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December 17, 2008

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC.
William States Lee III Nuclear Station - Docket Nos. 52-018 and 52-019
AP1000 Combined License Application for the
William States Lee III Nuclear Station Units 1 and 2
Response to Request for Additional Information
(RAI No. 448)
Ltr# WLG2008.12-18

Reference: Letter from Brian Hughes (NRC) to Peter Hastings (Duke Energy), *Request for Additional Information Letter No. 047 Related To SRP Section 02.03.04 {sic}[02.03.03] for the William States Lee III Units 1 And 2 Combined License Application*, dated November 2, 2008

This letter provides the Duke Energy responses to the Nuclear Regulatory Commission's requests for additional information (RAIs) included in the referenced letter.

Responses to the NRC information requests described in the referenced letter are addressed in separate enclosures, which also identify associated changes, when appropriate, that will be made in a future revision of the Final Safety Analysis Report for the Lee Nuclear Station.

If you have any questions or need any additional information, please contact Peter S. Hastings, Nuclear Plant Development Licensing Manager, at 980-373-7820.

Bryan J. Dolan
Vice President
Nuclear Plant Development

DC93
NRO

Enclosures:

1) Duke Energy Response to Request for Additional Information Letter 047, RAI 02.03.03-001
2) Duke Energy Response to Request for Additional Information Letter 047, RAI 02.03.03-002
3) Duke Energy Response to Request for Additional Information Letter 047, RAI 02.03.03-003

AFFIDAVIT OF BRYAN J. DOLAN

Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William States Lee III Nuclear Station and that all the matter and facts set forth herein are true and correct to the best of his knowledge.

Bryan J. Dolan

Subscribed and sworn to me on December 17, 2008

Notary Public

My commission expires: 06.27.2011

SEAL

xc (w/o enclosures):

Loren Plisco, Deputy Regional Administrator, Region II
Stephanie Coffin, Branch Chief, DNRL

xc (w/ enclosures):

Brian Hughes, Senior Project Manager, DNRL
Ravindra Joshi, Project Manager, DNRL

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 047

NRC Technical Review Branch: Siting and Accident Consequences Branch (RSAC)

Reference NRC RAI Number(s): RAI 02.03.03-001

NRC RAI:

Regulatory Guide 1.23 states that digital data should be (1) compiled as 15-minute average values for real-time display in the appropriate emergency response facilities (e.g., control room, technical support center, and emergency operations facility), and (2) compiled and archived as hourly values for use in historical climatic and dispersion analyses. Please include a discussion in FSAR Section 2.3.3.2.2 which address these topics.

Duke Energy Response:

The need to provide digital data compiled as 15-minute averages for real-time display in the appropriate emergency response facilities (e.g., control room, technical support center, and emergency operations facility) will be added to FSAR Subsection 2.3.3.2.2. Clarification of precipitation data display information is also provided.

The Regulatory Guide 1.23 expectation that digital data should be compiled and archived as hourly values for use in historical climatic and dispersion analyses is already addressed in FSAR Subsections 2.3.3.2.2 and 2.3.3.2.3. FSAR Subsection 2.3.3.2.2, Data Processing, states, "The output of each meteorological sensor is scanned periodically, scaled, and the data values are stored as 1-minute averages and 1-hour averages, or totals." FSAR Subsection 2.3.3.2.3, Data Validation, states "Both raw (unedited) and QA'd (edited) data files are maintained on the central computer. Backup copies of the data files are maintained."

Associated Revision to the Lee Nuclear Station Final Safety Analysis Report:

FSAR Subsection 2.3.3.2.2

Attachment:

1) Mark-up of FSAR Subsection 2.3.3.2.2

Lee Nuclear Station Response to Request for Additional Information (RAI)

Attachment 1 to RAI 02.03.03-001

Mark-up of FSAR Subsection 2.3.3.2.2

COLA Part 2, FSAR, Chapter 2, Subsection 2.3.3.2.2, first paragraph, is revised as follows:

2.3.3.2.2 Data Processing

The equipment processors and datalogger control data acquisition at each tower location. The output of each meteorological sensor is scanned periodically, scaled, and the data values are stored as 1-minute averages and 1-hour averages, or totals. For precipitation, the total accumulation for the minute and hour will be recorded. Digital data compiled as 15-minute averages, as detailed in Regulatory Guide 1.23, is provided for real-time display in the appropriate emergency response facilities (e.g., control room, technical support center, and emergency operations facility).

