculated χ/Q values were enveloped and interpolated by hand.

In some cases, use of the NRC methodology is implemented in XOQDOQ for estimating short term dispersion values results in values which are lower than the annual values. For these cases, the annual average χ/Q and D/Q values are used to conservatively represent short-term values. χ/Q and D/Q values for on-site EPA locations were adjusted (multiplied by a factor of 0.238) to account for limited daily exposure of workers in accordance with NUREG-0473[2].

On-site meteorological data for the period September 1, 1976 through August 31,1978 (as presented in Appendix B) were used as input to XOQDOQ. Data were collected and ΔT stability classes were defined in conformance with NRC Regulatory Guide 1.23[3]. Dispersion calculations for the reactor vent were based on $\Delta T_{42.7\text{-}10m}$ and 10 meter wind data (joint data recovery of 94 percent). Dispersion calculations for the offgas stack were based on $\Delta T_{100\text{-}10m}$ and 100 meter wind data (joint data recovery of 95 percent).

2.1 References

1. Sagendorf, J. F. and Goll, J. T., XOQDOQ Program for the Evaluation of Routine Effluent Releases at Nuclear Power Stations. NUREG 0324, U.S. Nuclear Regulatory Commission, September 1977.

2. NUREG-0473

3. USNRC Regulatory Guide 1.23

Table 1 Monticello Release Conditions

	Reactor Vent	Off-Gas Stack
Release Type	Mixed mode (Long and short-term)	Elevated (Long and short-term)
Release point height, m	42	100
Adjacent building height, m	42	42
Relative location to adjacent structures	Adjacent to Turbine Building	400′ SE of Reactor Building
Exit velocity, m/Sec	6.1	19.0
Internal stack diameter, m	2.41	0.36
Building cross-sectional area*, m^2	1480	N/A
Purge frequency**, times per year	6	6
Purge duration**, hours/release	24	24

* Applied to ground level releases.

** Applied to short-term calculations only.

Table 2 Distances to Controlling Unrestricted Area Boundary Locations

Miles

Column 1 As measured from Reactor Vent		Column 2* As Measured from Offgas Stack	
Sector	Distance	Sector	Distance
N	0.51	N	0.59
NNE	0.58	N	0.63
NE	0.65	NNE	0.65
ENE	0.83	ENE	0.78
E	0.59	E	0.50
ESE	0.59	E	0.50
SE	0.61	SSE	0.51
SSE	0.43	S	0.36
S	0.34	SSW	0.31
SSW	0.32	SW	0.33
SW	0.32	SW	0.33
WSW	0.35	WSW	0.38
W	0.48	W	0.56
WNW	0.68	NW	0.78
NW	0.43	NW	0.53
NNW	0.53	NNW	0.61

* Locations specified in Column 2 are the same geographic points as specified in Column 1 although the reference points are different.

Table 3 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs /Yr or >150 Hrs / Qtr

Site Boundary Sector*	χ/Q (sec/m^3)	D/Q (m^{-2})
N	2.09E-06	2.89E-08
NNE	1.29E-06	1.82E-08
NE	7.76E-07	9.42E-09
ENE	6.11E-07	5.62E-09
E	1.38E-06	1.45E-08
ESE	2.42E-06	3.15E-08
SE	2.53E-06	3.30E-08
SSE	4.08E-06	5.95E-08
S	2.30E-06	3.08E-08
SSW	1.80E-06	2.13E-08
SW	1.96E-06	2.54E-08
WSW	1.54E-06	1.72E-08
W	1.10E-06	1.23E-08
WNW	1.22E-06	1.19E-08
NW	2.11E-06	2.61E-08
NNW	1.87E-06	2.55E-08

Period of record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	2.94E-05	8.91E-06	4.59E-06	2.98E-06	2.17E-06	1.74E-06	1.46E-06
NNE	1.98E-05	6.24E-06	3.25E-06	2.11E-06	1.55E-06	1.25E-06	1.06E-06
NE	1.22E-05	3.84E-06	2.02E-06	1.33E-06	9.98E-07	8.21E-07	7.09E-07
ENE	1.25E-05	3.91E-06	2.05E-06	1.35E-06	1.01E-06	8.46E-07	7.44E-07
E	1.97E-05	6.02E-06	3.20E-06	2.16E-06	1.64E-06	1.36E-06	1.19E-06
ESE	3.48E-05	1.05E-05	5.71E-06	3.89E-06	2.94E-06	2.40E-06	2.04E-06
SE	3.91E-05	1.17E-05	6.34E-06	4.28E-06	3.20E-06	2.57E-06	2.15E-06
SSE	4.15E-05	1.26E-05	6.78E-06	4.52E-06	3.35E-06	2.70E-06	2.28E-06
S	1.60E-05	4.95E-06	2.69E-06	1.82E-06	1.39E-06	1.16E-06	1.02E-06
SSW	1.14E-05	3.54E-06	1.97E-06	1.39E-06	1.11E-06	9.79E-07	8.94E-07
SW	1.28E-05	3.85E-06	2.15E-06	1.51E-06	1.21E-06	1.06E-06	9.58E-07
WSW	1.08E-05	3.29E-06	1.85E-06	1.32E-06	1.06E-06	9.52E-07	8.89E-07
W	1.21E-05	3.73E-06	2.01E-06	1.37E-06	1.07E-06	9.24E-07	8.42E-07
WNW	1.96E-05	6.01E-06	3.24E-06	2.17E-06	1.64E-06	1.37E-06	1.19E-06
NW	2.15E-05	6.49E-06	3.45E-06	2.32E-06	1.76E-06	1.45E-06	1.25E-06
NNW	2.71E-05	8.24E-06	4.24E-06	2.74E-06	2.00E-06	1.61E-06	1.36E-06

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	1.21E-06	9.77E-07	8.18E-07	7.00E-07	6.10E-07	5.39E-07	4.82E-07
NNE	8.85E-07	7.19E-07	6.07E-07	5.24E-07	4.59E-07	4.08E-07	3.66E-07
NE	6.02E-07	4.94E-07	4.19E-07	3.61E-07	3.16E-07	2.80E-07	2.50E-07
ENE	6.46E-07	5.41E-07	4.69E-07	4.13E-07	3.69E-07	3.32E-07	3.02E-07
E	1.02E-06	8.42E-07	7.16E-07	6.20E-07	5.45E-07	4.85E-07	4.35E-07
ESE	1.69E-06	1.35E-06	1.11E-06	9.35E-07	7.99E-07	6.92E-07	6.06E-07
SE	1.76E-06	1.39E-06	1.13E-06	9.46E-07	8.03E-07	6.93E-07	6.04E-07
SSE	1.89E-06	1.51E-06	1.25E-06	1.06E-06	9.14E-07	7.98E-07	7.06E-07
S	8.69E-07	7.17E-07	6.09E-07	5.27E-07	4.63E-07	4.12E-07	3.71E-07
SSW	7.94E-07	6.74E-07	5.85E-07	5.14E-07	4.57E-07	4.10E-07	3.70E-07
SW	8.43E-07	7.09E-07	6.09E-07	5.31E-07	4.68E-07	4.16E-07	3.73E-07
WSW	8.07E-07	6.97E-07	6.12E-07	5.44E-07	4.87E-07	4.39E-07	3.99E-07
W	7.50E-07	6.40E-07	5.59E-07	4.95E-07	4.42E-07	3.99E-07	3.63E-07
WNW	1.02E-06	8.42E-07	7.17E-07	6.22E-07	5.47E-07	4.87E-07	4.38E-07
NW	1.05E-06	8.55E-07	7.15E-07	6.10E-07	5.29E-07	4.64E-07	4.11E-07
NNW	1.13E-06	9.14E-07	7.68E-07	6.60E-07	5.76E-07	5.10E-07	4.57E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	4.35E-07	3.91E-07	3.54E-07	3.23E-07	2.96E-07	2.72E-07	2.52E-07
NNE	3.32E-07	3.00E-07	2.72E-07	2.49E-07	2.28E-07	2.11E-07	1.95E-07
NE	2.25E-07	2.07E-07	1.92E-07	1.78E-07	1.67E-07	1.57E-07	1.48E-07
ENE	2.77E-07	2.56E-07	2.37E-07	2.21E-07	2.07E-07	1.94E-07	1.83E-07
E	3.94E-07	3.57E-07	3.25E-07	2.97E-07	2.73E-07	2.53E-07	2.34E-07
ESE	5.36E-07	4.78E-07	4.29E-07	3.88E-07	3.53E-07	3.23E-07	2.97E-07
SE	5.33E-07	4.80E-07	4.35E-07	3.97E-07	3.65E-07	3.37E-07	3.12E-07
SSE	6.31E-07	5.63E-07	5.05E-07	4.57E-07	4.16E-07	3.80E-07	3.49E-07
S	3.36E-07	3.03E-07	2.74E-07	2.49E-07	2.28E-07	2.10E-07	1.94E-07
SSW	3.37E-07	3.20E-07	3.05E-07	2.92E-07	2.81E-07	2.71E-07	2.62E-07
SW	3.37E-07	3.17E-07	2.99E-07	2.83E-07	2.70E-07	2.58E-07	2.47E-07
WSW	3.64E-07	3.44E-07	3.26E-07	3.10E-07	2.95E-07	2.82E-07	2.71E-07
W	3.32E-07	3.16E-07	3.01E-07	2.89E-07	2.78E-07	2.69E-07	2.61E-07
WNW	3.97E-07	3.74E-07	3.54E-07	3.37E-07	3.23E-07	3.12E-07	3.02E-07
NW	3.68E-07	3.33E-07	3.03E-07	2.78E-07	2.57E-07	2.38E-07	2.21E-07
NNW	4.13E-07	3.73E-07	3.39E-07	3.10E-07	2.85E-07	2.63E-07	2.44E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	2.34E-07	2.18E-07	2.04E-07	1.92E-07	1.83E-07	1.75E-07	1.68E-07
NNE	1.82E-07	1.70E-07	1.59E-07	1.50E-07	1.41E-07	1.33E-07	1.26E-07
NE	1.40E-07	1.32E-07	1.26E-07	1.20E-07	1.13E-07	1.07E-07	1.02E-07
ENE	1.73E-07	1.64E-07	1.56E-07	1.49E-07	1.41E-07	1.34E-07	1.27E-07
E	2.18E-07	2.04E-07	1.91E-07	1.80E-07	1.69E-07	1.60E-07	1.51E-07
ESE	2.74E-07	2.53E-07	2.36E-07	2.20E-07	2.05E-07	1.93E-07	1.81E-07
SE	2.91E-07	2.73E-07	2.56E-07	2.41E-07	2.26E-07	2.12E-07	1.99E-07
SSE	2.22E-07	2.99E-07	2.78E-07	2.59E-07	2.43E-07	2.29E-07	2.15E-07
S	1.80E-07	1.68E-07	1.57E-07	1.47E-07	1.42E-07	1.37E-07	1.33E-07
SSW	2.55E-07	2.48E-07	2.41E-07	2.35E-07	2.20E-07	2.06E-07	1.94E-07
SW	2.38E-07	2.30E-07	2.22E-07	2.15E-07	2.04E-07	1.93E-07	1.83E-07
WSW	2.60E-07	2.51E-07	2.42E-07	2.34E-07	2.18E-07	2.04E-07	1.92E-07
W	2.54E-07	2.48E-07	2.42E-07	2.37E-07	2.25E-07	2.14E-07	2.04E-07
WNW	2.93E-07	2.85E-07	2.79E-07	2.73E-07	2.64E-07	2.55E-07	2.47E-07
NW	2.07E-07	1.94E-07	1.82E-07	1.72E-07	1.66E-07	1.60E-07	1.55E-07
NNW	2.28E-07	2.13E-07	2.00E-07	1.88E-07	1.78E-07	1.68E-07	1.60E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	1.62E-07	1.56E-07	1.51E-07	1.46E-07	1.41E-07	1.37E-07	1.33E-07
NNE	1.20E-07	1.14E-07	1.09E-07	1.04E-07	9.91E-08	9.49E-08	9.10E-08
NE	9.64E-08	9.16E-08	8.73E-08	8.33E-07	7.96E-08	7.62E-08	7.30E-08
ENE	1.21E-07	1.16E-07	1.11E-07	1.06E-07	1.02E-07	9.75E-08	9.37E-08
E	1.44E-07	1.36E-07	1.30E-07	1.24E-07	1.18E-07	1.13E-07	1.09E-07
ESE	1.71E-07	1.61E-07	1.53E-07	1.45E-07	1.38E-07	1.31E-07	1.25E-07
SE	1.88E-07	1.77E-07	1.68E-07	1.59E-07	1.51E-07	1.44E-07	1.37E-07
SSE	2.04E-07	1.93E-07	1.83E-07	1.74E-07	1.66E-07	1.58E-07	1.51E-07
S	1.29E-07	1.26E-07	1.22E-07	1.19E-07	1.17E-07	1.14E-07	1.12E-07
SSW	1.83E-07	1.73E-07	1.63E-07	1.55E-07	1.47E-07	1.40E-07	1.33E-07
SW	1.75E-07	1.67E-07	1.59E-07	1.52E-07	1.46E-07	1.40E-07	1.34E-07
WSW	1.80E-07	1.70E-07	1.60E-07	1.52E-07	1.44E-07	1.37E-07	1.30E-07
W	1.95E-07	1.87E-07	1.79E-07	1.72E-07	1.65E-07	1.59E-07	1.53E-07
WNW	2.40E-07	2.33E-07	2.26E-07	2.19E-07	2.13E-07	2.07E-07	2.01E-07
NW	1.50E-07	1.46E-07	1.42E-07	1.39E-07	1.36E-07	1.33E-07	1.31E-07
NNW	1.52E-07	1.45E-07	1.38E-07	1.32E-07	1.26E-07	1.21E-07	1.17E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	1.28E-07	1.23E-07	1.18E-07	1.14E-07	1.10E-07	1.06E-07	1.02E-07
NNE	8.74E-08	8.40E-08	8.09E-08	7.80E-08	7.52E-08	7.26E-08	7.02E-08
NE	7.01E-08	6.74E-08	6.48E-08	6.24E-08	6.02E-08	5.81E-08	5.61E-08
ENE	9.02E-08	8.69E-08	8.38E-08	8.10E-08	7.82E-08	7.57E-08	7.33E-08
E	1.04E-07	1.00E-07	9.62E-08	9.26E-08	8.92E-08	8.61E-08	8.31E-08
ESE	1.19E-07	1.14E-07	1.09E-07	1.05E-07	1.01E-07	9.66E-07	9.29E-08
SE	1.31E-07	1.25E-07	1.20E-07	1.15E-07	1.10E-07	1.06E-07	1.02E-07
SSE	1.45E-07	1.40E-07	1.36E-07	1.31E-07	1.27E-07	1.23E-07	1.19E-07
S	1.08E-07	1.05E-07	1.02E-07	9.95E-08	9.69E-08	9.44E-08	9.20E-08
SSW	1.29E-07	1.25E-07	1.21E-07	1.17E-07	1.13E-07	1.10E-07	1.07E-07
SW	1.31E-07	1.27E-07	1.24E-07	1.20E-07	1.17E-07	1.14E-07	1.11E-07
WSW	1.27E-07	1.23E-07	1.20E-07	1.17E-07	1.14E-07	1.11E-07	1.09E-07
W	1.46E-07	1.39E-07	1.33E-07	1.28E-07	1.22E-07	1.17E-07	1.13E-07
WNW	1.91E-07	1.82E-07	1.74E-07	1.66E-07	1.59E-07	1.52E-07	1.46E-07
NW	1.26E-07	1.23E-07	1.19E-07	1.16E-07	1.13E-07	1.10E-07	1.07E-07
NNW	1.12E-07	1.08E-07	1.04E-07	1.01E-07	9.73E-08	9.41E-08	9.11E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	9.86E-08	9.54E-08	9.23E-08	8.95E-08	8.68E-08	8.42E-08	8.18E-08
NNE	6.79E-08	6.57E-08	6.37E-08	6.18E-08	6.00E-08	5.83E-08	5.66E-08
NE	5.43E-08	5.25E-08	5.09E-08	4.93E-08	4.78E-08	4.65E-08	4.51E-08
ENE	7.10E-08	6.89E-08	6.68E-08	6.49E-08	6.31E-08	6.14E-08	5.97E-08
E	8.09E-08	7.77E-08	7.53E-08	7.29E-08	7.07E-08	6.87E-08	6.67E-08
ESE	8.05E-08	8.63E-08	8.33E-08	8.04E-08	7.78E-08	7.52E-08	7.28E-08
SE	9.84E-08	9.48E-08	9.15E-08	8.84E-08	8.55E-08	8.27E-08	8.01E-08
SSE	1.16E-07	1.13E-07	1.10E-07	1.06E-07	1.03E-07	9.92E-08	9.61E-08
S	8.98E-08	8.77E-08	8.57E-08	8.28E-08	8.00E-08	7.74E-08	7.50E-08
SSW	1.04E-07	1.01E-07	9.84E-08	9.49E-08	9.16E-08	8.85E-08	8.55E-08
SW	1.08E-07	1.05E-07	1.02E-07	9.82E-08	9.46E-08	9.12E-08	8.79E-08
WSW	1.06E-07	1.03E-07	1.01E-07	9.72E-08	9.36E-08	9.03E-08	8.72E-08
W	1.08E-07	1.04E-07	1.00E-07	9.69E-08	9.36E-08	9.04E-08	8.74E-08
WNW	1.40E-07	1.35E-07	1.30E-07	1.25E-07	1.20E-07	1.16E-07	1.12E-07
NW	1.04E-07	1.02E-07	9.92E-08	9.58E-08	9.26E-08	8.95E-08	8.67E-08
NNW	8.83E-08	8.57E-08	8.32E-08	8.07E-08	7.82E-08	7.60E-08	7.38E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 4 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (χ/Q), sec/m^3