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 047

NRC Technical Review Branch: Siting and Accident Consequences Branch (RSAC)

Reference NRC RAI Number(s): RAI 02.03.03-002

NRC RAI:

Please provide a description in FSAR Section 2.3.3 on the following aspects of the operational meteorological measurements program. (1) The siting of Tower 3, including tower elevation, and the representativeness of the location and resultant data. (2) A comparison of the meteorological data between Tower 2 and Tower 3 for data consistency. (3) Proposed or existing nearby obstructions, including distance from the tower, such as the containment building, cooling towers, trees, nearby terrain, etc. and the potential impact on the accuracy and representativeness of the measurements. (4) The instrument maintenance and servicing schedules and the planned data reduction and compilation procedures for the operational meteorological program. Please include data acquisition, processing, and validation for the data from the operational program. (5) How the data from the operational program will be used to support emergency preparedness procedures and compiled and archived for later use.

Duke Energy Response:

The Lee Nuclear Station COL application is based on data collected from Tower 2 as described in FSAR Subsection 2.3.3. The data collected from Tower 2 will continue to serve as the licensing basis for the Lee Nuclear Station COL application. Tower 3 was not erected with the intent of providing data in support of the COL application, is not yet fully operational, and will not have collected a full year of data until the end of 2009. Tower 3 will comply with the guidance provided in Regulatory Guide 1.23, Revision 1, and will use the same procedures and maintenance/servicing schedules as Tower 2, described in FSAR Subsection 2.3.3.3. The compilation and archiving of meteorological data are addressed in FSAR Subsection 2.3.3.2, and the use of meteorological data in emergency planning is described in Section II.H.8 and Appendix 2 of the Lee Nuclear Station Emergency Plan (COLA Part 5).

Duke Energy expects to transition from Tower 2 to Tower 3 as the recognized source of site meteorological data following receipt of a combined license and prior to the receipt of fuel. This change will revise the licensing basis for the Lee Nuclear Station, and will be conducted in accordance with NRC regulations at that time.

Associated Revision to the Lee Nuclear Station Final Safety Analysis Report:

None

Attachment:

None

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 047

NRC Technical Review Branch: Siting and Accident Consequences Branch (RSAC)

Reference NRC RAI Number(s): RAI 02.03.03-003

NRC RAI:

Regulatory Guide 1.23, Revision 1, states that at the time of application for a combined license, the applicant should submit meteorlogical data collected for a consecutive 24-month period and that the data that is defendable, representative and complete, but not older than 10 years from the date of the application. NUREG 0800 SRP Section 2.3.3, "Onsite Meteorlogical Data Collection," provides further guidance stating that if a COL applicant does not have two consecutive years of data at least one year should be supplied at the time of application submittal and the applicant should continue to collect and submit the second year of data when available. Please submit at least an additional year of onsite meteorological data and revise FSAR Sections 2.3.2 through 2.3.5 accordingly, including updating the joint frequency distributions and both short-term and long-term dispersion estimates, or justify an alternative method.

Duke Energy Response:

The evaluation and submittal of the two-year Lee Nuclear Station meteorological data was provided in response to RAI 02.03.02-001 (Reference 1), which included a new Appendix 2CC to FSAR Chapter 2. This response supplements the information provided in Appendix 2CC with additional Sections 2CC.4 and 2CC.5 (and associated tables), reflecting an evaluation of the atmospheric dispersion factors based on the entire two-year data set. This evaluation confirms that a revision is not necessary to the short-term and long-term dispersion estimates provided in FSAR Subsections 2.3.4 and 2.3.5.

Reference:

1. Letter from Bryan J. Dolan to Document Control Desk, U.S. Nuclear Regulatory Commission, WLG2008.11-08, *William States Lee III Nuclear Station Units 1 and 2 Response to Request for Additional Information (RAI No. 447)*, dated November 25, 2008.

Associated Revision to the Lee Nuclear Station Final Safety Analysis Report:

FSAR Chapter 2 Appendix 2CC

Attachment:

1) Mark-up of FSAR Chapter 2 Appendix 2CC

Lee Nuclear Station Response to Request for Additional Information (RAI)

Attachment 1 to RAI 02.03.03-003

Mark-up of FSAR Chapter 2 Appendix 2CC

COLA Part 2, FSAR, Chapter 2, new Appendix 2CC, is revised by adding new material following Appendix 2CC Subsection 2CC.3, and new tables following Table 2CC-210, as follows:

2CC.4 Atmospheric Dispersion and Deposition

Atmospheric dispersion and deposition (X/Q and D/Q, respectively) values are developed using the combined two-year data set for both accident and normal conditions, as appropriate. For accident conditions, the Exclusion Area Boundary (EAB), Low Population Zone (LPZ), and control room X/Q values are determined using the same models and input data as in the evaluations presented in Subsection 2.3.4. The only change in the analyses is the use of the full two-year data set instead of the first year data set. This insures that changes in results can be attributable to the meteorological data alone. For normal releases, X/Q and D/Q values for the maximum individual and population within 50 miles of the Lee Nuclear Station are developed. The intent of this effort is to show that the two-year data set is compatible (e.g., there are no substantial differences in atmospheric dispersion and deposition values) with the first year data set and that any differences are the result of normal variability in the meteorological data.

The offsite accident atmospheric dispersion values are given in Table 2CC-211 for the one-year and two-year data sets. The EAB values show that the X/Q values based on the one-year data set are higher than the values based on the two-year data set. Because the offsite doses are directly proportional to the X/Q values, EAB doses are lower using the full two-year data set. Therefore, the X/Q values presented in FSAR Subsection 2.3.4, which are based on the one-year data set, are bounding. The LPZ accident atmospheric dispersion values are also given in Table 2CC-211. The X/Q values for the one-year data set and the two-year data set are compared with the DCD X/Q values instead of with each other because the impact on margin is the important consideration. The change in margin to the DCD values becomes the figure of merit in determining if the two data sets are comparable. Examination of these results shows that for all post-accident radionuclide release periods, the largest change in margin is a 3.9% decrease for the 0-8 hour time interval. The X/Q values at the LPZ for all time intervals are well below the limits provided in Table 2.0-1 of Revision 17 of the AP1000 DCD, with the highest ratio of the site-specific X/Q to the AP1000 DCD value being 36.4%.

Atmospheric dispersion coefficients for the control room are presented in Table 2CC-212. These control room atmospheric dispersion values are more difficult to compare because of the large number of release point and receptor pairs. One of the issues with this comparison is the lack of precision in the DCD site parameters. Because the DCD values are given to only two significant figures, the Lee Nuclear Station values were necessarily rounded to two significant figures. The X/Q values for the one-year data set and the two-year data set are compared with the DCD X/Q values instead of with each other because the impact on margin is the important consideration. The change in margin to the DCD values becomes the figure of merit in determining if the two data sets are comparable. An additional complication in comparing the results is the variation in the change in margin for the time periods evaluated. The consequence of a reduction in margin (or increase in the X/Q value) at later time intervals is less significant if the majority of the radionuclide releases are earlier in the accident sequence. Review of the comparisons presented in Table 2CC-212 shows that the change in margin ranges from an increase in margin of 2.0% to a reduction in margin by 10%. Both of these extremes were for the Control Room HVAC Intake receptor location. For a loss of coolant accident, this location is not significant because the Control Room is pressurized with bottled air. The maximum increase in margin (2.0%) was for a Condenser Air Removal Stack release point and the maximum decrease in margin (10%) was for a Passive Containment Cooling

System (PCS) Air Diffuser release. It should be noted that even with the 10% decrease in margin for the PCS Air Diffuser release, the X/Q value for this time interval is still only 66.3% of the DCD X/Q value. The X/Q value for a Plant Vent release to the Control Room HVAC Intake receptor resulted in the smallest margin to the DCD value at 66.7% during the 0-2 hour time interval. In this case, the one-year data set and two-year data set produced identical results. Based on this comparison it is concluded that the two-year data set is reasonably consistent with the first year data set.

The final category of X/Q and D/Q values to be compared are for normal releases. This category includes X/Q and D/Q values for the maximum individual and the 50 mi. population. The maximum individual and population X/Q and D/Q values were calculated using essentially the same data, assumptions, and parameters as used in the original calculations using one year of data. There were some differences associated with a more current receptor survey. The maximum individual and population X/Q and D/Q values are given in Tables 2CC-213 through 2CC-218. These tables give the X/Q and D/Q values for the nearest receptor of each type (i.e., EAB, house, garden, cow, goat) in a given sector. The location of the maximum X/Q value at the EAB was used to evaluate the doses due to immersion in the plume. The location of the nearest garden was used to evaluate the doses due to vegetable ingestion, a significant radionuclide and particulate pathway. The direct comparison of the X/Q and D/Q values for normal releases is not meaningful because of the large number of values, some of which decrease while others increase. Instead, the comparison makes use of the maximum individual and population doses which allows distillation of the various X/Q and D/Q values into a more comprehensible result. The maximum individual doses due to the vegetable pathway are presented in Table 2CC-219. This pathway was selected for comparison because the location is unchanged from the design basis evaluation. The child age group is analyzed because it has the highest vegetable doses. Consistent with the X/Q and D/Q calculation methodology, the dose analysis was performed with all data and inputs held constant, except for the meteorological data. It is assumed that the doses to a child due to the vegetable pathway are representative of the doses to all age groups due to all ingestion pathways. The comparison provided in Table 2CC-219 is the percentage change from the original doses calculated using the first year meteorological data set. As shown, doses due to the vegetable pathway increased when using the full two-year data set. The maximum increase to any organ was 4.5% for the total body dose. Table 2CC-220 gives the maximum individual doses due to noble gases or immersion in the plume. Again, the doses increased when the two-year data set was used, but are still only a fraction of the 10 CFR 50 Appendix I limits.