	Miles
Sector*	5.0
N	7.94E-08
NNE	5.51E-08
NE	4.39E-08
ENE	5.82E-08
E	6.48E-08
ESE	7.06E-08
SE	7.76E-08
SSE	9.31E-08
S	7.26E-08
SSW	8.28E-08
SW	8.49E-08
WSW	8.42E-08
W	8.46E-08
WNW	1.08E-07
NW	8.40E-08
NNW	7.18E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	2.75E-07	1.10E-07	6.31E-08	4.18E-08	3.01E-08	2.28E-08	1.80E-08
NNE	1.89E-07	7.89E-08	4.70E-08	3.17E-08	2.30E-08	1.74E-08	1.37E-08
NE	1.11E-07	4.68E-08	2.81E-08	1.91E-08	1.39E-08	1.06E-08	8.41E-09
ENE	1.03E-07	4.32E-08	2.61E-08	1.78E-08	1.31E-08	1.00E-08	7.94E-09
E	1.58E-07	6.46E-08	3.08E-08	2.56E-08	1.87E-08	1.42E-08	1.13E-08
ESE	3.79E-07	1.49E-07	8.53E-08	5.66E-08	4.09E-08	3.11E-08	2.46E-08
SE	4.31E-07	1.67E-07	9.41E-08	6.19E-08	4.43E-08	3.36E-08	2.65E-08
SSE	4.49E-07	1.77E-07	1.01E-07	6.65E-08	4.78E-08	3.62E-08	2.86E-08
S	1.47E-07	6.03E-08	3.58E-08	2.43E-08	1.79E-08	1.38E-08	1.10E-08
SSW	9.22E-08	3.85E-08	2.33E-08	1.62E-08	1.21E-08	9.50E-09	7.72E-09
SW	1.21E-07	4.80E-08	2.79E-08	1.90E-08	1.41E-08	1.10E-08	8.89E-09
WSW	8.33E-08	3.44E-08	2.07E-08	1.44E-08	1.09E-08	8.57E-09	7.01E-09
W	9.09E-08	3.80E-08	2.29E-08	1.58E-08	1.18E-08	9.18E-09	7.41E-09
WNW	1.51E-07	6.14E-08	3.65E-08	2.49E-08	1.83E-08	1.41E-08	1.13E-08
NW	1.86E-07	7.43E-08	4.30E-08	2.89E-08	2.11E-08	1.62E-08	1.29E-08
NNW	2.45E-07	9.85E-08	5.73E-08	3.82E-08	2.76E-08	2.10E-08	1.66E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	1.38E-08	1.02E-08	7.88E-09	6.23E-09	5.03E-09	4.14E-09	3.55E-09
NNE	1.05E-08	7.83E-09	6.02E-09	4.76E-09	3.85E-09	3.17E-09	2.72E-09
NE	6.48E-09	4.84E-09	3.74E-09	2.96E-09	2.40E-09	1.98E-09	1.66E-09
ENE	6.14E-09	4.60E-09	3.56E-09	2.83E-09	2.30E-09	1.90E-09	1.60E-09
E	8.71E-09	6.51E-09	5.04E-09	4.00E-09	3.24E-09	2.68E-09	2.24E-09
ESE	1.89E-08	1.41E-09	1.09E-08	8.64E-09	7.00E-09	5.77E-09	4.83E-09
SE	2.03E-08	1.51E-08	1.17E-08	9.22E-09	7.45E-09	6.14E-09	5.13E-09
SSE	2.19E-08	1.63E-08	1.26E-08	9.93E-09	8.03E-09	6.61E-09	5.75E-09
S	8.57E-09	6.44E-09	5.01E-09	3.99E-09	3.46E-09	2.85E-09	2.38E-09
SSW	6.08E-09	4.63E-09	3.63E-09	2.92E-09	2.39E-09	2.09E-09	1.76E-09
SW	6.99E-09	5.31E-09	4.16E-09	3.34E-09	2.73E-09	2.41E-09	2.02E-09
WSW	5.56E-09	4.86E-09	3.36E-09	2.71E-09	2.23E-09	1.86E-09	1.63E-09
W	5.81E-09	4.41E-09	3.45E-09	2.77E-09	2.27E-09	1.89E-09	1.65E-09
WNW	8.82E-09	7.50E-09	5.17E-09	4.13E-09	3.76E-09	2.79E-09	2.48E-09
NW	9.99E-09	7.50E-09	5.82E-09	4.63E-09	3.76E-09	3.11E-09	2.61E-09
NNW	1.27E-08	9.47E-09	7.30E-09	5.78E-09	4.67E-09	3.85E-09	3.32E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	3.00E-09	2.57E-09	2.22E-09	1.93E-09	1.70E-09	1.51E-09	1.34E-09
NNE	2.30E-09	1.97E-09	1.71E-09	1.49E-09	1.31E-09	1.16E-09	1.04E-09
NE	1.41E-09	1.21E-09	1.05E-09	9.18E-10	8.12E-10	7.20E-10	6.44E-10
ENE	1.36E-09	1.17E-09	1.01E-09	8.84E-10	7.81E-10	6.94E-10	6.20E-10
E	1.91E-09	1.64E-09	1.42E-09	1.24E-09	1.09E-09	9.71E-10	8.67E-10
ESE	4.09E-09	3.51E-09	3.04E-09	2.65E-09	2.34E-09	2.07E-09	1.85E-09
SE	4.34E-09	3.72E-09	3.22E-09	2.81E-09	2.48E-09	2.19E-09	1.96E-09
SSE	4.86E-09	4.16E-09	3.59E-09	3.13E-09	2.75E-09	2.43E-09	2.17E-09
S	2.03E-09	1.74E-09	1.50E-09	1.31E-09	1.16E-09	1.02E-09	9.13E-10
SSW	1.50E-09	1.33E-09	1.15E-09	1.01E-09	9.52E-10	8.43E-10	7.52E-10
SW	1.72E-09	1.52E-09	1.32E-09	1.15E-09	1.08E-09	9.53E-10	8.49E-10
WSW	1.39E-09	1.25E-09	1.09E-09	9.54E-10	9.16E-10	8.11E-10	7.23E-10
W	1.40E-09	1.24E-09	1.08E-09	9.44E-10	8.93E-10	7.91E-10	7.05E-10
WNW	2.10E-09	1.84E-09	1.59E-09	1.39E-09	1.28E-09	1.13E-09	1.01E-09
NW	2.22E-09	1.91E-09	1.65E-09	1.45E-09	1.28E-09	1.13E-09	1.01E-09
NNW	2.81E-09	2.40E-09	2.08E-09	1.81E-09	1.59E-09	1.42E-09	1.27E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	1.21E-09	1.09E-09	9.85E-10	8.97E-10	8.29E-10	7.64E-10	7.05E-10
NNE	9.29E-10	8.38E-10	7.60E-10	6.92E-10	6.33E-10	5.81E-10	5.35E-10
NE	5.78E-10	5.23E-10	4.83E-10	4.40E-10	4.03E-10	3.70E-10	3.41E-10
ENE	5.70E-10	5.14E-10	4.67E-10	4.25E-10	3.89E-10	3.57E-10	3.29E-10
E	7.79E-10	7.03E-10	6.38E-10	5.82E-10	5.32E-10	4.89E-10	4.51E-10
ESE	1.66E-09	1.50E-09	1.36E-09	1.24E-09	1.13E-09	1.04E-09	9.56E-10
SE	1.81E-09	1.63E-09	1.47E-09	1.35E-09	1.23E-09	1.13E-09	1.04E-09
SSE	1.94E-09	1.75E-09	1.59E-09	1.44E-09	1.32E-09	1.21E-09	1.11E-09
S	8.91E-10	7.38E-10	6.69E-10	6.09E-10	5.59E-10	5.16E-10	4.76E-10
SSW	6.74E-10	6.08E-10	5.51E-10	5.02E-10	4.60E-10	4.22E-10	3.90E-10
SW	7.61E-10	6.86E-10	6.22E-10	5.66E-10	5.18E-10	4.75E-10	4.38E-10
WSW	6.49E-10	5.85E-10	5.30E-10	4.83E-10	4.42E-10	4.07E-10	3.75E-10
W	6.33E-10	5.71E-10	5.18E-10	4.72E-10	4.32E-10	3.98E-10	3.67E-10
WNW	9.02E-10	8.14E-10	7.38E-10	6.72E-10	6.15E-10	5.66E-10	5.22E-10
NW	9.09E-10	8.48E-10	7.69E-10	7.00E-10	6.48E-10	5.95E-10	5.52E-10
NNW	1.14E-09	1.03E-09	9.29E-10	8.46E-10	7.77E-10	7.14E-10	6.59E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	6.52E-10	6.09E-10	5.67E-10	5.30E-10	5.00E-10	4.71E-10	4.46E-10
NNE	4.95E-10	4.59E-10	4.26E-10	3.97E-10	3.71E-10	3.48E-10	3.27E-10
NE	3.15E-10	2.92E-10	2.72E-10	2.53E-10	2.37E-10	2.22E-10	2.08E-10
ENE	3.04E-10	2.82E-10	2.62E-10	2.44E-10	2.28E-10	2.14E-10	2.01E-10
E	4.16E-10	3.86E-10	3.59E-10	3.34E-10	3.12E-10	2.93E-10	2.75E-10
ESE	8.83E-10	8.18E-10	7.60E-10	7.08E-10	6.61E-10	6.19E-10	5.80E-10
SE	9.59E-10	8.88E-10	8.25E-10	7.68E-10	7.17E-10	6.71E-10	6.30E-10
SSE	1.03E-09	9.56E-10	8.89E-10	8.28E-10	7.73E-10	7.24E-10	6.79E-10
S	4.42E-10	4.12E-10	3.93E-10	3.68E-10	3.44E-10	3.24E-10	3.05E-10
SSW	3.61E-10	3.35E-10	3.13E-10	2.92E-10	2.74E-10	2.58E-10	2.43E-10
SW	4.05E-10	3.76E-10	3.50E-10	3.27E-10	3.06E-10	2.87E-10	2.71E-10
WSW	3.47E-10	3.23E-10	3.01E-10	2.81E-10	2.64E-10	2.48E-10	2.34E-10
W	3.40E-10	3.16E-10	2.95E-10	2.76E-10	2.60E-10	2.44E-10	2.31E-10
WNW	4.83E-10	4.49E-10	4.19E-10	3.91E-10	3.68E-10	3.90E-10	3.98E-10
NW	5.13E-10	4.78E-10	4.54E-10	4.25E-10	3.99E-10	3.75E-10	3.53E-10
NNW	6.10E-10	5.66E-10	5.27E-10	4.92E-10	4.61E-10	4.33E-10	4.08E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	4.22E-10	4.00E-10	3.80E-10	3.62E-10	3.45E-10	3.30E-10	3.16E-10
NNE	3.08E-10	2.90E-10	2.74E-10	2.59E-10	2.46E-10	2.34E-10	2.22E-10
NE	1.96E-10	1.87E-10	1.75E-10	1.65E-10	1.57E-10	1.49E-10	1.41E-10
ENE	1.89E-10	1.78E-10	1.68E-10	1.59E-10	1.51E-10	1.43E-10	1.36E-10
E	2.58E-10	2.43E-10	2.29E-10	2.17E-10	2.05E-10	1.95E-10	1.85E-10
ESE	5.45E-10	5.13E-10	4.84E-10	4.57E-10	4.33E-10	4.10E-10	3.89E-10
SE	5.93E-10	5.58E-10	5.27E-10	4.98E-10	4.72E-10	4.48E-10	4.26E-10
SSE	6.46E-10	6.09E-10	5.76E-10	5.55E-10	5.27E-10	5.02E-10	4.79E-10
S	2.88E-10	2.73E-10	2.59E-10	2.46E-10	2.35E-10	2.24E-10	2.14E-10
SSW	2.30E-10	2.18E-10	2.07E-10	1.97E-10	1.88E-10	1.80E-10	1.72E-10
SW	2.55E-10	2.42E-10	2.29E-10	2.18E-10	2.28E-10	2.33E-10	2.22E-10
WSW	2.21E-10	2.10E-10	1.99E-10	1.90E-10	1.81E-10	1.73E-10	1.66E-10
W	2.19E-10	2.08E-10	1.98E-10	1.88E-10	1.80E-10	1.72E-10	1.65E-10
WNW	3.75E-10	3.55E-10	3.36E-10	3.19E-10	3.04E-10	2.89E-10	2.76E-10
NW	3.34E-10	3.17E-10	3.01E-10	2.86E-10	2.73E-10	2.61E-10	2.50E-10
NNW	3.85E-10	3.64E-10	3.45E-10	3.28E-10	3.12E-10	3.04E-10	2.90E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	3.03E-10	2.91E-10	2.80E-10	2.70E-10	2.61E-10	2.52E-10	2.44E-10
NNE	2.12E-10	2.02E-10	1.93E-10	1.84E-10	1.76E-10	1.69E-10	1.62E-10
NE	1.35E-10	1.28E-10	1.23E-10	1.17E-10	1.12E-10	1.07E-10	1.03E-10
ENE	1.29E-10	1.23E-10	1.18E-10	1.12E-10	1.08E-10	1.03E-10	9.88E-11
E	1.76E-10	1.67E-10	1.59E-10	1.52E-10	1.45E-10	1.39E-10	1.33E-10
ESE	3.70E-10	3.52E-10	3.35E-10	3.20E-10	3.05E-10	2.92E-10	2.79E-10
SE	4.05E-10	3.87E-10	3.69E-10	3.53E-10	3.38E-10	3.24E-10	3.11E-10
SSE	4.61E-10	4.41E-10	4.26E-10	4.09E-10	3.94E-10	3.80E-10	3.66E-10
S	2.05E-10	1.97E-10	1.90E-10	1.83E-10	1.76E-10	1.70E-10	1.65E-10
SSW	1.65E-10	1.59E-10	1.53E-10	1.48E-10	1.43E-10	1.38E-10	1.34E-10
SW	2.42E-10	2.42E-10	2.41E-10	2.30E-10	2.20E-10	2.10E-10	2.01E-10
WSW	1.59E-10	1.53E-10	1.58E-10	1.52E-10	1.47E-10	1.42E-10	1.37E-10
W	1.59E-10	1.53E-10	1.48E-10	1.43E-10	1.38E-10	1.34E-10	1.30E-10
WNW	2.64E-10	2.53E-10	2.42E-10	2.33E-10	2.24E-10	2.16E-10	2.08E-10
NW	2.39E-10	2.30E-10	2.22E-10	2.14E-10	2.07E-10	2.00E-10	1.93E-10
NNW	2.78E-10	2.67E-10	2.57E-10	2.47E-10	2.38E-10	2.30E-10	2.22E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 5 Monticello Reactor Vent Dispersion Parameters for Long Term Mixed Mode Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Reactor Vent) (D/Q), /m²

Sector*	Miles 5.0
N	2.36E-10
NNE	1.56E-10
NE	9.90E-11
ENE	9.49E-11
E	1.27E-10
ESE	2.68E-10
SE	2.99E-10
SSE	3.54E-10
S	1.60E-10
SSW	1.30E-10
SW	1.93E-10
WSW	1.33E-10
W	1.27E-10
WNW	2.01E-10
NW	1.87E-10
NNW	2.15E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 6 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr

Site Boundary Sector*	χ/Q (Sec/m^3)	D/Q (m^{-2})
N	7.04E-08	4.51E-09
NNE	7.06E-08	4.30E-09
NE	1.00E-07	6.18E-09
ENE	6.20E-08	2.34E-09
E	4.46E-08	2.77E-09
ESE	5.28E-08	3.93E-09
SE	5.50E-08	4.98E-09
SSE	3.99E-08	4.20E-09
S	1.83E-08	2.63E-09
SSW	1.17E-08	1.46E-09
SW	1.17E-08	1.46E-09
WSW	1.34E-08	1.34E-09
W	3.42E-08	1.67E-09
WNW	7.22E-08	2.43E-09
NW	5.67E-08	2.82E-09
NNW	1.08E-07	5.80E-09

Period of record: 9-1-76 to 8-31-78.