The doses for the one-year data set and the two-year data set are compared with the 10 CFR 50 Appendix I limits instead of with each other because the impact on margin is the important consideration. The greatest decrease in margin is 1.6% for the maximum individual total body dose limit of 5 rem/yr. The comparison of the population doses within 50 miles of the site are given in Table 2CC-221. These results show that the whole body and thyroid population doses increase by 3.8% and 2.5%, respectively. The maximum increase for any organ is 5.1% to the bone. None of these increases are considered significant.

2CC.5 Conclusion

Based on the information presented in Subsection 2CC.4, it is concluded that the atmospheric dispersion and deposition (X/Q and D/Q) values based on the two-year meteorological data set are consistent with the corresponding values based on the first year data set. The atmospheric dispersion (X/Q) values for the EAB, LPZ, and control room are consistent for the two data sets. The offsite doses due to normal gaseous effluent releases used to compare the normal atmospheric dispersion and deposition (X/Q and D/Q) values are also consistent for the two data sets. These comparisons demonstrate that the first year of data is consistent with the

complete two-year Lee Nuclear Station data set and is representative of longer-term conditions at the site. No anomalous behavior was observed between the first year and second year of data. No changes are needed to FSAR Sections 2.3, 2.4 or 2.5 based on the collection of the second year of meteorological data.

TABLE 2CC-211
ACCIDENT X/Q VALUE COMPARISON

	DCD Rev. 17 Value	One-Year Value	Two-Year Value	Ratio of One-Year Value to DCD Value	Ratio of Two-Year Value to DCD Value	Change in Ratio to DCD Value
EAB (1339 m, SE)						
0-2 hours	5.1E-04	3.52E-04	3.46E-04	69.0%	67.8%	-1.2%
LPZ (SE)						
0-8 hours	2.2E-04	7.16E-05	8.01E-05	32.5%	36.4%	3.9%
8-24 hours	1.6E-04	4.92E-05	5.49E-05	30.8%	34.3%	3.6%
24-96 hours	1.0E-04	2.18E-05	2.42E-05	21.8%	24.2%	2.4%
96-720 hours	8.0E-05	6.80E-06	7.46E-06	8.5%	9.3%	0.8%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
Page 1 of 6

CR HVAC Intake	AP1000 DCD (sec/m^3) Plant Vent	One-Year Value (sec/m^3) Plant Vent	Two-Year Value (sec/m^3) Plant Vent	Ratio of One-Year Value to DCD Plant Vent	Ratio of Two-Year Value to DCD Plant Vent	Change in Margin Plant Vent
0-2 hours	3.0E-03	2.0E-03	2.0E-03	66.7%	66.7%	0.0%
2-8 hours	2.5E-03	1.5E-03	1.5E-03	60.0%	60.0%	0.0%
8-24 hours	1.0E-03	5.9E-04	5.8E-04	59.0%	58.0%	1.0%
1-4 days	8.0E-04	4.5E-04	4.8E-04	56.3%	60.0%	-3.8%
4-30 days	6.0E-04	3.2E-04	3.6E-04	53.3%	60.0%	-6.7%

CR HVAC Intake	AP1000 DCD (sec/m^3) PCS Air Diffuser	One-Year Value (sec/m^3) PCS Air Diffuser	Two-Year Value (sec/m^3) PCS Air Diffuser	Ratio of One-Year Value to DCD PCS Air Diffuser	Ratio of Two-Year Value to DCD PCS Air Diffuser	Change in Margin PCS Air Diffuser
0-2 hours	3.0E-03	1.7E-03	1.8E-03	56.7%	60.0%	-3.3%
2-8 hours	2.5E-03	1.4E-03	1.5E-03	56.0%	60.0%	-4.0%
8-24 hours	1.0E-03	5.9E-04	6.4E-04	59.0%	64.0%	-5.0%
1-4 days	8.0E-04	4.5E-04	5.3E-04	56.3%	66.3%	-10.0%
4-30 days	6.0E-04	2.8E-04	3.4E-04	46.7%	56.7%	-10.0%

CR HVAC Intake	AP1000 DCD (sec/m^3) Steam Line Break	One-Year Value (sec/m^3) Steam Vent	Two-Year Value (sec/m^3) Steam Vent	Ratio of One-Year Value to DCD Steam Vent	Ratio of Two-Year Value to DCD Steam Vent	Change in Margin Steam Vent
0-2 hours	2.4E-02	1.2E-02	1.3E-02	50.0%	54.2%	-4.2%
2-8 hours	2.0E-02	6.5E-03	7.2E-03	32.5%	36.0%	-3.5%
8-24 hours	7.5E-03	2.9E-03	3.0E-03	38.7%	40.0%	-1.3%
1-4 days	5.5E-03	2.1E-03	2.4E-03	38.2%	43.6%	-5.5%
4-30 days	5.0E-03	1.5E-03	1.8E-03	30.0%	36.0%	-6.0%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
Page 2 of 6

CR HVAC Intake	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	CAR Stack	CAR Stack	CAR Stack	CAR Stack	CAR Stack	CAR Stack
0-2 hours	6.0E-03	1.6E-03	1.6E-03	26.7%	26.7%	0.0%
2-8 hours	4.0E-03	1.3E-03	1.3E-03	32.5%	32.5%	0.0%
8-24 hours	2.0E-03	5.3E-04	5.1E-04	26.5%	25.5%	1.0%
1-4 days	1.5E-03	3.9E-04	3.9E-04	26.0%	26.0%	0.0%
4-30 days	1.0E-03	3.0E-04	2.8E-04	30.0%	28.0%	2.0%

CR HVAC Intake	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Containment Shell	Containment Shell	Containment Shell	Containment Shell	Containment Shell	Containment Shell
0-2 hours	6.0E-03	2.7E-03	2.7E-03	45.0%	45.0%	0.0%
2-8 hours	3.6E-03	1.8E-03	1.8E-03	50.0%	50.0%	0.0%
8-24 hours	1.4E-03	7.0E-04	7.4E-04	50.0%	52.9%	-2.9%
1-4 days	1.8E-03	6.2E-04	6.9E-04	34.4%	38.3%	-3.9%
4-30 days	1.5E-03	4.3E-04	4.8E-04	28.7%	32.0%	-3.3%

CR HVAC Intake	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve
0-2 hours	2.0E-02	1.1E-02	1.1E-02	55.0%	55.0%	0.0%
2-8 hours	1.8E-02	5.3E-03	5.6E-03	29.4%	31.1%	-1.7%
8-24 hours	7.0E-03	2.3E-03	2.3E-03	32.9%	32.9%	0.0%
1-4 days	5.0E-03	1.7E-03	1.9E-03	34.0%	38.0%	-4.0%
4-30 days	4.5E-03	1.3E-03	1.5E-03	28.9%	33.3%	-4.4%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
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CR HVAC Intake	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Fuel Handling Area	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel
0-2 hours	6.0E-03	1.6E-03	1.6E-03	26.7%	26.7%	0.0%
2-8 hours	4.0E-03	1.2E-03	1.2E-03	30.0%	30.0%	0.0%
8-24 hours	2.0E-03	4.2E-04	4.3E-04	21.0%	21.5%	-0.5%
1-4 days	1.5E-03	4.1E-04	4.1E-04	27.3%	27.3%	0.0%
4-30 days	1.0E-03	3.1E-04	3.7E-04	31.0%	37.0%	-6.0%

CR HVAC Intake	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Fuel Handling Area	RWB TSA Door	RWB TSA Door	RWB TSA Door	RWB TSA Door	RWB TSA Door
0-2 hours	6.0E-03	1.2E-03	1.2E-03	20.0%	20.0%	0.0%
2-8 hours	4.0E-03	9.0E-04	9.0E-04	22.5%	22.5%	0.0%
8-24 hours	2.0E-03	3.5E-04	3.3E-04	17.5%	16.5%	1.0%
1-4 days	1.5E-03	3.0E-04	2.9E-04	20.0%	19.3%	0.7%
4-30 days	1.0E-03	2.3E-04	2.6E-04	23.0%	26.0%	-3.0%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
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Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Plant Vent	Plant Vent	Plant Vent	Plant Vent	Plant Vent	Plant Vent
0-2 hours	1.0E-03	4.3E-04	4.4E-04	43.0%	44.0%	-1.0%
2-8 hours	7.5E-04	3.4E-04	3.5E-04	45.3%	46.7%	-1.3%
8-24 hours	3.5E-04	1.4E-04	1.4E-04	40.0%	40.0%	0.0%
1-4 days	2.8E-04	1.1E-04	1.1E-04	39.3%	39.3%	0.0%
4-30 days	2.5E-04	7.3E-05	8.2E-05	29.2%	32.8%	-3.6%

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	PCS Air Diffuser	PCS Air Diffuser	PCS Air Diffuser	PCS Air Diffuser	PCS Air Diffuser	PCS Air Diffuser
0-2 hours	1.0E-03	4.8E-04	4.8E-04	48.0%	48.0%	0.0%
2-8 hours	7.5E-04	3.7E-04	3.7E-04	49.3%	49.3%	0.0%
8-24 hours	3.5E-04	1.6E-04	1.6E-04	45.7%	45.7%	0.0%
1-4 days	2.8E-04	1.2E-04	1.3E-04	42.9%	46.4%	-3.6%
4-30 days	2.5E-04	7.8E-05	9.1E-05	31.2%	36.4%	-5.2%