* Measured relevant to the Reactor Vent.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	2.39E-11	4.33E-08	6.96E-08	7.18E-08	7.08E-08	7.05E-08	7.15E-08
NNE	3.93E-11	6.93E-08	1.04E-07	1.03E-07	1.02E-07	1.01E-07	9.96E-08
NE	1.15E-11	2.27E-08	4.42E-08	5.50E-08	6.09E-08	6.34E-08	6.46E-08
ENE	1.00E-11	1.96E-08	3.74E-08	4.75E-08	5.48E-08	5.94E-08	6.22E-08
E	3.09E-12	7.35E-09	2.33E-08	3.64E-08	4.44E-08	4.93E-08	5.30E-08
ESE	2.80E-12	7.63E-09	2.67E-08	4.30E-08	5.31E-08	5.99E-08	6.61E-08
SE	5.57E-12	1.31E-08	3.90E-08	5.97E-08	7.41E-08	8.66E-08	9.91E-08
SSE	6.56E-12	1.40E-08	3.27E-08	4.50E-08	5.37E-08	6.41E-08	7.81E-08
S	4.93E-12	1.23E-08	3.06E-08	4.42E-08	5.35E-08	6.15E-08	6.95E-08
SSW	1.62E-12	4.83E-09	1.73E-08	2.93E-08	3.77E-08	4.45E-08	5.11E-08
SW	5.96E-13	2.06E-09	9.62E-09	1.69E-08	2.21E-08	2.73E-08	3.37E-08
WSW	3.07E-13	1.30E-09	7.80E-09	1.43E-08	1.87E-08	2.33E-08	2.94E-08
W	1.87E-12	6.43E-09	1.74E-08	2.59E-08	3.15E-08	3.63E-08	4.14E-08
WNW	1.56E-12	5.49E-09	2.06E-08	3.41E-08	4.21E-08	4.76E-08	5.27E-08
NW	5.29E-12	1.20E-08	3.15E-08	4.53E-08	5.46E-08	6.24E-08	6.92E-08
NNW	3.03E-11	5.55E-08	9.01E-08	9.73E-08	1.02E-07	1.07E-07	1.11E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	7.07E-08	6.72E-08	6.55E-08	6.42E-08	6.30E-08	6.18E-08	6.05E-08
NNE	9.48E-08	8.63E-08	8.08E-08	7.65E-08	7.29E-08	6.97E-08	6.67E-08
NE	6.26E-08	5.76E-08	5.41E-08	5.13E-08	4.89E-08	4.69E-08	4.50E-08
ENE	6.13E-08	5.70E-08	5.38E-08	5.12E-08	4.89E-08	4.67E-08	4.47E-08
E	5.36E-08	5.10E-08	4.91E-08	4.74E-08	4.58E-08	4.43E-08	4.27E-08
ESE	6.89E-08	6.75E-08	6.63E-08	6.51E-08	6.36E-08	6.19E-08	6.00E-08
SE	1.06E-07	1.05E-07	1.04E-07	1.02E-07	9.96E-08	9.66E-08	9.32E-08
SSE	9.01E-08	9.61E-08	1.01E-07	1.04E-07	1.06E-07	1.06E-07	1.05E-07
S	7.41E-08	7.41E-08	7.42E-08	7.39E-08	7.31E-08	7.19E-08	7.04E-08
SSW	5.49E-08	5.49E-08	5.49E-08	5.44E-08	5.37E-08	5.26E-08	5.13E-08
SW	3.88E-08	4.13E-08	4.31E-08	4.43E-08	4.49E-08	4.49E-08	4.45E-08
WSW	3.49E-08	3.82E-08	4.10E-08	4.32E-08	4.46E-08	4.55E-08	4.58E-08
W	4.50E-08	4.59E-08	4.69E-08	4.77E-08	4.80E-08	4.80E-08	4.77E-08
WNW	5.52E-08	5.45E-08	5.42E-08	5.39E-08	5.33E-08	5.26E-08	5.16E-08
NW	7.18E-08	6.96E-08	6.77E-08	6.59E-08	6.40E-08	6.21E-08	6.01E-08
NNW	1.08E-07	9.96E-08	9.36E-08	8.85E-08	8.40E-08	8.00E-08	7.63E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	5.91E-08	5.66E-08	5.43E-08	5.20E-08	4.99E-08	4.78E-08	4.59E-08
NNE	6.40E-08	6.06E-08	5.74E-08	5.45E-08	5.17E-08	4.92E-08	4.69E-08
NE	4.33E-08	4.23E-08	4.14E-08	4.06E-08	3.96E-08	3.88E-08	3.79E-08
ENE	4.28E-08	4.10E-08	3.93E-08	3.77E-08	3.62E-08	3.47E-08	3.34E-08
E	4.12E-08	3.94E-08	3.76E-08	3.60E-08	3.44E-08	3.29E-08	3.15E-08
ESE	5.80E-08	5.59E-08	5.39E-08	5.18E-08	4.98E-08	4.78E-08	4.60E-08
SE	8.97E-08	8.77E-08	8.55E-08	8.32E-08	8.07E-08	7.83E-08	7.59E-08
SSE	1.04E-08	9.98E-08	9.58E-08	9.19E-08	8.80E-08	8.42E-08	8.06E-08
S	6.85E-08	6.54E-08	6.23E-08	5.93E-08	5.65E-08	5.39E-08	5.14E-08
SSW	4.99E-08	5.03E-08	5.04E-08	5.04E-08	5.02E-08	4.99E-08	4.95E-08
SW	4.37E-08	4.46E-08	4.51E-08	4.54E-08	4.55E-08	4.54E-08	4.52E-08
WSW	4.57E-08	4.71E-08	4.81E-08	4.88E-08	4.92E-08	4.94E-08	4.95E-08
W	4.71E-08	4.79E-08	4.85E-08	4.89E-08	4.90E-08	4.90E-08	4.89E-08
WNW	5.05E-08	5.10E-08	5.12E-08	5.13E-08	5.12E-08	5.11E-08	5.08E-08
NW	5.81E-08	5.64E-08	5.47E-08	5.30E-08	5.13E-08	4.97E-08	4.82E-08
NNW	7.29E-08	6.89E-08	6.52E-08	6.18E-08	5.87E-08	5.58E-08	5.31E-08

Period of Record: 9-1-76 to 8-31-7

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	4.41E-08	4.23E-08	4.07E-08	3.92E-08	3.82E-08	3.73E-08	3.64E-08
NNE	4.48E-08	4.28E-08	4.09E-08	3.92E-08	3.76E-08	3.61E-08	3.47E-08
NE	3.71E-08	3.63E-08	3.53E-08	3.47E-08	3.35E-08	3.24E-08	3.13E-08
ENE	3.21E-08	3.09E-08	2.98E-08	2.87E-08	2.76E-08	2.65E-08	2.55E-08
E	3.02E-08	2.90E-08	2.78E-08	2.67E-08	2.57E-08	2.47E-08	2.38E-08
ESE	4.42E-08	4.25E-08	4.09E-08	3.94E-08	3.79E-08	3.66E-08	3.53E-08
SE	7.35E-08	7.12E-08	6.89E-08	6.68E-08	6.38E-08	6.11E-08	5.85E-08
SSE	7.72E-08	7.39E-08	7.08E-08	6.79E-08	6.53E-08	6.28E-08	6.05E-08
S	4.91E-08	4.69E-08	4.48E-08	4.29E-08	4.20E-08	4.11E-08	4.03E-08
SSW	4.90E-08	4.85E-08	4.79E-08	4.73E-08	4.51E-08	4.30E-08	4.11E-08
SW	4.49E-08	4.46E-08	4.42E-08	4.38E-08	4.23E-08	4.09E-08	3.96E-08
WSW	4.93E-08	4.91E-08	4.88E-08	4.84E-08	4.63E-08	4.42E-08	4.24E-08
W	4.86E-08	4.83E-08	4.79E-08	4.75E-08	4.59E-08	4.44E-08	4.30E-08
WNW	5.05E-08	5.01E-08	4.97E-08	4.93E-08	4.84E-08	4.75E-08	4.66E-08
NW	4.67E-08	4.52E-08	4.38E-08	4.25E-08	4.19E-08	4.14E-08	4.08E-08
NNW	5.06E-08	4.83E-08	4.62E-08	4.42E-08	4.24E-08	4.07E-08	3.91E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	3.55E-08	3.47E-08	3.39E-08	3.31E-08	3.24E-08	3.17E-08	3.10E-08
NNE	3.34E-08	3.22E-08	3.11E-08	3.00E-08	2.90E-08	2.80E-08	2.71E-08
NE	3.03E-08	2.93E-08	2.84E-08	2.76E-08	2.67E-08	2.60E-08	2.52E-08
ENE	2.46E-08	2.37E-08	2.29E-08	2.21E-08	2.14E-08	2.07E-08	2.00E-08
E	2.30E-08	2.22E-08	2.14E-08	2.07E-08	2.00E-08	1.94E-08	1.88E-08
ESE	3.41E-08	3.29E-08	3.18E-08	3.08E-08	2.98E-08	2.89E-08	2.80E-08
SE	5.62E-08	5.39E-08	5.18E-08	4.98E-08	4.80E-08	4.62E-08	4.46E-08
SSE	5.83E-08	5.62E-08	5.42E-08	5.23E-08	5.05E-08	4.89E-08	4.73E-08
S	3.94E-08	3.86E-08	3.78E-08	3.70E-08	3.63E-08	3.55E-08	3.49E-08
SSW	3.93E-08	3.77E-08	3.61E-08	3.47E-08	3.34E-08	3.21E-08	3.09E-08
SW	3.84E-08	3.72E-08	3.61E-08	3.51E-08	3.41E-08	3.32E-08	3.23E-08
WSW	4.06E-08	3.90E-08	3.74E-08	3.60E-08	3.47E-08	3.34E-08	3.22E-08
W	4.17E-08	4.04E-08	3.93E-08	3.81E-08	3.70E-08	3.60E-08	3.50E-08
WNW	4.58E-08	4.50E-08	4.42E-08	4.34E-08	4.27E-08	4.20E-08	4.14E-08
NW	4.02E-08	3.96E-08	3.90E-08	3.85E-08	3.79E-08	3.74E-08	3.68E-08
NNW	3.76E-08	3.62E-08	3.49E-08	3.36E-08	3.25E-08	3.14E-08	3.03E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	3.00E-08	2.91E-08	2.82E-08	2.74E-08	2.66E-08	2.59E-08	2.51E-08
NNE	2.63E-08	2.54E-08	2.47E-08	2.40E-08	2.33E-08	2.26E-08	2.20E-08
NE	2.45E-08	2.39E-08	2.32E-08	2.26E-08	2.20E-08	2.15E-08	2.09E-08
ENE	1.94E-08	1.88E-08	1.83E-08	1.77E-08	1.73E-08	1.68E-08	1.63E-08
E	1.82E-08	1.77E-08	1.71E-08	1.66E-08	1.62E-08	1.57E-08	1.53E-08
ESE	2.72E-08	2.64E-08	2.56E-08	2.49E-08	2.42E-08	2.35E-08	2.29E-08
SE	4.30E-08	4.16E-08	4.02E-08	3.89E-08	3.77E-08	3.65E-08	3.54E-08
SSE	4.60E-08	4.49E-08	4.37E-08	4.27E-08	4.16E-08	4.06E-08	3.97E-08
S	3.39E-08	3.30E-08	3.22E-08	3.14E-08	3.06E-08	2.99E-08	2.92E-08
SSW	3.01E-08	2.93E-08	2.86E-08	2.79E-08	2.72E-08	2.65E-08	2.59E-08
SW	3.17E-08	3.12E-08	3.07E-08	3.02E-08	2.98E-08	2.93E-08	2.89E-08
WSW	3.17E-08	3.12E-08	3.07E-08	3.03E-08	2.98E-08	2.94E-08	2.89E-08
W	3.38E-08	3.26E-08	3.15E-08	3.05E-08	2.95E-08	2.86E-08	2.77E-08
WNW	3.99E-08	3.84E-08	3.71E-08	3.58E-08	3.46E-08	3.35E-08	3.24E-08
NW	3.60E-08	3.51E-08	3.43E-08	3.35E-08	3.28E-08	3.20E-08	3.13E-08
NNW	2.94E-08	2.84E-08	2.76E-08	2.67E-08	2.60E-08	2.52E-08	2.45E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	2.45E-08	2.38E-08	2.32E-08	2.26E-08	2.20E-08	2.15E-08	2.10E-08
NNE	2.14E-08	2.08E-08	2.03E-08	1.98E-08	1.93E-08	1.88E-08	1.84E-08
NE	2.04E-08	1.99E-08	1.95E-08	1.90E-08	1.86E-08	1.82E-08	1.78E-08
ENE	1.59E-08	1.55E-08	1.51E-08	1.47E-08	1.44E-08	1.40E-08	1.37E-08
E	1.49E-08	1.45E-08	1.42E-08	1.38E-08	1.35E-08	1.31E-08	1.28E-08
ESE	2.23E-08	2.18E-08	2.12E-08	2.07E-08	2.02E-08	1.97E-08	1.93E-08
SE	3.43E-08	3.33E-08	3.24E-08	3.15E-08	3.06E-08	2.98E-08	2.90E-08
SSE	3.88E-08	3.79E-08	3.71E-08	3.60E-08	3.50E-08	3.41E-08	3.32E-08
S	2.85E-08	2.79E-08	2.73E-08	2.65E-08	2.57E-08	2.50E-08	2.43E-08
SSW	2.53E-08	2.48E-08	2.42E-08	2.35E-08	2.28E-08	2.22E-08	2.16E-08
SW	2.85E-08	2.81E-08	2.77E-08	2.69E-08	2.61E-08	2.53E-08	2.46E-08
WSW	2.85E-08	2.81E-08	2.77E-08	2.69E-08	2.61E-08	2.53E-08	2.46E-08
W	2.68E-08	2.60E-08	2.53E-08	2.46E-08	2.39E-08	2.33E-08	2.26E-08
WNW	3.14E-08	3.05E-08	2.95E-08	2.87E-08	2.79E-08	2.71E-08	2.64E-08
NW	3.07E-08	3.00E-08	2.94E-08	2.86E-08	2.78E-08	2.70E-08	2.63E-08
NNW	2.38E-08	2.32E-08	2.26E-08	2.20E-08	2.14E-08	2.08E-08	2.03E-08

Period of Record: 9-1-76 to 8-31-78

Measured relevant to the Offgas Stack.

Table 7 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/Q), sec/m^3

Sector*	Miles 5.0
N	2.05E-08
NNE	1.79E-08
NE	1.74E-08
ENE	1.34E-08
E	1.25E-08
ESE	1.88E-08
SE	2.82E-08
SSE	3.23E-08
S	2.36E-08
SSW	2.10E-08
SW	2.39E-08
WSW	2.39E-08
W	2.21E-08
WNW	2.57E-08
NW	2.57E-08
NNW	1.98E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	1.44E-09	4.89E-09	6.31E-09	5.66E-09	5.00E-09	4.44E-09	4.00E-09
NNE	2.25E-09	7.63E-09	9.79E-09	8.72E-09	7.59E-09	6.61E-09	5.82E-09
NE	1.06E-09	3.60E-09	4.65E-09	4.17E-09	3.68E-09	3.27E-09	2.94E-09
ENE	9.73E-10	3.30E-09	4.25E-09	3.81E-09	3.34E-09	2.95E-09	2.64E-09
E	7.84E-10	2.67E-09	3.45E-09	3.11E-09	2.77E-09	2.49E-09	2.27E-09
ESE	1.06E-09	3.61E-09	4.70E-09	4.31E-09	3.92E-09	3.63E-09	3.42E-09
SE	1.42E-09	4.87E-09	6.41E-09	6.00E-09	5.64E-09	5.40E-09	5.30E-09
SSE	1.19E-09	4.11E-09	5.46E-09	5.20E-09	5.00E-09	4.92E-09	4.96E-09
S	9.90E-10	3.38E-09	4.42E-09	4.08E-09	3.75E-09	3.50E-09	3.34E-09
SSW	5.92E-10	2.02E-09	2.65E-09	2.45E-09	2.25E-09	2.11E-09	2.03E-09
SW	3.23E-10	1.11E-09	1.48E-09	1.41E-09	1.35E-09	1.33E-09	1.34E-09
WSW	2.97E-10	1.03E-09	1.38E-09	1.33E-09	1.31E-09	1.32E-09	1.36E-09
W	4.41E-10	1.51E-09	1.98E-09	1.85E-09	1.72E-09	1.64E-09	1.59E-09
WNW	6.23E-10	2.13E-09	1.78E-09	2.56E-09	2.35E-09	2.20E-09	2.10E-09
NW	7.59E-10	2.59E-09	3.39E-09	3.13E-09	2.87E-09	2.69E-09	2.57E-09
NNW	1.94E-09	6.59E-09	8.48E-09	7.59E-09	6.66E-09	5.88E-09	5.25E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	3.47E-09	2.90E-09	2.39E-09	1.98E-09	1.67E-09	1.42E-09	1.23E-09
NNE	4.93E-09	4.00E-09	3.24E-09	2.65E-09	2.20E-09	1.85E-09	1.58E-09
NE	2.56E-09	2.13E-09	1.76E-09	1.46E-09	1.23E-09	1.05E-09	9.02E-10
ENE	2.27E-09	1.88E-09	1.54E-09	1.27E-09	1.06E-09	9.03E-10	7.75E-10
E	2.01E-09	1.70E-09	1.41E-09	1.18E-09	1.00E-09	8.59E-10	7.45E-10
ESE	3.12E-09	2.74E-09	2.32E-09	1.97E-09	1.69E-09	1.47E-09	1.29E-09
SE	5.02E-09	4.56E-09	3.94E-09	3.38E-09	2.94E-09	2.58E-09	2.29E-09
SSE	4.81E-09	4.46E-09	3.89E-09	3.37E-09	2.95E-09	2.61E-09	2.32E-09
S	3.09E-09	2.74E-09	2.34E-09	1.99E-09	1.72E-09	1.50E-09	1.32E-09
SSW	1.88E-09	1.67E-09	1.43E-09	1.22E-09	1.05E-09	9.18E-10	8.09E-10
SW	1.30E-09	1.21E-09	1.05E-09	9.14E-10	8.00E-10	7.06E-10	6.29E-10
WSW	1.35E-09	1.27E-09	1.12E-09	9.76E-10	8.59E-10	7.62E-10	6.81E-10
W	1.49E-09	1.35E-09	1.16E-09	9.93E-10	8.61E-10	7.54E-10	6.66E-10
WNW	1.93E-09	1.71E-09	1.46E-09	1.24E-09	1.07E-09	9.35E-10	8.22E-10
NW	2.37E-09	2.10E-09	1.80E-09	1.53E-09	1.32E-09	1.15E-09	1.01E-09
NNW	4.52E-09	3.73E-09	3.06E-09	2.53E-09	2.12E-09	1.80E-09	1.54E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	1.07E-09	9.36E-10	8.27E-10	7.36E-10	6.92E-10	6.30E-10	5.75E-10
NNE	1.36E-09	1.18E-09	1.03E-09	9.08E-10	8.58E-10	7.77E-10	7.07E-10
NE	7.84E-10	6.88E-10	6.08E-10	5.41E-10	5.09E-10	4.63E-10	4.23E-10
ENE	6.72E-10	5.88E-10	5.18E-10	4.59E-10	4.32E-10	3.93E-10	3.58E-10
E	6.51E-10	5.75E-10	5.10E-10	4.56E-10	4.28E-10	3.90E-10	3.57E-10
ESE	1.14E-09	1.01E-09	9.06E-10	8.16E-10	7.64E-10	6.99E-10	6.43E-10
SE	2.04E-09	1.83E-09	1.65E-09	1.50E-09	1.40E-09	1.28E-09	1.18E-09
SSE	2.08E-09	1.87E-09	1.70E-09	1.54E-09	1.44E-09	1.32E-09	1.22E-09
S	1.17E-09	1.04E-09	9.35E-10	8.44E-10	7.89E-10	7.23E-10	6.66E-10
SSW	7.17E-10	6.41E-10	5.76E-10	5.20E-10	4.86E-10	4.46E-10	4.10E-10
SW	5.63E-10	5.08E-10	4.60E-10	4.18E-10	3.90E-10	3.59E-10	3.31E-10
WSW	6.12E-10	5.53E-10	5.02E-10	4.58E-10	4.26E-10	3.93E-10	3.63E-10
W	5.93E-10	5.32E-10	4.79E-10	4.34E-10	4.05E-10	3.72E-10	3.42E-10
WNW	7.28E-10	6.50E-10	5.84E-10	5.27E-10	4.92E-10	4.51E-10	4.15E-10
NW	8.97E-10	8.01E-10	7.20E-10	6.50E-10	6.07E-10	5.57E-10	5.12E-10
NNW	1.34E-09	1.17E-09	1.03E-09	9.12E-10	8.59E-10	7.81E-10	7.12E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	5.28E-10	4.86E-10	4.49E-10	4.17E-10	3.87E-10	3.61E-10	3.37E-10
NNE	6.46E-10	5.93E-10	5.46E-10	5.05E-10	4.68E-10	4.35E-10	4.06E-10
NE	3.88E-10	3.58E-10	3.30E-10	3.06E-10	2.85E-10	2.65E-10	2.48E-10
ENE	3.28E-10	3.02E-10	2.79E-10	2.58E-10	2.40E-10	2.24E-10	2.09E-10
E	3.28E-10	3.03E-10	2.80E-10	2.60E-10	2.42E-10	2.26E-10	2.11E-10
ESE	5.93E-10	5.48E-10	5.09E-10	4.73E-10	4.41E-10	4.12E-10	3.86E-10
SE	1.09E-09	1.01E-09	9.43E-10	8.78E-10	8.21E-10	7.68E-10	7.20E-10
SSE	1.13E-09	1.05E-09	9.78E-10	9.12E-10	8.52E-10	7.98E-10	7.48E-10
S	6.14E-10	5.69E-10	5.28E-10	4.92E-10	4.59E-10	4.29E-10	4.02E-10
SSW	3.79E-10	3.76E-10	3.90E-10	3.92E-10	3.62E-10	3.34E-10	3.10E-10
SW	3.07E-10	2.98E-10	3.09E-10	3.18E-10	2.93E-10	2.71E-10	2.51E-10
WSW	3.36E-10	3.41E-10	3.44E-10	3.58E-10	3.30E-10	3.05E-10	2.83E-10
W	3.17E-10	3.11E-10	3.09E-10	3.19E-10	2.94E-10	2.72E-10	2.53E-10
WNW	3.83E-10	3.86E-10	3.86E-10	3.89E-10	3.59E-10	3.45E-10	3.20E-10
NW	4.73E-10	4.38E-10	4.07E-10	3.78E-10	3.53E-10	3.30E-10	3.09E-10
NNW	6.53E-10	6.01E-10	5.55E-10	5.14E-10	4.77E-10	4.44E-10	4.15E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	3.16E-10	2.96E-10	2.78E-10	2.62E-10	2.47E-10	2.33E-10	2.20E-10
NNE	3.79E-10	3.55E-10	3.33E-10	3.13E-10	2.95E-10	2.78E-10	2.63E-10
NE	2.32E-10	2.18E-10	2.04E-10	1.92E-10	1.81E-10	1.71E-10	1.62E-10
ENE	1.95E-10	1.83E-10	1.72E-10	1.62E-10	1.52E-10	1.44E-10	1.36E-10
E	1.98E-10	1.86E-10	1.75E-10	1.64E-10	1.55E-10	1.46E-10	1.39E-10
ESE	3.62E-10	3.40E-10	3.20E-10	3.02E-10	2.85E-10	2.69E-10	2.55E-10
SE	6.76E-10	6.35E-10	5.98E-10	5.64E-10	5.33E-10	5.04E-10	4.77E-10
SSE	7.03E-10	6.62E-10	6.23E-10	5.88E-10	5.56E-10	5.26E-10	4.98E-10
S	3.77E-10	3.54E-10	3.33E-10	3.14E-10	2.97E-10	2.81E-10	2.66E-10
SSW	2.88E-10	2.68E-10	2.50E-10	2.34E-10	2.20E-10	2.06E-10	1.94E-10
SW	2.44E-10	2.27E-10	2.12E-10	1.98E-10	1.86E-10	1.75E-10	1.64E-10
WSW	2.63E-10	2.45E-10	2.29E-10	2.14E-10	2.01E-10	1.89E-10	1.78E-10
W	2.47E-10	2.30E-10	2.15E-10	2.01E-10	1.88E-10	1.77E-10	1.66E-10
WNW	2.97E-10	2.76E-10	2.58E-10	2.41E-10	2.26E-10	2.12E-10	2.00E-10
NW	2.90E-10	2.73E-10	2.57E-10	2.42E-10	2.26E-10	2.16E-10	2.04E-10
NNW	3.88E-10	3.64E-10	3.41E-10	3.21E-10	3.03E-10	2.86E-10	2.70E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