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Steam Line Break	Steam Vent	Steam Vent	Steam Vent	Steam Vent	Steam Vent
0-2 hours	4.0E-03	8.4E-04	8.5E-04	21.0%	21.3%	-0.3%
2-8 hours	3.2E-03	6.0E-04	6.4E-04	18.8%	20.0%	-1.3%
8-24 hours	1.2E-03	2.8E-04	2.8E-04	23.3%	23.3%	0.0%
1-4 days	1.0E-03	1.9E-04	1.9E-04	19.0%	19.0%	0.0%
4-30 days	8.0E-04	1.1E-04	1.4E-04	13.8%	17.5%	-3.8%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
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Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	CAR Stack	CAR Stack	CAR Stack	CAR Stack	CAR Stack	CAR Stack
0-2 hours	2.0E-02	3.3E-03	3.4E-03	16.5%	17.0%	-0.5%
2-8 hours	1.8E-02	2.7E-03	2.9E-03	15.0%	16.1%	-1.1%
8-24 hours	7.0E-03	1.0E-03	1.3E-03	14.3%	18.6%	-4.3%
1-4 days	5.0E-03	8.0E-04	9.2E-04	16.0%	18.4%	-2.4%
4-30 days	4.5E-03	4.5E-04	6.4E-04	10.0%	14.2%	-4.2%

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Containment Shell	Containment Shell	Containment Shell	Containment Shell	Containment Shell	Containment Shell
0-2 hours	1.0E-03	4.9E-04	5.0E-04	49.0%	50.0%	-1.0%
2-8 hours	7.5E-04	3.9E-04	4.0E-04	52.0%	53.3%	-1.3%
8-24 hours	3.5E-04	1.6E-04	1.6E-04	45.7%	45.7%	0.0%
1-4 days	2.8E-04	1.2E-04	1.4E-04	42.9%	50.0%	-7.1%
4-30 days	2.5E-04	8.5E-05	9.8E-05	34.0%	39.2%	-5.2%

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve	PORV/Safety Valve
0-2 hours	4.0E-03	8.6E-04	8.7E-04	21.5%	21.8%	-0.3%
2-8 hours	3.2E-03	6.3E-04	6.8E-04	19.7%	21.3%	-1.6%
8-24 hours	1.2E-03	2.9E-04	3.0E-04	24.2%	25.0%	-0.8%
1-4 days	1.0E-03	1.9E-04	2.1E-04	19.0%	21.0%	-2.0%
4-30 days	8.0E-04	1.1E-04	1.5E-04	13.8%	18.8%	-5.0%

TABLE 2CC-212
CONTROL ROOM X/Q VALUE COMPARISON
Page 6 of 6

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Fuel Handling Area	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel	FB Blowout Panel
0-2 hours	6.0E-03	3.6E-04	3.6E-04	6.0%	6.0%	0.0%
2-8 hours	4.0E-03	2.5E-04	2.7E-04	6.3%	6.8%	-0.5%
8-24 hours	2.0E-03	1.1E-04	1.0E-04	5.5%	5.0%	0.5%
1-4 days	1.5E-03	8.6E-05	8.9E-05	5.7%	5.9%	-0.2%
4-30 days	1.0E-03	6.6E-05	7.4E-05	6.6%	7.4%	-0.8%

Annex Bldg Entrance	AP1000 DCD (sec/m^3)	One-Year Value (sec/m^3)	Two-Year Value (sec/m^3)	Ratio of One-Year Value to DCD	Ratio of Two-Year Value to DCD	Change in Margin
	Fuel Handling Area	RWB TSA Door	RWB TSA Door	RWB TSA Door	RWB TSA Door	RWB TSA Door
0-2 hours	6.0E-03	3.4E-04	3.5E-04	5.7%	5.8%	-0.2%
2-8 hours	4.0E-03	2.4E-04	2.5E-04	6.0%	6.3%	-0.3%
8-24 hours	2.0E-03	1.0E-04	9.8E-05	5.0%	4.9%	0.1%
1-4 days	1.5E-03	8.5E-05	8.7E-05	5.7%	5.8%	-0.1%
4-30 days	1.0E-03	6.6E-05	7.6E-05	6.6%	7.6%	-1.0%

Notes:

CAR is the Condenser Air Removal release point

RWB TSA is the Radwaste Building Truck Staging Area release point

FB Blowout Panel is the Fuel Building Blowout Panel release point

PCS Air Diffuser is the Passive Containment Cooling System (PCS) release point

Values provided in the AP1000 DCD column are from Revision 17 of the AP1000 DCD

TABLE 2CC-213
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for no decay, undepleted, for each 22.5° sector at the distances (miles) shown at the top
Page 1 of 3