Miles

Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	2.09E-10	1.98E-10	1.88E-10	1.78E-10	1.70E-10	1.62E-10	1.54E-10
NNE	2.49E-10	2.36E-10	2.24E-10	2.13E-10	2.02E-10	1.93E-10	1.84E-10
NE	1.53E-10	1.45E-10	1.38E-10	1.31E-10	1.25E-10	1.19E-10	1.13E-10
ENE	1.29E-10	1.22E-10	1.16E-10	1.10E-10	1.05E-10	9.98E-11	9.51E-11
E	1.31E-10	1.24E-10	1.18E-10	1.12E-10	1.07E-10	1.02E-10	9.71E-11
ESE	2.42E-10	2.29E-10	2.18E-10	2.07E-10	1.97E-10	1.88E-10	1.79E-10
SE	4.53E-10	4.30E-10	4.08E-10	3.88E-10	3.69E-10	3.52E-10	3.36E-10
SSE	4.72E-10	4.48E-10	4.26E-10	4.05E-10	3.85E-10	3.67E-10	3.50E-10
S	2.52E-10	2.46E-10	2.34E-10	2.32E-10	2.34E-10	2.23E-10	2.12E-10
SSW	1.83E-10	1.73E-10	1.64E-10	1.59E-10	1.51E-10	1.43E-10	1.36E-10
SW	1.55E-10	1.46E-10	1.38E-10	1.31E-10	1.24E-10	1.18E-10	1.12E-10
WSW	1.68E-10	1.62E-10	1.54E-10	1.46E-10	1.38E-10	1.31E-10	1.25E-10
W	1.57E-10	1.48E-10	1.40E-10	1.33E-10	1.26E-10	1.20E-10	1.14E-10
WNW	1.88E-10	1.78E-10	1.68E-10	1.59E-10	1.51E-10	1.44E-10	1.37E-10
NW	1.94E-10	1.86E-10	1.77E-10	1.73E-10	1.76E-10	1.67E-10	1.59E-10
NNW	2.56E-10	2.43E-10	2.30E-10	2.19E-10	2.08E-10	1.98E-10	1.89E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	1.47E-10	1.41E-10	1.34E-10	1.29E-10	1.23E-10	1.18E-10	1.13E-10
NNE	1.75E-10	1.67E-10	1.60E-10	1.53E-10	1.47E-10	1.41E-10	1.35E-10
NE	1.08E-10	1.03E-10	9.88E-11	9.45E-11	9.05E-11	8.68E-11	8.32E-11
ENE	9.08E-11	8.67E-11	8.29E-11	7.94E-11	7.60E-11	7.28E-11	6.99E-11
E	9.26E-11	8.85E-11	8.46E-11	8.10E-11	7.75E-11	7.43E-11	7.13E-11
ESE	1.71E-10	1.63E-10	1.56E-10	1.49E-10	1.43E-10	1.37E-10	1.31E-10
SE	3.20E-10	3.06E-10	2.92E-10	2.80E-10	2.68E-10	2.57E-10	2.46E-10
SSE	3.34E-10	3.19E-10	3.05E-10	2.92E-10	2.80E-10	2.68E-10	2.57E-10
S	2.08E-10	1.98E-10	1.89E-10	1.81E-10	1.73E-10	1.66E-10	1.59E-10
SSW	1.30E-10	1.24E-10	1.18E-10	1.13E-10	1.08E-10	1.03E-10	9.90E-11
SW	1.08E-10	1.03E-10	9.82E-11	9.39E-11	8.98E-11	8.59E-11	8.24E-11
WSW	1.19E-10	1.13E-10	1.08E-10	1.03E-10	9.88E-11	9.46E-11	9.06E-11
W	1.08E-10	1.03E-10	9.87E-11	9.43E-11	9.02E-11	8.64E-11	8.28E-11
WNW	1.30E-10	1.24E-10	1.18E-10	1.13E-10	1.08E-10	1.04E-10	9.94E-11
NW	1.58E-10	1.51E-10	1.44E-10	1.38E-10	1.32E-10	1.26E-10	1.21E-10
NNW	1.80E-10	1.72E-10	1.65E-10	1.58E-10	1.51E-10	1.45E-10	1.39E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 8 Monticello Offgas Stack Dispersion Parameters for Long Term Elevated Releases >500 Hrs/Yr or >150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/Q), m^{-2}

	Miles
Sector*	5.0
N	1.09E-10
NNE	1.30E-10
NE	7.99E11
ENE	6.71E-11
E	6.84E-11
ESE	1.26E-10
SE	2.36E-10
SSE	2.46E-10
S	1.52E-10
SSW	9.49E-11
SW	7.90E-11
WSW	8.69E-11
W	7.94E-11
WNW	9.53E-11
NW	1.16E-10
NNW	1.33E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 9 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr

Site Boundary Sector*	χ/Q (sec/m^3)	D/q (m^{-2})
N	1.55E-07	9.93E-09
NNE	1.41E-07	8.59E-09
NE	1.88E-07	1.16E-08
ENE	1.60E-07	6.04E-09
E	1.47E-07	9.15E-09
ESE	***	***
SE	***	***
SSE	***	***
S	***	***
SSW	***	***
SW	***	***
WSW	***	***
W	5.95E-08	2.91E-09
WNW	1.39E-07	4.68E-09
NW	***	***
NNW	2.33E-07	1.25E-08

Period of record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	**	**	**	1.67E-07	1.85E-07	1.50E-07	1.18E-07
NNE	**	**	**	2.82E-07	2.50E-07	2.12E-07	1.69E-07
NE	**	**	**	7.93E-08	1.29E-07	1.21E-07	1.08E-07
ENE	**	**	**	1.63E-07	1.87E-07	1.77E-07	1.46E-07
E	**	**	**	8.63E-08	1.47E-07	1.29E-07	1.07E-07
ESE	**	**	**	***	***	6.17E-08	1.02E-07
SE	**	**	**	***	***	***	1.17E-07
SSE	**	**	**	***	***	***	1.04E-07
S	**	**	**	***	***	7.75E-08	1.13E-07
SSW	**	**	**	***	***	7.15E-08	1.03E-07
SW	**	**	**	***	***	4.73E-08	8.22E-08
WSW	**	**	**	***	***	3.82E-08	6.85E-08
W	**	**	**	***	4.06E-08	7.49E-08	8.73E-08
WNW	**	**	**	***	4.56E-08	8.41E-08	9.88E-08
NW	**	**	**	***	***	7.36E-08	1.08E-07
NNW	**	**	**	2.73E-07	2.57E-07	2.37E-07	1.94E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	1.52E-07	1.77E-07	1.94E-07	1.82E-07	1.96E-07	1.87E-07	2.07E-07
NNE	1.83E-07	2.05E-07	2.18E-07	2.30E-07	2.15E-07	1.99E-07	2.13E-07
NE	1.30E-07	1.60E-07	1.67E-07	1.75E-07	1.76E-07	1.61E-07	1.55E-07
ENE	1.62E-07	1.80E-07	1.75E-07	1.84E-07	1.96E-07	1.94E-07	1.91E-07
E	1.38E-07	1.62E-07	1.65E-07	1.75E-07	1.72E-07	1.59E-07	1.77E-07
ESE	1.36E-07	1.62E-07	1.71E-07	1.57E-07	1.62E-07	1.64E-07	1.70E-07
SE	1.56E-07	1.84E-07	1.98E-07	1.93E-07	2.02E-07	2.06E-07	2.46E-07
SSE	1.42E-07	1.78E-07	1.97E-07	2.50E-07	2.26E-07	2.35E-07	2.77E-07
S	1.55E-07	1.86E-07	2.07E-07	1.92E-07	2.08E-07	2.01E-07	2.71E-07
SSW	1.43E-07	1.64E-07	1.81E-07	1.86E-07	1.83E-07	1.79E-07	2.01E-07
SW	1.17E-07	1.45E-07	1.63E-07	1.77E-07	1.70E-07	1.74E-07	2.58E-07
WSW	9.91E-07	1.25E-07	1.31E-07	1.43E-07	1.62E-07	1.59E-07	2.45E-07
W	1.25E-07	1.56E-07	1.76E-07	1.86E-07	2.00E-07	2.04E-07	2.77E-07
WNW	1.39E-07	1.71E-07	1.89E-07	1.96E-07	2.04E-07	2.12E-07	2.79E-07
NNW	2.00E-07	2.24E-07	2.43E-07	2.48E-07	2.36E-07	2.14E-07	3.06E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m³