Sector	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	1.941E-05	5.731E-06	2.859E-06	1.809E-06	9.998E-07	6.649E-07	4.869E-07	3.868E-07	3.190E-07	2.700E-07	2.331E-07
SSW	1.793E-05	5.323E-06	2.674E-06	1.697E-06	9.366E-07	6.216E-07	4.543E-07	3.599E-07	2.961E-07	2.502E-07	2.156E-07
SW	1.497E-05	4.451E-06	2.247E-06	1.429E-06	7.919E-07	5.264E-07	3.849E-07	3.039E-07	2.494E-07	2.101E-07	1.807E-07
WSW	1.705E-05	5.035E-06	2.512E-06	1.590E-06	8.761E-07	5.815E-07	4.252E-07	3.373E-07	2.779E-07	2.350E-07	2.027E-07
W	1.775E-05	5.217E-06	2.592E-06	1.639E-06	9.050E-07	6.020E-07	4.410E-07	3.509E-07	2.898E-07	2.455E-07	2.122E-07
WNW	1.823E-05	5.344E-06	2.645E-06	1.668E-06	9.234E-07	6.155E-07	4.516E-07	3.599E-07	2.976E-07	2.524E-07	2.183E-07
NW	1.600E-05	4.731E-06	2.370E-06	1.503E-06	8.302E-07	5.516E-07	4.034E-07	3.197E-07	2.631E-07	2.223E-07	1.916E-07
NNW	1.163E-05	3.485E-06	1.787E-06	1.144E-06	6.369E-07	4.234E-07	3.093E-07	2.429E-07	1.982E-07	1.663E-07	1.425E-07
N	8.995E-06	2.736E-06	1.441E-06	9.336E-07	5.249E-07	3.497E-07	2.554E-07	1.988E-07	1.609E-07	1.340E-07	1.141E-07
NNE	7.088E-06	2.155E-06	1.132E-06	7.325E-07	4.065E-07	2.685E-07	1.949E-07	1.513E-07	1.223E-07	1.018E-07	8.660E-08
NE	5.185E-06	1.589E-06	8.401E-07	5.436E-07	3.005E-07	1.977E-07	1.430E-07	1.104E-07	8.876E-08	7.353E-08	6.231E-08
ENE	4.547E-06	1.380E-06	7.165E-07	4.593E-07	2.541E-07	1.677E-07	1.217E-07	9.446E-08	7.635E-08	6.353E-08	5.404E-08
E	6.328E-06	1.881E-06	9.479E-07	6.018E-07	3.322E-07	2.202E-07	1.608E-07	1.269E-07	1.041E-07	8.770E-08	7.542E-08
ESE	1.927E-05	5.629E-06	2.767E-06	1.740E-06	9.573E-07	6.365E-07	4.664E-07	3.724E-07	3.085E-07	2.621E-07	2.270E-07
SE	5.046E-05	1.468E-05	7.164E-06	4.492E-06	2.461E-06	1.634E-06	1.197E-06	9.594E-07	7.973E-07	6.793E-07	5.897E-07
SSE	2.581E-05	7.563E-06	3.738E-06	2.359E-06	1.298E-06	8.622E-07	6.314E-07	5.039E-07	4.172E-07	3.542E-07	3.067E-07

TABLE 2CC-213
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for no decay, undepleted, for each 22.5° sector at the distances (miles) shown at the top
Page 2 of 3

Sector	5	7.5	10	15	20	25	30	35	40	45	50
S	2.044E-07	1.236E-07	8.661E-08	5.264E-08	3.707E-08	2.827E-08	2.267E-08	1.882E-08	1.603E-08	1.391E-08	1.226E-08
SSW	1.888E-07	1.136E-07	7.935E-08	4.803E-08	3.373E-08	2.568E-08	2.056E-08	1.705E-08	1.451E-08	1.258E-08	1.108E-08
SW	1.580E-07	9.445E-08	6.570E-08	3.955E-08	2.768E-08	2.102E-08	1.680E-08	1.391E-08	1.182E-08	1.024E-08	9.006E-09
WSW	1.777E-07	1.073E-07	7.513E-08	4.562E-08	3.211E-08	2.449E-08	1.964E-08	1.630E-08	1.388E-08	1.213E-08	1.062E-08
W	1.862E-07	1.129E-07	7.932E-08	4.834E-08	3.410E-08	2.604E-08	2.091E-08	1.737E-08	1.480E-08	1.286E-08	1.134E-08
WNW	1.917E-07	1.165E-07	8.197E-08	5.004E-08	3.533E-08	2.699E-08	2.168E-08	1.802E-08	1.536E-08	1.335E-08	1.177E-08
NW	1.678E-07	1.010E-07	7.061E-08	4.277E-08	3.006E-08	2.289E-08	1.834E-08	1.522E-08	1.295E-08	1.123E-08	9.895E-09
NNW	1.242E-07	7.331E-08	5.057E-08	3.010E-08	2.092E-08	1.580E-08	1.257E-08	1.037E-08	8.786E-09	7.591E-09	6.663E-09
N	9.888E-08	5.713E-08	3.881E-08	2.262E-08	1.548E-08	1.156E-08	9.115E-09	7.461E-09	6.276E-09	5.391E-09	4.707E-09
NNE	7.499E-08	4.329E-08	2.941E-08	1.716E-08	1.177E-08	8.802E-09	6.951E-09	5.698E-09	4.799E-09	4.127E-09	3.608E-09
NE	5.379E-08	3.070E-08	2.069E-08	1.195E-08	8.151E-09	6.069E-09	4.776E-09	3.903E-09	3.280E-09	2.814E-09	2.455E-09
ENE	4.681E-08	2.708E-08	1.842E-08	1.078E-08	7.423E-09	5.567E-09	4.406E-09	3.619E-09	3.053E-09	2.629E-09	2.301E-09
E	6.593E-08	3.943E-08	2.744E-08	1.654E-08	1.159E-08	8.806E-09	7.044E-09	5.835E-09	4.960E-09	4.299E-09	3.783E-09
ESE	1.996E-07	1.219E-07	8.606E-08	5.278E-08	3.739E-08	2.864E-08	2.305E-08	1.919E-08	1.638E-08	1.425E-08	1.258E-08
SE	5.197E-07	3.198E-07	2.268E-07	1.399E-07	9.947E-08	7.640E-08	6.162E-08	5.139E-08	4.393E-08	3.826E-08	3.382E-08
SSE	2.696E-07	1.645E-07	1.159E-07	7.101E-08	5.024E-08	3.845E-08	3.092E-08	2.573E-08	2.195E-08	1.909E-08	1.685E-08