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	2.56E-07	1.89E-07	2.10E-07	2.05E-07	1.94E-07	1.88E-07	1.79E-07
NNE	2.59E-07	1.97E-07	2.23E-07	2.13E-07	1.97E-07	1.87E-07	1.77E-07
NE	1.71E-07	1.63E-07	1.55E-07	1.86E-07	1.77E-07	1.74E-07	1.66E-07
ENE	1.82E-07	1.67E-07	2.13E-07	1.89E-07	1.74E-07	1.69E-07	1.64E-07
E	1.73E-07	1.61E-07	1.51E-07	1.88E-07	1.75E-07	1.66E-07	1.59E-07
ESE	1.84E-07	1.77E-07	1.70E-07	***	1.55E-07	1.52E-07	1.50E-07
SE	2.06E-07	2.05E-07	1.90E-07	2.00E-07	2.01E-07	1.89E-07	1.77E-07
SSE	2.25E-07	2.10E-07	2.01E-07	2.21E-07	1.77E-07	1.78E-07	1.78E-07
S	2.10E-07	***	2.38E-07	2.35E-07	2.18E-07	2.04E-07	2.97E-07
SSW	1.90E-07	1.84E-07	2.46E-07	2.34E-07	2.24E-07	2.20E-07	2.17E-07
SW	1.80E-07	1.74E-07	1.69E-07	1.87E-07	2.01E-07	1.99E-07	1.91E-07
WSW	1.78E-07	1.76E-07	1.72E-07	1.89E-07	2.00E-07	1.99E-07	1.94E-07
W	2.14E-07	2.22E-07	2.50E-07	2.50E-07	2.32E-07	2.31E-07	2.23E-07
WNW	1.96E-07	1.87E-07	1.81E-07	1.97E-07	2.11E-07	2.09E-07	2.01E-07
NW	2.00E-07	1.90E-07	2.59E-07	2.40E-07	2.28E-07	2.10E-07	2.01E-07
NNW	2.28E-07	2.01E-07	1.96E-07	1.92E-07	1.87E-07	1.81E-07	1.74E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	1.70E-07	1.66E-07	1.58E-07	1.54E-07	1.51E-07	1.47E-07	1.37E-07
NNE	1.70E-07	1.62E-07	1.57E-07	1.51E-07	1.46E-07	1.44E-07	1.38E-07
NE	1.60E-07	1.53E-07	1.53E-07	1.47E-07	1.40E-07	1.36E-07	1.30E-07
ENE	1.57E-07	1.50E-07	1.47E-07	1.44E-07	1.36E-07	1.33E-07	1.28E-07
E	1.49E-07	1.44E-07	1.36E-07	1.33E-07	1.27E-07	1.23E-07	1.17E-07
ESE	1.48E-07	1.46E-07	1.43E-07	1.38E-07	1.33E-07	1.28E-07	1.23E-07
SE	1.95E-07	1.68E-07	1.64E-07	1.61E-07	1.55E-07	1.66E-07	1.60E-07
SSE	1.69E-07	1.58E-07	1.58E-07	1.50E-07	1.42E-07	1.35E-07	1.60E-07
S	1.65E-07	1.58E-07	1.51E-07	1.46E-07	1.41E-07	1.40E-07	1.65E-07
SSW	2.10E-07	2.11E-07	2.12E-07	1.89E-07	1.82E-07	1.76E-07	1.71E-07
SW	1.81E-07	1.90E-07	1.93E-07	1.93E-07	2.32E-07	2.23E-07	2.11E-07
WSW	1.82E-07	1.86E-07	1.79E-07	1.72E07	1.90E-07	1.84E-07	2.12E-07
W	2.15E-07	2.18E-07	2.20E-07	2.19E-07	2.10E-07	2.08E-07	2.05E-07
WNW	1.89E-07	1.89E-07	1.90E-07	1.93E-07	2.26E-07	2.18E-07	2.11E-07
NW	1.91E-07	1.86E-07	1.80E-07	1.76E-07	1.72E-07	1.69E-07	1.64E-07
NNW	1.72E-07	1.68E-07	1.68E-07	1.59E-07	1.54E-07	1.45E-07	1.36E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	1.35E-07	1.34E-07	1.32E-07	1.30E-07	1.28E-07	1.25E-07	1.23E-07
NNE	1.30E-07	1.26E-07	1.22E-07	1.19E-07	1.15E-07	1.12E-07	1.09E-07
NE	1.22E-07	1.20E-07	1.16E-07	1.14E-07	1.11E-07	1.09E-07	1.06E-07
ENE	1.21E-07	1.81E-07	1.15E-07	1.13E-07	1.10E-07	1.07E-07	1.04E-07
E	1.13E-07	1.10E-07	1.05E-07	1.03E-07	1.01E-07	1.01E-07	9.17E-08
ESE	1.19E-07	1.14E-07	1.08E-07	1.06E-07	1.03E-07	9.93E-08	9.89E-08
SE	1.31E-07	1.33E-07	1.35E-07	1.32E-07	1.26E-07	1.20E-07	1.15E-07
SSE	1.30E-07	1.32E-07	1.34E-07	1.35E-07	1.31E-07	1.26E-07	1.22E-07
S	1.63E-07	1.54E-07	1.46E-07	1.42E-07	1.34E-07	1.33E-07	1.32E-07
SSW	1.66E-07	1.57E-07	1.51E-07	1.46E-07	1.39E-07	1.34E-07	1.31E-07
SW	1.97E-07	1.82E-07	1.79E-07	1.71E-07	1.64E-07	1.59E-07	1.54E-07
WSW	2.02E-07	1.95E-07	1.85E-07	1.77E-07	1.69E-07	1.62E-07	1.54E-07
W	2.01E-07	1.92E-07	1.90E-07	1.84E-07	1.82E-07	1.78E-07	1.71E-07
WNW	2.02E-07	1.96E-07	1.92E-07	1.90E-07	1.85E-07	1.78E-07	1.75E-07
NW	1.70E-07	1.50E-07	1.48E-07	1.47E-07	1.39E-07	1.37E-07	1.38E-07
NNW	1.31E-07	1.30E-07	1.27E-07	1.22E-07	1.19E-07	1.16E-07	1.13E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	1.18E-07	1.15E-07	1.14E-07	1.11E-07	1.08E-07	1.06E-07	1.05E-07
NNE	1.07E-07	1.05E-07	1.01E-07	9.83E-08	9.61E-08	9.38E-08	9.04E-08
NE	1.03E-07	1.01E-07	9.84E-08	9.65E-08	9.20E-08	9.00E-08	8.81E-08
ENE	1.03E-07	1.01E-07	9.56E-08	9.34E-08	9.07E-08	8.79E-08	8.58E-08
E	9.00E-08	8.74E-08	8.37E-08	8.17E-08	7.94E-08	7.80E-08	7.64E-08
ESE	9.67E-08	9.46E-08	8.97E-08	8.91E-08	8.79E-08	8.64E-08	8.45E-08
SE	1.10E-07	1.06E-07	1.06E-07	1.02E-07	9.89E-08	1.03E-07	9.99E-08
SSE	1.18E-07	1.15E-07	1.11E-07	1.08E-07	1.12E-07	1.10E-07	1.08E-07
S	1.27E-07	1.23E-07	1.21E-07	1.17E-07	1.13E-07	1.10E-07	1.10E-07
SSW	1.27E-07	1.24E-07	1.21E-07	1.17E-07	1.15E-07	1.13E-07	1.08E-07
SW	1.52E-07	1.46E-07	1.43E-07	1.43E-07	1.41E-07	1.40E-07	1.38E-07
WSW	1.49E-07	1.43E-07	1.44E-07	1.43E-07	1.34E-07	1.33E-07	1.34E-07
W	1.66E-07	1.61E-07	1.56E-07	1.49E-07	1.42E-07	1.39E-07	1.35E-07
WNW	1.73E-07	1.67E-07	1.63E-07	1.58E-07	1.54E-07	1.49E-07	1.45E-07
NW	1.34E-07	1.27E-07	1.25E-07	1.24E-07	1.21E-07	1.19E-07	1.17E-07
NNW	1.10E-07	1.07E-07	1.02E-07	1.00E-07	9.75E-08	9.52E-08	9.37E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	1.01E-07	9.83E-08	9.37E-08	9.14E-08	8.97E-08	8.80E-08	8.61E-08
NNE	8.88E-08	8.71E-08	8.63E-08	8.42E-08	8.14E-08	8.00E-08	7.84E-08
NE	8.69E-08	8.53E-08	8.40E-08	8.25E-08	8.19E-08	8.02E-08	7.81E-08
ENE	8.42E-08	8.26E-08	8.09E-08	7.87E-08	7.69E-08	7.55E-08	7.38E-08
E	7.33E-08	7.27E-08	7.02E-08	6.85E-08	6.71E-08	6.56E-08	6.40E-08
ESE	8.27E-08	8.10E-08	7.40E-08	7.77E-08	7.61E-08	7.46E-08	7.32E-08
SE	9.71E-08	9.47E-08	9.24E-08	9.01E-08	8.78E-08	8.56E-08	8.18E-08
SSE	1.07E-07	1.02E-07	1.02E-07	9.90E-08	9.66E-08	9.41E-08	1.19E-07
S	1.06E-07	1.04E-07	1.02E-07	9.72E-08	9.63E-08	9.35E-08	9.03E-08
SSW	1.05E-07	1.03E-07	1.01E-07	9.78E-08	9.46E-08	9.20E-08	9.00E-08
SW	1.38E-07	1.37E-07	1.34E-07	1.30E-07	1.26E-07	1.24E-07	1.22E-07
WSW	1.31E-07	1.28E-07	1.28E-07	1.22E-07	1.20E-07	1.19E-07	1.18E-07
W	1.33E-07	1.28E-07	1.25E-07	1.24E-07	1.20E-07	1.17E-07	1.15E-07
WNW	1.43E-07	1.38E-07	1.35E-07	1.33E-07	1.33E-07	1.27E-07	1.25E-07
NW	1.14E-07	1.12E-07	1.11E-07	1.07E-07	1.04E-07	1.01E-07	9.74E-08
NNW	9.12E-08	8.89E-08	8.64E-08	8.31E-08	8.26E-08	8.08E-08	7.72E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 10 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

Sector*	Miles 5.0
N	8.28E-08
NNE	7.56E-08
NE	7.58E-08
ENE	7.11E-08
E	6.33E-08
ESE	7.16E-08
SE	8.10E-08
SSE	1.11E-07
S	8.84E-08
SSW	8.80E-08
SW	1.19E-07
WSW	1.13E-07
W	1.13E-07
WNW	1.21E-07
NW	9.51E-08
NNW	7.53E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

** Values less than the value for 0.4 miles.

*** See appropriate offgas stack long term elevated release values.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	**	**	**	1.32E-08	1.31E-08	9.45E-09	6.60E-09
NNE	**	**	**	2.39E-08	1.86E-08	1.39E-09	9.88E-09
NE	**	**	**	6.01E-09	7.80E-09	6.24E-09	4.92E-09
ENE	**	**	**	1.31E-08	1.14E-08	8.79E-09	6.20E-09
E	**	**	**	7.37E-09	9.17E-09	6.52E-09	4.58E-09
ESE	**	**	**	***	***	3.74E-09	5.28E-09
SE	**	**	**	***	***	***	6.26E-09
SSE	**	**	**	***	***	***	6.60E-09
S	**	**	**	***	***	4.41E-09	5.43E-09
SSW	**	**	**	***	***	3.39E-09	4.09E-09
SW	**	**	**	***	***	2.30E-09	3.34E-09
WSW	**	**	**	***	***	2.16E-09	3.17E-09
W	**	**	**	***	2.22E-09	3.38E-09	3.35E-09
WNW	**	**	**	***	2.55E-09	3.89E-09	3.94E-09
NW	**	**	**	***	***	3.17E-09	4.01E-09
NNW	**	**	**	2.13E-08	1.68E-08	1.30E-08	9.18E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	7.46E-09	7.64E-09	7.08E-09	5.61E-09	5.20E-09	4.30E-09	4.21E-09
NNE	9.52E-09	9.50E-09	8.74E-09	7.97E-09	6.49E-09	5.28E-09	5.05E-09
NE	5.32E-09	5.92E-09	5.43E-09	4.98E-09	4.43E-09	3.60E-09	3.11E-09
ENE	6.00E-09	5.94E-09	5.01E-09	4.56E-09	4.25E-09	3.75E-09	3.31E-09
E	5.18E-09	5.40E-09	4.74E-09	4.36E-09	3.76E-09	3.08E-09	3.09E-09
ESE	6.16E-09	6.58E-09	5.98E-09	4.72E-09	4.30E-09	3.89E-09	3.66E-09
SE	7.39E-09	7.99E-09	7.50E-09	6.40E-09	5.96E-09	5.50E-09	6.04E-09
SSE	7.58E-09	8.26E-09	7.59E-09	6.02E-09	6.29E-09	5.79E-09	6.12E-09
S	6.46E-09	6.88E-09	6.53E-09	5.17E-09	4.89E-09	4.19E-09	5.08E-09
SSW	4.90E-09	4.99E-09	4.71E-09	4.17E-09	3.58E-09	3.12E-09	3.17E-09
SW	5.67E-09	4.25E-09	3.97E-09	3.65E-09	3.03E-09	2.74E-09	3.65E-09
WSW	3.83E-09	4.16E-09	3.58E-09	3.23E-09	3.12E-09	2.66E-09	3.64E-09
W	4.14E-09	4.59E-09	4.35E-09	3.87E-09	3.59E-09	3.20E-09	3.87E-09
WNW	4.86E-09	5.37E-09	5.09E-09	4.51E-09	4.10E-09	3.77E-09	4.44E-09
NW	4.75E-09	5.16E-09	5.03E-09	4.25E-09	3.55E-09	3.43E-09	3.86E-09
NNW	8.37E-09	8.39E-09	7.94E-09	7.09E-09	5.96E-09	4.82E-09	6.18E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	4.63E-09	3.13E-09	3.20E-09	2.90E-09	2.69E-09	2.48E-09	2.24E-09
NNE	5.50E-09	3.78E-09	4.02E-09	3.56E-09	3.27E-09	2.95E-09	2.66E-09
NE	3.10E-09	2.65E-09	2.28E-09	2.48E-09	2.27E-09	2.08E-09	1.85E-09
ENE	2.86E-09	2.40E-09	2.81E-09	2.31E-09	2.08E-09	1.91E-09	1.76E-09
E	2.73E-09	2.35E-09	2.05E-09	2.39E-09	2.18E-09	1.96E-09	1.81E-09
ESE	3.62E-09	3.20E-09	2.86E-09	***	2.38E-09	2.22E-09	2.10E-09
SE	4.68E-09	4.28E-09	3.67E-09	3.61E-09	3.49E-09	3.09E-09	2.75E-09
SSE	4.50E-09	3.93E-09	3.57E-09	3.70E-09	2.90E-09	2.79E-09	2.69E-09
S	3.59E-09	***	3.58E-09	3.34E-09	3.04E-09	2.74E-09	2.55E-09
SSW	2.73E-09	2.34E-09	2.81E-09	2.42E-09	2.17E-09	1.97E-09	1.80E-09
SW	2.32E-09	1.98E-09	1.72E-09	1.72E-09	1.72E-09	1.57E-09	1.40E-09
WSW	2.38E-09	2.07E-09	1.80E-09	1.77E-09	1.73E-09	1.58E-09	1.42E-09
W	2.70E-09	2.47E-09	2.47E-09	2.22E-09	1.92E-09	1.75E-09	1.57E-09
WNW	2.83E-09	2.38E-09	2.06E-09	2.02E-09	2.03E-09	1.84E-09	1.64E-09
NW	3.09E-09	2.70E-09	3.41E-09	2.94E-09	2.70E-09	2.35E-09	2.13E-09
NNW	4.19E-09	3.41E-09	3.09E-09	2.84E-09	2.74E-09	2.54E-09	2.33E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

*** See appropriate long term values.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	2.04E-09	1.90E-09	1.75E-09	1.64E-09	1.53E-09	1.42E-09	1.27E-09
NNE	2.45E-09	2.25E-09	2.10E-09	1.95E-09	1.82E-09	1.73E-09	1.61E-09
NE	1.67E-09	1.51E-09	1.42E-09	1.30E-09	1.19E-09	1.11E-09	1.03E-09
ENE	1.61E-09	1.47E-09	1.38E-09	1.29E-09	1.18E-09	1.12E-09	1.04E-09
E	1.62E-09	1.51E-09	1.37E-09	1.30E-09	1.20E-09	1.12E-09	1.04E-09
ESE	1.99E-09	1.88E-09	1.78E-09	1.66E-09	1.55E-09	1.44E-09	1.34E-09
SE	2.89E-09	2.38E-09	2.24E-09	2.12E-09	1.97E-09	2.09E-09	1.97E-09
SSE	2.47E-09	2.24E-09	2.18E-09	2.01E-09	1.85E-09	1.72E-09	1.98E-09
S	2.06E-09	1.92E-09	1.80E-09	1.67E-09	1.54E-09	1.46E-09	1.64E-09
SSW	1.62E-09	1.64E-09	1.73E-09	1.57E-09	1.46E-09	1.37E-09	1.29E-09
SW	1.24E-09	1.27E-09	1.35E-09	1.40E-09	1.60E-09	1.48E-09	1.34E-09
WSW	1.24E-09	1.29E-09	1.26E-09	1.27E-09	1.35E-09	1.27E-09	1.42E-09
W	1.40E-09	1.40E-09	1.42E-09	1.47E-09	1.35E-09	1.27E-09	1.20E-09
WNW	1.43E-09	1.46E-09	1.48E-09	1.52E-09	1.68E-09	1.58E-09	1.44E-09
NW	1.93E-09	1.80E-09	1.67E-09	1.57E-09	1.45E-09	1.35E-09	1.25E-09
NNW	2.22E-09	2.09E-09	2.02E-09	1.85E-09	1.74E-09	1.58E-09	1.44E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	1.20E-09	1.15E-09	1.08E-09	1.03E-09	9.77E-10	9.22E-10	8.74E-10
NNE	1.47E-09	1.39E-09	1.31E-09	1.25E-09	1.17E-09	1.11E-09	1.06E-09
NE	9.37E-10	8.90E-10	8.37E-10	7.98E-10	7.54E-10	7.19E-10	6.82E10
ENE	9.64E-10	9.11E-10	8.65E-10	8.28E-10	7.85E-10	7.41E-10	7.09E-10
E	9.72E-10	9.18E-10	8.55E-10	8.15E-10	7.80E-10	7.63E-10	6.77E-10
ESE	1.26E-09	1.18E-09	1.09E-09	1.04E-09	9.85E-10	9.24E-10	9.01E-10
SE	1.58E-09	1.57E-09	1.56E-09	1.49E-09	1.40E-09	1.31E-09	1.23E-09
SSE	1.57E-09	1.55E-09	1.54E-09	1.52E-09	1.44E-09	1.36E-09	1.28E-09
S	1.56E-09	1.41E-09	1.29E-09	1.21E-09	1.10E-09	1.05E-09	1.01E-09
SSW	1.22E-09	1.12E-09	1.04E-09	9.83E-10	9.12E-10	8.63E-10	8.24E-10
SW	1.25E-09	1.11E-09	1.05E-09	9.69E-10	8.96E-10	8.36E-10	7.83E-10
WSW	1.31E-09	1.22E-09	1.13E-09	1.05E-09	9.80E-10	9.14E-10	8.49E-10
W	1.19E-09	1.09E-09	1.04E-09	9.69E-10	9.26E-10	8.75E-10	8.11E-10
WNW	1.31E-09	1.21E-09	1.12E-09	1.06E-09	9.78E-10	9.00E-10	8.43E-10
NW	1.23E-09	1.03E09	9.72E-10	9.26E-10	8.37E-10	7.94E-10	7.63E-10
NNW	1.35E-09	1.30E-09	1.25E-09	1.17E-09	1.11E-09	1.06E-09	1.44E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	8.20E-10	7.85E-10	7.57E-10	7.26E-10	6.90E-10	6.64E-10	6.42E-10
NNE	1.01E-09	9.76E-10	9.14E-10	8.72E-10	8.35E-10	7.98E-10	7.55E-10
NE	6.45E-10	6.15E-10	5.85E-10	5.60E-10	5.22E-10	4.99E-10	4.77E-10
ENE	6.83E-10	6.52E-10	6.06E-10	5.79E-10	5.51E-10	5.22E-10	5.00E-10
E	6.49E-10	6.16E-10	5.77E-10	5.51E-10	5.25E-10	5.05E-10	4.85E-10
ESE	8.60E-10	8.21E-10	7.64E-10	7.41E-10	7.16E-10	6.91E-10	6.61E-10
SE	1.16E-09	1.10E-09	1.08E-09	1.02E-09	9.68E-10	9.93E-10	9.48E-10
SSE	1.21E-09	1.15E-09	1.08E-09	1.02E-09	1.04E-09	9.94E-10	9.52E-10
S	9.44E-10	9.15E-10	8.76E-10	8.65E-10	8.63E-10	8.23E-10	7.95E-10
SSW	7.76E-10	7.35E-10	6.96E-10	6.69E-10	6.35E-10	6.08E-10	5.70E-10
SW	7.42E-10	6.82E-10	6.45E-10	6.21E-10	5.90E-10	5.64E-10	5.37E-10
WSW	7.90E-10	7.45E-10	7.21E-10	6.88E-10	6.21E-10	5.94E-10	5.78E-10
W	7.69E-10	7.29E-10	6.93E-10	6.50E-10	6.08E-10	5.83E-10	5.56E-10
WNW	8.16E-10	7.73E-10	7.41E-10	7.05E-10	6.72E-10	6.38E-10	6.11E-10
NW	7.24E-10	6.75E-10	6.45E-10	6.43E-10	6.48E-10	6.19E-10	5.95E-10
NNW	9.60E-10	9.10E-10	8.53E-10	8.18E-10	7.82E-10	7.49E-10	7.22E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	6.07E-10	5.80E-10	5.43E-10	5.20E-10	5.01E-10	4.83E-10	4.65E-10
NNE	7.27E-10	7.00E-10	6.81E-10	6.52E-10	6.20E-10	5.98E-10	5.76E-10
NE	4.61E-10	4.42E-10	4.27E-10	4.10E-10	3.99E-10	3.83E-10	3.66E-10
ENE	4.81E-10	4.63E-10	4.45E-10	4.24E-10	4.07E-10	3.92E-10	3.76E-10
E	4.55E-10	4.43E-10	4.19E-10	4.02E-10	3.86E-10	3.71E-10	3.55E-10
ESE	6.34E-10	6.06E-10	5.45E-10	5.59E-10	5.39E-10	5.19E-10	4.97E-10
SE	9.05E-10	8.70E-10	8.33E-10	8.01E-10	7.69E-10	7.38E-10	6.94E-10
SSE	9.43E-10	8.59E-10	8.39E-10	8.03E-10	7.73E-10	7.40E-10	9.18E-10
S	7.75E-10	7.42E-10	7.10E-10	6.65E-10	6.49E-10	6.21E-10	5.91E-10
SSW	5.39E-10	5.15E-10	4.91E-10	4.69E-10	4.47E-10	4.28E-10	4.13E-10
SW	5.23E-10	5.02E-10	4.74E-10	4.53E-10	4.35E-10	4.22E-10	4.08E-10
WSW	5.46E-10	5.16E-10	4.98E-10	4.69E-10	4.55E-10	4.45E-10	4.34E-10
W	5.35E-10	5.09E-10	4.89E-10	4.77E-10	4.53E-10	4.36E-10	4.20E-10
WNW	5.91E-10	5.61E-10	5.41E-10	5.24E-10	5.16E-10	4.87E-10	4.69E-10
NW	5.88E-10	5.66E-10	5.44E-10	5.17E-10	4.96E-10	4.72E-10	4.48E-10
NNW	6.90E-10	6.60E-10	6.30E-10	5.96E-10	5.83E-10	5.61E-10	5.28E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 11 Monticello Offgas Stack Dispersion Parameters for Short Term Elevated Releases ≤500 HrsYr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

Sector*	Miles 5.0
N	4.39E-10
NNE	5.46E-10
NE	3.48E-10
ENE	3.56E-10
E	3.45E-10
ESE	4.80E-10
SE	6.78E-10
SSE	8.45E-10
S	5.70E-10
SSW	3.98E-10
SW	3.92E-10
WSW	4.12E-10
W	4.05E-10
WNW	4.48E-10
NW	4.31E-10
NNW	5.06E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 12 Monticello Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr

Sector*	Distance		χ/q (sec/m)^3 No Decay Undepleted	D/q (m^{-2})
	Miles	Meters		
N	0.51	821.	5.18E-06	7.19E-08
NNE	0.58	933.	3.51E-06	5.02E-08
NE	0.65	1046.	2.33E-06	2.93E-08
ENE	0.83	1336.	1.82E-06	1.69E-08
E	0.59	950.	3.67E-06	3.90E-08
ESE	0.59	950.	4.95E-06	6.51E-08
SE	0.61	982.	4.96E-06	6.49E-08
SSE	0.43	692.	8.06E-06	1.18E-07
S	0.34	547.	6.92E-06	9.30E-08
SSW	0.32	515.	5.92E-06	7.04E-08
SW	0.32	515.	6.31E-06	8.24E-08
WSW	0.35	563.	4.91E-06	5.50E-08
W	0.48	772.	3.38E-06	3.82E-08
WNW	0.68	1094.	2.94E-06	2.88E-08
NW	0.43	692.	5.70E-06	7.09E-08
NNW	0.53	853.	4.44E-06	6.09E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	7.30E-05	2.19E-05	1.10E-05	7.14E-06	5.28E-06	4.19E-06	3.46E-06
NNE	5.81E-05	1.77E-05	8.96E-06	5.84E-06	4.23E-06	3.34E-06	2.79E-06
NE	4.26E-05	1.29E-05	6.69E-06	4.33E-06	3.19E-06	2.54E-06	2.16E-06
ENE	4.27E-05	1.29E-05	6.65E-06	4.32E-06	3.15E-06	2.53E-06	2.16E-06
E	5.76E-05	1.73E-05	9.22E-06	6.20E-06	4.51E-06	3.63E-06	3.04E-06
ESE	7.80E-05	2.30E-05	1.24E-05	8.28E-06	6.16E-06	4.84E-06	4.01E-06
SE	8.52E-05	2.48E-05	1.31E-05	8.85E-06	6.46E-06	5.08E-06	4.18E-06
SSE	8.87E-05	2.60E-05	1.36E-05	8.91E-06	6.53E-06	5.15E-06	4.22E-06
S	4.89E-05	1.47E-05	7.95E-06	5.35E-06	3.95E-06	3.17E-06	2.63E-06
SSW	4.04E-05	1.19E-05	6.58E-06	4.38E-06	3.34E-06	2.80E-06	2.46E-06
SW	4.37E-05	1.34E-05	7.26E-06	4.76E-06	3.62E-06	2.97E-06	2.62E-06
WSW	3.65E-05	1.09E-05	6.13E-06	4.11E-06	3.17E-06	2.70E-06	2.43E-06
W	4.07E-05	1.23E-05	6.47E-06	4.32E-06	3.19E-06	2.67E-06	2.35E-06
WNW	5.53E-05	1.65E-05	8.74E-06	5.74E-06	4.22E-06	3.37E-06	2.85E-06
NW	6.25E-05	1.85E-05	9.62E-06	6.32E-06	4.65E-06	3.76E-06	3.15E-06
NNW	7.11E-05	2.11E-05	1.04E-05	6.70E-06	4.78E-06	3.76E-06	3.15E-06

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m³

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	2.84E-06	2.43E-06	2.05E-06	1.79E-06	1.61E-06	1.46E-06	1.31E-06
NNE	2.33E-06	2.02E-06	1.71E-06	1.51E-06	1.37E-06	1.24E-06	1.12E-06
NE	1.83E-06	1.58E-06	1.37E-06	1.21E-06	1.11E-06	9.99E-06	9.23E-06
ENE	1.87E-06	1.64E-06	1.46E-06	1.31E-06	1.20E-06	1.11E-06	1.04E-06
E	2.51E-06	2.18E-06	1.87E-06	1.64E-06	1.50E-06	1.38E-06	1.26E-06
ESE	3.34E-06	2.77E-06	2.38E-06	2.07E-06	1.80E-06	1.59E-06	1.44E-06
SE	3.42E-06	2.82E-06	2.39E-06	2.07E-06	1.78E-06	1.57E-06	1.40E-06
SSE	3.47E-06	2.89E-06	2.43E-06	2.12E-06	1.86E-06	1.64E-06	1.47E-06
S	2.27E-06	1.96E-06	1.70E-06	1.51E-06	1.38E-06	1.27E-06	1.15E-06
SSW	2.18E-06	1.93E-06	1.74E-06	1.52E-06	1.48E-06	1.33E-06	1.21E-06
SW	2.26E-06	1.99E-06	1.81E-06	1.58E-06	1.44E-06	1.32E-06	1.21E-06
WSW	2.18E-06	1.94E-06	1.82E-06	1.63E-06	1.48E-06	1.39E-06	1.29E-06
W	2.07E-06	1.87E-06	1.67E-06	1.52E-06	1.41E-06	1.29E-06	1.19E-06
WNW	2.47E-06	2.15E-06	1.86E-06	1.68E-06	1.52E-06	1.37E-06	1.26E-06
NW	2.60E-06	2.22E-06	1.89E-06	1.64E-06	1.49E-06	1.34E-06	1.22E-06
NNW	2.64E-06	2.25E-06	1.90E-06	1.68E-06	1.50E-06	1.37E-06	1.25E-06

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m³

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	1.28E-06	1.15E-06	1.05E-06	9.60E-07	9.00E-07	8.28E-07	7.67E-07
NNE	1.11E-06	9.94E-07	9.14E-07	8.44E-07	7.91E-07	7.31E-07	6.94E-07
NE	8.63E-07	7.69E-07	7.26E-07	7.09E-07	6.71E-07	6.31E-07	6.08E-07
ENE	9.50E-07	9.08E-07	8.65E-07	8.22E-07	7.80E-07	7.31E-07	7.00E-07
E	1.15E-06	1.06E-06	1.02E-06	9.40E-07	8.72E-07	8.20E-07	7.72E-07
ESE	1.31E-06	1.16E-06	1.07E-06	1.03E-06	9.41E-07	8.73E-07	8.08E-07
SE	1.26E-06	1.15E-06	1.06E-06	1.01E-06	9.48E-07	8.74E-07	8.19E-07
SSE	1.33E-06	1.17E-06	1.09E-06	1.05E-06	9.69E-07	9.01E-07	8.34E-07
S	1.13E-06	1.00E-06	9.21E-07	8.55E-07	7.94E-07	7.33E-07	6.96E-07
SSW	1.19E-06	1.12E-06	1.08E-06	1.04E-06	1.02E-06	1.02E-06	9.95E-07
SW	1.18E-06	1.09E-06	1.06E-06	1.01E-06	9.62E-07	9.53E-07	9.34E-07
WSW	1.27E-06	1.21E-06	1.16E-06	1.09E-06	1.05E-06	1.04E-06	1.02E-06
W	1.19E-06	1.12E-06	1.06E-06	1.02E-06	1.01E-06	9.95E-07	9.91E-07
WNW	1.25E-06	1.16E-06	1.11E-06	1.06E-06	1.02E-06	1.01E-06	9.90E-07
NW	1.09E-06	9.91E-07	9.57E-07	8.87E-07	8.18E-07	7.65E-07	7.25E-07
NNW	1.24E-06	1.12E-06	1.03E-06	9.46E-07	8.85E-07	8.17E-07	7.74E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	7.21E-07	6.79E-07	6.38E-07	6.10E-07	5.92E-07	5.77E-07	5.62E-07
NNE	6.47E-07	6.14E-07	5.79E-07	5.45E-07	5.26E-07	4.99E-07	4.80E-07
NE	5.81E-07	5.55E-07	5.23E-07	5.11E-07	4.86E-07	4.63E-07	4.47E-07
ENE	6.68E-07	6.41E-07	6.10E-07	5.90E-07	5.62E-07	5.41E-07	5.22E-07
E	7.25E-07	6.92E-07	6.51E-07	6.19E-07	5.74E-07	5.53E-07	5.35E-07
ESE	7.53E-07	7.07E-07	6.62E-07	6.25E-07	5.91E-07	5.56E-07	5.28E-07
SE	7.76E-07	7.36E-07	7.02E-07	6.75E-07	6.37E-07	6.04E-07	5.74E-07
SSE	7.74E-07	7.28E-07	6.87E-07	6.46E-07	6.10E-07	5.77E-07	5.51E-07
S	6.44E-07	6.08E-07	5.80E-07	5.54E-07	5.40E-07	5.25E-07	5.14E-07
SSW	9.71E-07	9.89E-07	9.88E-07	9.58E-07	9.03E-07	8.47E-07	8.10E-07
SW	9.09E-07	9.03E-07	8.97E-07	8.65E-07	8.24E-07	7.90E-07	7.65E-07
WSW	9.86E-07	9.81E-07	9.76E-07	9.48E-07	8.87E-07	8.35E-07	7.92E-07
W	9.66E-07	9.80E-07	9.78E-07	9.56E-07	9.12E-07	8.87E-07	8.66E-07
WNW	9.90E-07	9.88E-07	9.97E-07	9.75E-07	9.54E-07	9.43E-07	9.29E-07
NW	6.91E-07	6.47E-07	6.07E-07	5.89E-07	5.72E-07	5.60E-07	5.51E-07
NNW	7.27E-07	6.76E-07	6.47E-07	6.28E-07	5.95E-07	5.74E-07	5.52E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	5.48E-07	5.29E-07	5.16E-07	5.02E-07	4.91E-07	4.99E-07	4.82E-07
NNE	4.65E-07	4.49E-07	4.30E-07	4.15E-07	3.98E-07	3.83E-07	3.71E-07
NE	4.31E-07	4.13E-07	3.96E-07	3.82E-07	3.66E-07	3.51E-07	3.39E-07
ENE	5.06E-07	4.87E-07	4.64E-07	4.52E-07	4.36E-07	4.25E-07	4.14E-07
E	5.13E-07	5.00E-07	4.80E-07	4.62E-07	4.45E-07	4.27E-07	4.09E-07
ESE	5.01E-07	4.74E-07	4.57E-07	4.36E-07	4.15E-07	3.99E-07	3.83E-07
SE	5.51E-07	5.28E-07	5.05E-07	4.78E-07	4.55E-07	4.35E-07	4.16E-07
SSE	5.27E-07	5.06E-07	4.85E-07	4.59E-07	4.44E-07	4.26E-07	4.10E-07
S	5.03E-07	4.91E-07	5.05E-07	4.93E-07	4.96E-07	4.76E-07	4.67E-07
SSW	7.70E-07	7.34E-07	7.03E-07	6.76E-07	6.48E-07	6.25E-07	5.97E-07
SW	7.38E-07	7.09E-07	6.87E-07	6.61E-07	6.43E-07	6.16E-07	5.94E-07
WSW	7.52E-07	7.13E-07	6.84E-07	6.52E-07	6.24E-07	6.02E-07	5.73E-07
W	8.43E-07	8.16E-07	7.91E-07	7.64E-07	7.44E-07	7.09E-07	6.90E-07
WNW	9.07E-07	8.94E-07	8.62E-07	8.44E-07	8.18E-07	8.00E-07	7.84E-07
NW	5.34E-07	5.22E-07	5.28E-07	5.15E-07	5.16E-07	5.04E-07	4.97E-07
NNW	5.28E-07	5.08E-07	4.93E-07	4.74E-07	4.55E-07	4.35E-07	4.20E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m^3

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	4.65E-07	4.49E-07	4.32E-07	4.19E-07	4.06E-07	3.95E-07	3.83E-07
NNE	3.58E-07	3.47E-07	3.37E-07	3.25E-07	3.16E-07	3.18E-07	3.08E-07
NE	3.29E-07	3.18E-07	3.10E-07	3.01E-07	2.93E-07	2.90E-07	2.77E-07
ENE	4.02E-07	3.90E-07	3.80E-07	3.72E-07	3.60E-07	3.55E-07	3.46E-07
E	3.97E-07	3.83E-07	3.72E-07	3.74E-07	3.66E-07	3.55E-07	3.44E-07
ESE	3.71E-07	3.57E-07	3.42E-07	3.37E-07	3.28E-07	3.17E-07	3.06E-07
SE	4.01E-07	3.86E-07	3.70E-07	3.61E-07	3.48E-07	3.44E-07	3.42E-07
SSE	3.92E-07	3.78E-07	3.68E-07	3.66E-07	3.52E-07	3.41E-07	3.29E-07
S	4.49E-07	4.43E-07	4.36E-07	4.29E-07	4.22E-07	4.16E-07	4.12E-07
SSW	5.79E-07	5.58E-07	5.49E-07	5.38E-07	5.25E-07	5.14E-07	5.02E-07
SW	5.80E-07	5.64E-07	5.48E-07	5.28E-07	5.15E-07	5.04E-07	4.94E-07
WSW	5.61E-07	5.59E-07	5.50E-07	5.35E-07	5.23E-07	5.13E-07	4.90E-07
W	6.66E-07	6.40E-07	6.16E-07	5.94E-07	5.73E-07	5.54E-07	5.36E-07
WNW	7.52E-07	7.22E-07	6.90E-07	6.65E-07	6.37E-07	6.19E-07	5.97E-07
NW	4.79E-07	4.71E-07	4.66E-07	4.57E-07	4.49E-07	4.41E-07	4.38E-07
NNW	4.07E-07	3.95E-07	3.86E-07	3.72E-07	3.68E-07	3.57E-07	3.51E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m³

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	3.65E-07	3.55E-07	3.41E-07	3.33E-07	3.25E-07	3.20E-07	3.12E-07
NNE	3.08E-07	3.00E-07	2.85E-07	2.79E-07	2.72E-07	2.66E-07	2.59E-07
NE	2.79E-07	2.69E-07	2.53E-07	2.53E-07	2.48E-07	2.41E-07	2.36E-07
ENE	3.36E-07	3.29E-07	3.12E-07	3.07E-07	3.00E-07	2.98E-07	2.91E-07
E	3.37E-07	3.28E-07	3.19E-07	3.11E-07	3.02E-07	2.95E-07	2.85E-07
ESE	2.98E-07	2.89E-07	2.80E-07	2.71E-07	2.63E-07	2.56E-07	2.48E-07
SE	3.32E-07	3.20E-07	3.10E-07	3.01E-07	2.92E-07	2.83E-07	2.75E-07
SSE	3.21E-07	3.11E-07	3.02E-07	2.92E-07	2.84E-07	2.75E-07	2.68E-07
S	4.03E-07	3.94E-07	3.87E-07	3.76E-07	3.65E-07	3.53E-07	3.43E-07
SSW	4.92E-07	4.81E-07	4.71E-07	4.57E-07	4.39E-07	4.26E-07	4.11E-07
SW	4.84E-07	4.79E-07	4.69E-07	4.54E-07	4.39E-07	4.25E-07	4.12E-07
WSW	4.89E-07	4.77E-07	4.66E-07	4.50E-07	4.35E-07	4.24E-07	4.11E-07
W	5.19E-07	5.03E-07	4.87E-07	4.73E-07	4.56E-07	4.43E-07	4.25E-07
WNW	5.78E-07	5.59E-07	5.41E-07	5.25E-07	5.09E-07	4.92E-07	4.78E-07
NW	4.29E-07	4.20E-07	4.11E-07	4.00E-07	3.88E-07	3.77E-07	3.66E-07
NNW	3.45E-07	3.32E-07	3.22E-07	3.15E-07	3.07E-07	2.98E-07	2.91E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 13 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (χ/q), sec/m³

Sector*	Miles 5.0
N	3.03E-07
NNE	2.52E-07
NE	2.30E-07
ENE	2.84E-07
E	2.82E-07
ESE	2.41E-07
SE	2.67E-07
SSE	2.62E-07
S	4.67E-07
SSW	4.00E-07
SW	3.99E-07
WSW	3.99E-07
W	4.12E-07
WNW	4.66E-07
NW	3.52E-07
NNW	2.78E-07

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Reactor Vent.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	6.91E-07	2.69E-07	1.52E-07	1.01E-07	7.36E-08	5.53E-08	4.28E-08
NNE	5.55E-07	2.24E-07	1.30E-07	8.81E-08	6.33E-08	4.71E-08	3.65E-08
NE	3.90E-07	1.58E-07	9.37E-08	6.24E-08	4.48E-08	3.32E-08	2.59E-08
ENE	3.50E-07	1.43E-07	8.49E-08	5.71E-08	4.08E-08	3.02E-08	2.33E-08
E	4.63E-07	1.86E-07	1.10E-07	7.39E-08	5.16E-08	3.82E-08	2.91E-08
ESE	8.49E-07	3.27E-07	1.86E-07	1.21E-07	8.62E-08	6.33E-08	4.88E-08
SE	9.41E-07	3.56E-07	1.96E-07	1.29E-07	9.01E-08	6.69E-08	5.19E-08
SSE	9.60E-07	3.67E-07	2.02E-07	1.32E-07	9.36E-08	6.99E-08	5.40E-08
S	4.50E-07	1.79E-07	1.06E-07	7.18E-08	5.11E-08	3.80E-08	2.88E-08
SSW	3.27E-07	1.30E-07	7.81E-08	5.13E-08	3.67E-08	2.75E-08	2.15E-08
SW	4.13E-07	1.67E-07	9.51E-08	6.02E-08	4.24E-08	3.12E-08	2.46E-08
WSW	2.82E-07	1.14E-07	6.90E-08	4.53E-08	3.27E-08	2.46E-08	1.94E-08
W	3.06E-07	1.25E-07	7.41E-08	5.02E-08	3.55E-08	2.68E-08	2.10E-08
WNW	4.25E-07	1.69E-07	9.89E-08	6.61E-08	4.73E-08	3.52E-08	2.73E-08
NW	5.40E-07	2.12E-07	1.21E-07	7.91E-08	5.61E-08	4.23E-08	3.28E-08
NNW	6.42E-07	2.53E-07	1.42E-07	9.39E-08	6.65E-08	4.95E-08	3.87E-08

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	3.25E-08	2.57E-08	1.99E-08	1.61E-08	1.34E-08	1.13E-08	9.77E-09
NNE	2.79E-08	2.22E-08	1.71E-08	1.39E-08	1.16E-08	9.77E-09	8.45E-09
NE	1.99E-08	1.56E-08	1.23E-08	1.00E-08	8.52E-09	7.15E-09	6.20E-09
ENE	1.80E-08	1.41E-08	1.12E-08	9.11E-09	7.57E-09	6.45E-09	5.55E09
E	2.17E-08	1.70E-08	1.33E-08	1.07E-08	9.01E-09	7.69E-09	6.56E-09
ESE	3.78E-08	2.92E-08	2.35E-08	1.93E-08	1.59E-08	1.34E-08	1.16E-08
SE	3.99E-08	3.10E-08	2.48E-08	2.04E-08	1.67E-08	1.40E-08	1.20E-08
SSE	4.16E-08	3.26E-08	2.57E-08	2.12E-08	1.76E-08	1.48E-08	1.27E-08
S	2.26E-08	1.78E-08	1.41E-08	1.16E-08	9.75E-09	8.85E-09	7.48E-09
SSW	1.69E-08	1.34E-08	1.10E-08	9.02E-09	7.60E-09	6.52E-09	5.84E-09
SW	1.89E-08	1.51E-08	1.25E-08	1.01E-08	8.52E-09	7.27E-09	6.61E-09
WSW	1.52E-08	1.20E-08	1.01E-08	8.20E-09	6.85E-09	5.94E-09	5.35E-09
W	1.62E-08	1.31E-08	1.04E-08	8.64E-09	7.29E-09	6.19E-09	5.49E-09
WNW	2.16E-08	1.72E-08	1.36E-08	1.12E-08	9.47E-09	7.95E-09	7.18E-09
NW	2.49E-08	1.97E-08	1.55E-08	1.26E-08	1.07E-08	9.05E-09	7.82E-09
NNW	3.00E-08	2.36E-08	1.82E-08	1.49E-08	1.22E-08	1.05E-08	9.21E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	8.90E-09	7.61E-09	6.62E-09	5.81E-09	5.23E-09	4.63E-09	4.13E-09
NNE	7.75E-09	6.61E-09	5.79E-09	5.10E-09	4.56E-09	4.07E-09	3.71E-09
NE	5.46E-09	4.54E-09	4.02E-09	3.69E-09	3.30E-09	2.93E-09	2.48E-09
ENE	4.71E-09	4.19E-09	3.73E-09	3.33E-09	2.98E-09	2.64E-09	2.40E-09
E	5.63E-09	4.93E-09	4.49E-09	3.96E-09	3.53E-09	3.18E-09	2.88E-09
ESE	1.01E-08	8.60E-09	7.60E-09	7.07E-09	6.28E-09	5.64E-09	5.07E-09
SE	1.03E-08	9.00E-09	7.94E-09	7.17E-09	6.48E-09	5.74E-09	5.17E-09
SSE	1.10E-08	9.30E-09	8.32E-09	7.72E-09	6.89E-09	6.20E-09	5.56E-09
S	6.89E-09	5.81E-09	5.11E-09	4.54E-09	4.06E-09	3.61E-09	3.30E-09
SSW	5.34E-09	4.70E-09	4.14E-09	3.63E-09	3.26E-09	3.21E-09	2.88E-09
SW	6.60E-09	5.31E-09	4.72E-09	4.14E-09	3.66E-09	3.56E-09	3.24E-09
WSW	4.91E-09	4.44E-09	3.92E-09	3.40E-09	3.03E-09	3.03E-09	2.76E-09
W	5.07E-09	4.44E-09	3.82E-09	3.36E-09	3.07E-09	2.96E-09	2.71E-09
WNW	6.67E-09	5.78E-09	5.06E-09	4.43E-09	3.92E-09	3.71E-09	3.34E-09
NW	6.67E-09	5.73E-09	5.26E-09	4.65E-09	4.11E-09	3.68E-09	3.35E-09
NNW	8.53E-09	7.30E-09	6.36E-09	5.58E-09	5.00E-09	4.42E-09	4.03E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	3.75E-09	3.42E-09	3.11E-09	2.88E-09	2.68E-09	2.53E-09	2.38E-09
NNE	3.34E-09	3.06E-09	2.79E-09	2.55E-09	2.38E-09	2.20E-09	2.06E-09
NE	2.43E-09	2.21E-09	2.02E-09	1.89E-09	1.74E-09	1.61E-09	1.51E-09
ENE	2.18E-09	2.03E-09	1.85E-09	1.70E-09	1.57E-09	1.46E-09	1.36E-09
E	2.61E-09	2.41E-09	2.20E-09	2.02E-09	1.82E-09	1.71E-09	1.61E-09
ESE	4.60E-09	4.21E-09	3.84E-09	3.54E-09	3.28E-09	3.01E-09	2.80E-09
SE	4.71E-09	4.43E-09	4.07E-09	3.79E-09	3.49E-09	3.24E-09	3.02E-09
SSE	5.01E-09	4.58E-09	4.21E-09	3.86E-09	3.55E-09	3.28E-09	3.06E-09
S	2.95E-09	2.70E-09	2.50E-09	2.32E-09	2.15E-09	2.00E-09	1.86E-09
SSW	2.60E-09	2.45E-09	2.28E-09	2.06E-09	1.90E-09	1.75E-09	1.64E-09
SW	2.93E-09	2.72E-09	2.53E-09	2.29E-09	2.11E-09	1.96E-09	1.84E-09
WSW	2.48E-09	2.31E-09	2.16E-09	1.98E-09	1.81E-09	1.68E-09	1.56E-09
W	2.44E-09	2.29E-09	2.12E-09	1.93E-09	1.77E-09	1.66E-09	1.57E-09
WNW	3.09E-09	2.85E-09	2.67E-09	2.43E-09	2.25E-09	2.11E-09	1.98E-09
NW	3.06E-09	2.76E-09	2.58E-09	2.41E-09	2.25E-09	2.10E-09	1.98E-09
NNW	3.64E-09	3.26E-09	3.04E-09	2.85E-09	2.62E-09	2.45E-09	2.29E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	2.23E-09	2.09E-09	1.96E-09	1.84E-09	1.74E-09	1.73E-09	1.63E-09
NNE	1.94E-09	1.82E-09	1.71E-09	1.61E-09	1.51E-09	1.42E-09	1.35E-09
NE	1.42E-09	1.33E-09	1.25E-09	1.17E-09	1.10E-09	1.03E-09	9.77E-10
ENE	1.28E-09	1.20E-09	1.11E-09	1.05E-09	9.92E-10	9.42E-10	8.97E-10
E	1.50E-09	1.43E-09	1.34E-09	1.26E-09	1.19E-09	1.11E-09	1.04E-10
ESE	2.60E-09	2.42E-09	2.29E-09	2.15E-09	2.00E-09	1.90E-09	1.79E-09
SE	2.84E-09	2.67E-09	2.50E-09	2.32E-09	2.18E-09	2.05E-09	1.93E-09
SSE	2.86E-09	2.69E-09	2.53E-09	2.34E-09	2.23E-09	2.10E-09	1.98E-09
S	1.74E-09	1.63E-09	1.64E-09	1.54E-09	1.48E-09	1.36E-09	1.29E-09
SSW	1.53E-09	1.44E-09	1.36E-09	1.29E-09	1.22E-09	1.16E-09	1.10E-09
SW	1.73E-09	1.61E-09	1.52E-09	1.43E-09	1.36E-09	1.27E-09	1.21E-09
WSW	1.46E-09	1.37E-09	1.29E-09	1.22E-09	1.15E-09	1.10E-09	1.04E-09
W	1.48E-09	1.40E-09	1.32E-09	1.24E-09	1.18E-09	1.10E-09	1.05E-09
WNW	1.84E-09	1.74E-09	1.61E-09	1.52E-09	1.42E-09	1.52E-09	1.56E-09
NW	1.83E-09	1.72E-09	1.67E-09	1.59E-09	1.53E-09	1.42E-09	1.36E-09
NNW	2.13E-09	2.01E-09	1.90E-09	1.79E-09	1.67E-09	1.57E-09	1.49E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	1.55E-09	1.47E-09	1.40E-09	1.34E-09	1.29E-09	1.24E-09	1.20E-09
NNE	1.27E-09	1.21E-09	1.16E-09	1.09E-09	1.04E-09	1.03E-09	9.85E-10
NE	9.27E-10	8.82E-10	8.44E-10	8.04E-10	7.68E-10	7.48E-10	7.05E-10
ENE	8.50E-10	8.08E-10	7.71E-10	7.38E-10	7.01E-10	6.78E-10	6.48E-10
E	9.92E-10	9.39E-10	8.94E-10	8.83E-10	8.48E-10	8.09E-10	7.71E-10
ESE	1.71E-09	1.61E-09	1.53E-09	1.48E-09	1.42E-09	1.35E-09	1.29E-09
SE	1.83E-09	1.73E-09	1.64E-09	1.57E-09	1.50E-09	1.46E-09	1.44E-09
SSE	1.86E-09	1.76E-09	1.69E-09	1.65E-09	1.56E-09	1.49E-09	1.42E-09
S	1.20E-09	1.16E-09	1.11E-09	1.07E-09	1.03E-09	9.96E-10	9.67E-10
SSW	1.04E-09	9.85E-10	9.51E-10	9.16E-10	8.78E-10	8.46E-10	8.15E-10
SW	1.14E-09	1.08E-09	1.02E-09	9.62E-10	1.01E-09	9.88E-10	9.93E-10
WSW	9.89E-10	9.58E-10	9.19E-10	8.74E-10	8.35E-10	8.03E-10	7.53E-10
W	1.01E-09	9.61E-10	9.21E-10	8.85E-10	8.52E-10	8.21E-10	7.93E-10
WNW	1.49E-09	1.42E-09	1.34E-09	1.29E-09	1.23E-09	1.18E-09	1.14E-09
NW	1.28E-09	1.23E-09	1.19E-09	1.14E-09	1.10E-09	1.06E-09	1.03E-09
NNW	1.41E-09	1.34E-09	1.29E-09	1.22E-09	1.19E-09	1.14E-09	1.10E-09

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

	Miles						
Sector*	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	1.13E-09	1.09E-09	1.05E-09	1.02E-09	9.85E-10	9.67E-10	9.40E-10
NNE	9.68E-10	9.29E-10	8.71E-10	8.40E-10	8.07E-10	7.79E-10	7.49E-10
NE	6.98E-10	6.63E-10	6.16E-10	6.06E-10	5.87E-10	5.62E-10	5.45E-10
ENE	6.19E-10	5.96E-10	5.55E-10	5.37E-10	5.17E-10	5.06E-10	4.86E-10
E	7.43E-10	7.10E-10	6.81E-10	6.53E-10	6.25E-10	6.01E-10	5.72E-10
ESE	1.24E-09	1.18E-09	1.13E-09	1.08E-09	1.04E-09	9.99E-10	9.57E-10
SE	1.38E-09	1.31E-09	1.26E-09	1.21E-09	1.16E-09	1.12E-09	1.07E-09
SSE	1.36E-09	1.30E-09	1.25E-09	1.18E-09	1.14E-09	1.09E-09	1.05E-09
S	9.28E-10	8.94E-10	8.64E-10	8.38E-10	8.12E-10	7.83E-10	7.60E-10
SSW	7.88E-10	7.61E-10	7.38E-10	7.17E-10	6.89E-10	6.70E-10	6.49E-10
SW	1.09E-09	1.06E-09	1.11E-09	1.07E-09	1.02E-09	9.83E-10	9.46E-10
WSW	7.39E-10	7.09E-10	7.33E-10	7.08E-10	6.86E-10	6.70E-10	6.50E-10
W	7.67E-10	7.44E-10	7.22E-10	7.02E-10	6.79E-10	6.61E-10	6.36E-10
WNW	1.10E-09	1.06E-09	1.02E-09	9.86E-10	9.55E-10	9.22E-10	8.94E-10
NW	9.96E-10	9.60E-10	9.27E-10	9.00E-10	8.73E-10	8.48E-10	8.24E-10
NNW	1.07E-09	1.02E-09	1.01E-09	9.77E-10	9.43E-10	9.13E-10	8.84E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

Table 14 Reactor Building Vent Dispersion Parameters for Short Term Elevated Releases ≤500 Hrs/Yr or ≤150 Hrs/Qtr (cont'd)

For Standard Distances (As Measured from the Offgas Stack) (D/q), m^{-2}

Sector*	Miles 5.0
N	9.09E-10
NNE	7.21E-10
NE	5.24E-10
ENE	4.68E-10
E	5.58E-10
ESE	9.19E-10
SE	1.04E-09
SSE	1.01E-09
S	1.29E-09
SSW	6.32E-10
SW	9.10E-10
WSW	6.32E-10
W	6.21E-10
WNW	8.70E-10
NW	7.93E-10
NNW	8.42E-10

Period of Record: 9-1-76 to 8-31-78

* Measured relevant to the Offgas Stack.

OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By: B Peterson	
Reviewed By: [signature]	
OC Final Review Meeting: 2293-F	Date: 11/15/01
Approved By Plant Manager: [signature] for Shurbs	Date: 11/17/01

FOR ADMINISTRATIVE USE ONLY				
3087 (DOCUMENT CHANGE, HOLD, AND COMMENT FORM) incorporated: 01-4273				
Resp Supv: CHEM	Assoc Ref: CHEM-I		SR: N	Freq: 2 yrs
ARMS: ODCM-APP-B	Doc Type: 7030	Admin Initials: [initials]		Date: 11/4/01

SECTION **PAGE**

1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
0	October - 2000	Moved previous ODCM-07.01 and ODCM-08.01 tables of meterological data to this document.
1	November - 2001	Typo, replaced missing M in Monticello on Page 1 of Table of Content.

Table 1 Monticello Nuclear Generating Plant Site Meteorology - Stability Class A, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	4	18	63	30	7	0	122
NNE	2	20	30	14	2	0	68
NE	1	13	21	26	2	2	65
NNE	1	14	16	4	0	0	35
E	0	28	40	12	0	0	80
ESE	3	33	50	5	6	0	97
SE	2	26	50	35	12	3	128
SSE	8	46	96	122	11	0	283
S	9	36	68	117	42	3	275
SSW	5	63	94	58	20	4	244
SW	4	35	64	32	5	3	143
WSW	3	25	74	26	0	0	128
W	0	29	47	18	1	0	95
WNW	4	34	73	79	14	0	204
NW	3	29	58	61	3	0	154
NNW	6	29	109	67	13	0	224
VAR	0	0	0	0	0	0	0

Total Hours This Class:	2350
Hours of Calm This Class:	5
Percent of All Data This Class:	14.27

Table 2 Monticello Nuclear Generating Plant Site Meteorology - Stability Class B, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	2	14	19	4	0	1	40
NNE	4	10	8	5	0	0	27
NE	0	6	3	2	0	0	11
ENE	1	11	7	2	0	0	21
E	0	13	4	0	0	0	17
ESE	1	15	10	3	3	0	32
SE	0	9	9	9	0	0	27
SSE	2	12	9	9	0	0	32
S	2	13	21	7	1	0	44
SSW	1	22	19	4	0	0	46
SW	0	11	10	3	0	0	24
WSW	1	12	11	3	0	0	27
W	0	12	19	8	2	1	42
WNW	0	11	20	21	5	1	58
NW	1	8	22	13	3	0	47
NNW	1	8	40	26	4	1	80
VAR	0	0	0	0	0	0	0

Total Hours This Class: 575
Hours of Calm This Class: 0
Percent of All Data This Class: 3.49

Table 3 Monticello Nuclear Generating Plant Site Meteorology - Stability Class C, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	0	12	16	8	0	0	36
NNE	3	13	13	4	1	0	34
NE	2	10	11	5	2	0	30
ENE	1	19	4	2	0	0	26
E	0	8	10	2	0	0	20
ESE	2	14	12	5	2	0	35
SE	0	12	16	9	0	0	37
SSE	0	10	21	8	0	0	39
S	6	12	28	18	3	0	67
SSW	3	16	12	3	2	1	37
SW	3	11	14	3	1	0	32
WSW	2	5	11	2	0	0	20
W	4	22	19	5	1	0	51
WNW	4	23	38	19	3	0	87
NW	3	17	18	30	4	0	72
NNW	2	22	40	27	5	1	97
VAR	0	0	0	0	0	0	0

Total Hours This Class: 720
Hours of Calm This Class: 0
Percent of All Data This Class: 4.37

Table 4 Monticello Nuclear Generating Plant Site Meteorology - Stability Class D, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	9	107	135	39	1	0	291
NNE	32	132	87	18	1	0	270
NE	37	129	116	50	3	0	335
ENE	43	153	66	30	1	0	293
E	29	125	64	27	0	0	245
ESE	28	107	148	60	4	0	347
SE	16	103	153	36	2	0	310
SSE	13	97	103	35	2	0	250
S	19	84	96	33	1	0	233
SSW	16	73	70	19	6	1	185
SW	19	58	52	10	4	0	143
WSW	14	69	63	14	2	1	163
W	16	79	98	33	3	5	234
WNW	13	112	262	159	25	2	573
NW	17	82	255	232	61	3	650
NNW	19	104	247	246	49	1	666
VAR	0	0	0	0	0	0	0

Total Hours This Class:	5198
Hours of Calm This Class:	10
Percent of All Data This Class:	31.56

Table 5 Monticello Nuclear Generating Plant Site Meteorology - Stability Class E, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	20	98	57	6	0	0	181
NNE	43	81	35	2	0	0	161
NE	35	94	41	6	2	0	178
ENE	50	122	29	10	0	0	211
E	36	109	40	2	0	0	187
ESE	26	117	46	6	0	0	195
SE	19	111	136	18	2	0	286
SSE	20	95	116	33	1	0	265
S	22	84	144	43	1	0	294
SSW	22	72	99	25	9	0	227
SW	23	84	57	10	2	0	176
WSW	37	86	44	4	0	0	171
W	30	156	123	12	4	0	325
WNW	24	195	233	41	2	0	495
NW	20	133	247	84	0	0	484
NNW	25	145	217	38	1	0	426
VAR	0	0	0	0	0	0	0

Total Hours This Class:	4269
Hours of Calm This Class:	7
Percent of All Data This Class:	25.92

Table 6 Monticello Nuclear Generating Plant Site Meteorology - Stability Class F, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	30	62	3	0	0	0	95
NNE	37	54	0	0	0	0	91
NE	29	29	0	0	0	0	58
ENE	32	28	0	0	0	0	60
E	32	59	5	0	0	0	96
ESE	25	97	11	0	0	0	133
SE	22	83	19	0	0	0	124
SSE	16	122	12	0	0	0	150
S	24	93	31	3	0	0	151
SSW	27	67	14	0	0	0	108
SW	27	52	7	0	0	0	86
WSW	52	68	8	0	0	0	128
W	51	91	14	0	0	0	156
WNW	28	68	9	0	0	0	105
NW	36	67	12	0	0	0	115
NNW	30	119	29	0	0	0	178
VAR	0	0	0	0	0	0	0

Total Hours This Class: 1847
Hours of Calm This Class: 13
Percent of All Data This Class: 11.21

Table 7 Monticello Nuclear Generating Plant Site Meteorology - Stability Class G, Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	45	31	0	0	0	0	76
NNE	40	16	0	0	0	0	56
NE	33	12	0	0	0	0	45
ENE	31	5	0	0	0	0	36
E	46	18	0	0	0	0	64
ESE	47	54	2	0	0	0	103
SE	52	34	1	1	0	0	88
SSE	67	111	3	6	0	0	187
S	64	109	23	2	0	0	198
SSW	61	65	10	2	0	0	138
SW	43	32	1	0	0	0	76
WSW	77	37	0	0	0	0	114
W	53	31	0	0	0	0	84
WNW	37	13	2	0	0	0	52
NW	49	15	3	4	0	0	71
NNW	47	48	2	0	0	0	97
VAR	0	0	0	0	0	0	0

Total Hours This Class: 1512
Hours of Calm This Class: 27
Percent of All Data This Class: 9.18

Table 8 Monticello Nuclear Generating Plant Site Meteorology - All Classes Combined
Elevation 10 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 10 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	110	342	293	87	8	1	841
NNE	161	326	173	43	4	0	707
NE	137	293	192	89	9	2	722
ENE	159	352	122	48	1	0	682
E	143	360	163	43	0	0	709
ESE	132	437	279	79	15	0	942
SE	111	378	384	108	16	3	1000
SSE	126	493	360	213	14	0	1206
S	146	431	411	223	48	3	1262
SSW	135	378	318	111	37	6	985
SW	119	283	205	58	12	3	680
WSW	186	302	211	49	2	1	751
W	154	420	320	76	11	6	987
WNW	110	456	637	319	49	3	1574
NW	129	351	615	424	71	3	1593
NNW	130	475	684	404	72	3	1768
VAR	0	0	0	0	0	0	0

Table 8 Monticello Nuclear Generating Plant Site Meteorology - All Classes Combined Elevation 10 Meters (cont'd)

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

Data Recovery for the Period

Total Hours:	17520
Hours of Calm:	62
Hours of Bad Data:	1049
Percent Data Recovery:	94.01

Percent Acceptable Observations in each Stability Class

Class A	14.27
Class B	3.49
Class C	4.37
Class D	31.56
Class E	25.92
Class F	11.21
Class G	9.18

Average Wind Speed for each Wind Category

1 to 3 MPH	2.5
4 to 7 MPH	5.5
8 to 12 MPH	9.7
13 to 18 MPH	14.7
19 to 24 MPH	20.6
Above 24 MPH	27.2

Table 9 Monticello Nuclear Generating Plant Site Meteorology - Stability Class A, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	0	1	2	10	1	0	14
NNE	0	1	1	1	0	0	3
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	1	0	1
E	0	1	4	0	0	0	5
ESE	0	0	4	0	0	0	4
SE	0	0	4	8	0	6	18
SSE	0	1	5	42	36	15	99
S	0	1	3	28	35	12	79
SSW	0	1	10	37	53	39	140
SW	0	0	4	19	6	5	36
WSW	0	0	3	16	10	1	30
W	0	0	0	7	2	0	9
WNW	0	0	2	4	1	2	9
NW	0	0	3	6	6	3	18
NNW	0	0	1	14	4	0	19
VAR	0	0	0	0	0	0	0

Total Hours This Class:	489
Hours of Calm This Class:	4
Percent of All Data This Class:	2.95

Table 10 Monticello Nuclear Generating Plant Site Meteorology - Stability Class B, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	0	3	13	18	3	0	37
NNE	0	6	3	9	2	2	22
NE	0	1	7	6	0	0	14
ENE	0	2	3	7	2	0	14
E	0	2	15	1	0	0	18
ESE	0	5	17	3	0	2	27
SE	1	7	15	9	2	2	36
SSE	1	9	28	12	8	2	60
S	0	5	23	18	3	0	49
SSW	0	8	23	17	5	2	60
SW	0	7	18	8	5	1	39
WSW	0	7	8	14	2	1	32
W	0	4	8	18	5	0	35
WNW	0	4	12	17	7	6	46
NW	1	5	14	23	12	5	60
NNW	0	1	8	25	11	2	47
VAR	0	0	0	0	0	0	0

Total Hours This Class: 602
Hours of Calm This Class: 6
Percent of All Data This Class: 3.64

Table 11 Monticello Nuclear Generating Plant Site Meteorology - Stability Class C, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	3	9	26	25	13	2	78
NNE	2	12	14	14	8	2	52
NE	1	7	9	8	2	0	27
ENE	0	5	12	6	1	0	24
E	0	13	19	1	2	0	35
ESE	0	13	25	11	1	1	51
SE	2	17	12	8	4	0	43
SSE	0	26	38	19	10	2	95
S	0	15	23	13	7	4	62
SSW	0	28	33	23	11	2	97
SW	0	20	24	17	4	0	65
WSW	3	17	27	14	3	1	65
W	3	10	20	14	8	3	58
WNW	3	10	16	27	18	9	83
NW	2	8	22	38	26	10	106
NNW	2	3	16	42	19	8	90
VAR	0	0	0	0	0	0	0

Total Hours This Class:	1041
Hours of Calm This Class:	10
Percent of All Data This Class:	4.29

Table 12 Monticello Nuclear Generating Plant Site Meteorology - Stability Class D, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	11	51		95	181	130	82
NNE	11	41	106	120	50	12	340
NE	15	53	105	93	25	8	299
ENE	14	41	131	83	59	12	340
E	18	61	103	62	38	6	288
ESE	17	55	101	85	47	31	336
SE	13	57	108	152	68	23	421
SSE	9	63	119	148	71	17	427
S	16	61	95	122	61	8	363
SSW	14	61	85	120	46	34	360
SW	14	54	80	74	32	11	265
WSW	13	52	69	44	21	11	210
W	8	45	89	59	29	17	247
WNW	14	51	141	165	77	62	510
NW	7	50	170	366	312	143	1048
NNW	12	52	176	312	350	229	1131
VAR	0	0	0	0	0	0	0

Total Hours This Class:	7264
Hours of Calm This Class:	129
Percent of All Data This Class:	43.87

Table 13 Monticello Nuclear Generating Plant Site Meteorology - Stability Class E, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	4	17	59	99	82	11	272
NNE	7	18	37	68	32	3	165
NE	4	16	47	58	20	2	147
ENE	4	33	68	93	27	9	234
E	4	27	64	75	15	2	187
ESE	5	20	46	74	37	11	193
SE	10	23	63	97	58	3	254
SSE	5	22	58	94	105	16	300
S	5	13	57	140	97	20	332
SSW	2	25	49	115	125	22	338
SW	7	24	67	102	84	18	302
WSW	3	19	42	73	37	8	182
W	5	20	47	55	35	2	164
WNW	4	18	63	136	93	13	327
NW	6	15	71	172	141	12	417
NNW	3	27	86	244	198	17	575
VAR	0	0	0	0	0	0	0

Total Hours This Class:	4433
Hours of Calm This Class:	44
Percent of All Data This Class:	26.77

Table 14 Monticello Nuclear Generating Plant Site Meteorology - Stability Class F, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	3	12	28	45	28	0	116
NNE	2	4	15	39	16	1	77
NE	4	7	23	49	17	1	101
ENE	1	7	19	40	6	3	76
E	4	10	26	15	3	0	58
ESE	8	16	28	31	14	2	99
SE	2	7	28	46	19	5	107
SSE	2	8	25	62	40	1	138
S	1	12	30	60	36	1	140
SSW	1	11	28	58	57	4	159
SW	3	14	19	75	33	2	146
WSW	5	6	22	28	29	0	90
W	1	14	22	27	16	0	80
WNW	4	10	44	49	27	1	135
NW	4	12	37	87	29	0	169
NNW	4	14	38	51	21	1	129
VAR	0	0	0	0	0	0	0

Total Hours This Class: 1826
Hours of Calm This Class: 6
Percent of All Data This Class: 11.03

Table 15 Monticello Nuclear Generating Plant Site Meteorology - Stability Class G, Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	6	8	16	9	0	0	39
NNE	3	12	15	8	1	0	39
NE	4	6	11	16	4	0	41
ENE	6	11	15	11	3	1	47
E	8	7	11	11	1	0	38
ESE	1	12	9	16	2	0	40
SE	5	9	10	5	9	1	39
SSE	6	6	12	8	11	1	44
S	2	6	13	30	12	1	64
SSW	1	14	26	55	21	0	117
SW	1	9	21	26	25	3	85
WSW	5	16	29	16	14	0	80
W	3	14	8	16	18	2	61
WNW	5	15	23	21	9	0	73
NW	2	7	14	17	1	0	41
NNW	8	13	21	7	5	0	54
VAR	0	0	0	0	0	0	0

Total Hours This Class:	904
Hours of Calm This Class:	2
Percent of All Data This Class:	5.46

Table 16 Monticello Nuclear Generating Plant Site Meteorology - All Classes Combined
Elevation 100 Meters

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

	Wind Speed (mph) at 100 Meter Level						
Direction	1 to 3	4 to 7	8 to 12	13 to 18	19 to 24	Above 24	Total
N	27	101	239	387	257	95	1106
NNE	25	94	191	259	109	20	698
NE	28	90	203	230	68	11	630
ENE	25	99	248	240	99	25	736
E	34	121	242	165	59	8	629
ESE	31	121	230	220	101	47	750
SE	33	120	240	325	160	40	918
SSE	23	135	285	385	281	54	1163
S	24	113	244	411	251	46	1089
SSW	18	148	259	425	318	103	1271
SW	25	128	233	321	191	40	938
WSW	29	117	200	205	116	22	689
W	20	107	194	196	113	24	654
WNW	30	108	301	419	232	93	1183
NW	22	97	331	709	527	173	1859
NNW	29	110	346	695	608	257	2045
VAR	0	0	0	0	0	0	0

Table 16 Monticello Nuclear Generating Plant Site Meteorology - All Classes Combined Elevation 100 Meters (cont'd)

Frequency Distribution Tables, Hours at each Wind Speed and Direction

Period of record: 9-1-76 through 8-31-78

Data Recovery for the Period

Total Hours:	17520
Hours of Calm:	201
Hours of Bad Data:	961
Percent Data Recovery:	94.51

Percent Acceptable Observations in each Stability Class

Class A	2.95
Class B	3.64
Class C	6.29
Class D	43.87
Class E	26.77
Class F	11.03
Class G	5.46

Average Wind Speed for each Wind Category

1 to 3 MPH	2.5
4 to 7 MPH	5.8
8 to 12 MPH	10.1
13 to 18 MPH	15.4
19 to 24 MPH	20.9
Above 24 MPH	28.1

OFFSITE DOSE CALCULATION MANUAL - TABLE OF CONTENTS

Prepared By: B Peterson	
Reviewed By: MJohn	
OC Final Review Meeting: #2242	Date: 11/02/2000
Approved By Plant Manager: JPalm	Date: 8/24/01

FOR ADMINISTRATIVE USE ONLY

3087 (DOCUMENT CHANGE, HOLD, AND COMMENT FORM) incorporated: None

Resp Supv: CHEM	Assoc Ref: CHEM-I		SR: N	Freq: 2 yrs
ARMS: ODCM-APP-C	Doc Type: 7030	Admin Initials:		Date 8/23/01

l/plr

1.0 RECORD OF REVISION

Revision No.	Date	Reason for Revision
0	October - 2000	Moved previous ODCM-10.01 tables of parameters to this document.

Table 1 Parameters for Cow and Goat Milk Pathways

Parameter	Value	Reference in Reg. Guide 1.109 Rev. 1
Q_F (kg/day)	50 (cow) 6 (goat)	Table E-3 Table E-3
t_f (seconds)	1.73×10^5 (2 days)	Table E-15
r	1.0 (radioiodines) 0.2 (particulates)	Table E-15 Table E-15
$(DFL_i)_a$ (mrem/pCi)	Each radionuclide	Table E-11 to E-14
F_m (pCi/day per pCi/liter)	Each stable element	Table E-1 (cow) Table E-2 (goat)
t_b (seconds)	4.73×10^8 (15 yr)	Table E-15
Y_s(kg/m^2)	2.0	Table E-15
Y_p (kg/m^2)	.75	Table E-15
t_h (seconds)	7.78×10^6 (90 days)	Table E-15
U_{ap} (liters/yr)	330 infant 330 child 400 teen 310 adult	Table E-5 Table E-5 Table E-5 Table E-5
t_{ep} (seconds)	2.59×10^6 (pasture)	Table E-15
t_{es} (seconds)	5.18×10^6 (stored feed)	Table E-15
B_{iv} (pCi/kg (wet weight) per pCi/kg (dry soil))	Each stable element	Table E-1
P (kg dry soil/m^2)	240	Table E-15

Table 2 Parameters for the Cow Meat Pathway

Parameter	Value	Reference in Reg. Guide 1.109 Rev. 1
r	1.0 (radioiodines) 0.2 (particulates)	Table E-15 Table E-15
F_f (pCi/kg per pCi/day)	Each stable element	Table E-1
U_{ap} (kg/yr)	0 infant 41 child 65 teen 110 adult	Table E-5 Table E-5 Table E-5 Table E-5
$(DFL_i)_a$ (mrem/pCi)	Each radionuclide	Table E-11 to E-14
Y_p (kg/m^2)	0.7	Table E-15
Y_s(kg/m^2)	2.0	Table E-15
t_b (seconds)	4.73 X 10^8 (15 yr)	Table E-15
t_s (seconds)	1.73 X 10^6 (20 days)	Table E-15
t_h (seconds)	7.78 X 10^6 (90 days)	Table E-15
t_{ep} (seconds)	2.59 X 10^6 (pasture)	Table E-15
t_{es} (seconds)	5.18 X 10^6 (stored feed)	Table E-15
Q_F (kg/day)	50	Table E-3
B_{iv} (pCi/kg (wet weight) per pCi/kg (dry soil))	Each stable element	Table E-1
P (kg dry soil/m^2)	240	Table E-15

Table 3 Parameters for the Vegetable Pathway

Parameter	Value	Reference in Reg. Guide 1.109 Rev. 1
r (dimensionless)	1.0 (radioiodines) 0.2 (particulates)	Table E-1 Table E-1
$(DFL_i)_a$ (mrem/Ci)	Each radionuclide	Tables E-11 to E-14
U^L_a (kg/yr)	0 Infant 26 Child 42 Teen 64 Adult	Table E-5 Table E-5 Table E-5 Table E-5
U^s_a (kg/yr)	0 Infant 520 Child 630 Teen 520 Adult	Table E-5 Table E-5 Table E-5 Table E-5
t_L (seconds)	8.6×10^4 (1 day)	Table E-15
t_h (seconds)	5.18×10^6 (60 days)	Table E-15
Y_v (kg/m2)	2.0	Table E-15
t_e (seconds)	5.18×10^6 (60 days)	Table E-15
t_b (seconds)	4.73×10^8 (15 yr)	Table E-15
P (kg/(dry soil)/m2)	240	Table E-15
B_{iv} (pCi/kg(wet weight) per pCi/kg (dry soil))	Each stable element	Table E-1