TABLE 2CC-213
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for no decay, undepleted, for each 22.5° sector for each segment (miles) shown at the top
Page 3 of 3

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.031E-06	1.031E-06	4.943E-07	3.197E-07	2.334E-07	1.251E-07	5.327E-08	2.838E-08	1.886E-08	1.393E-08
SSW	2.828E-06	9.656E-07	4.611E-07	2.968E-07	2.159E-07	1.151E-07	4.864E-08	2.578E-08	1.709E-08	1.260E-08
SW	2.373E-06	8.155E-07	3.902E-07	2.500E-07	1.810E-07	9.580E-08	4.009E-08	2.111E-08	1.394E-08	1.025E-08
WSW	2.663E-06	9.037E-07	4.317E-07	2.785E-07	2.030E-07	1.086E-07	4.618E-08	2.458E-08	1.633E-08	1.206E-08
W	2.752E-06	9.334E-07	4.479E-07	2.904E-07	2.124E-07	1.143E-07	4.890E-08	2.614E-08	1.740E-08	1.287E-08
WNW	2.811E-06	9.521E-07	4.586E-07	2.982E-07	2.186E-07	1.179E-07	5.060E-08	2.709E-08	1.805E-08	1.336E-08
NW	2.509E-06	8.558E-07	4.094E-07	2.637E-07	1.919E-07	1.024E-07	4.331E-08	2.298E-08	1.524E-08	1.125E-08
NNW	1.879E-06	6.548E-07	3.131E-07	1.988E-07	1.428E-07	7.451E-08	3.057E-08	1.588E-08	1.040E-08	7.602E-09
N	1.503E-06	5.379E-07	2.579E-07	1.615E-07	1.144E-07	5.827E-08	2.305E-08	1.163E-08	7.482E-09	5.400E-09
NNE	1.182E-06	4.176E-07	1.971E-07	1.228E-07	8.680E-08	4.417E-08	1.749E-08	8.853E-09	5.713E-09	4.134E-09
NE	8.747E-07	3.088E-07	1.445E-07	8.913E-08	6.248E-08	3.138E-08	1.221E-08	6.107E-09	3.915E-09	2.819E-09
ENE	7.497E-07	2.613E-07	1.231E-07	7.664E-08	5.417E-08	2.762E-08	1.099E-08	5.598E-09	3.628E-09	2.633E-09
E	1.002E-06	3.423E-07	1.631E-07	1.044E-07	7.554E-08	3.999E-08	1.676E-08	8.843E-09	5.847E-09	4.304E-09
ESE	2.946E-06	9.885E-07	4.742E-07	3.091E-07	2.272E-07	1.233E-07	5.334E-08	2.874E-08	1.922E-08	1.426E-08
SE	7.648E-06	2.545E-06	1.218E-06	7.986E-07	5.903E-07	3.229E-07	1.412E-07	7.664E-08	5.147E-08	3.830E-08
SSE	3.975E-06	1.340E-06	6.419E-07	4.180E-07	3.071E-07	1.663E-07	7.176E-08	3.858E-08	2.578E-08	1.911E-08

TABLE 2CC-214
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 2.26 day decay, undepleted, for each 22.5° sector at the distances (miles) shown at the top
Page 1 of 3

Sector	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	1.936E-05	5.700E-06	2.836E-06	1.791E-06	9.846E-07	6.514E-07	4.745E-07	3.750E-07	3.076E-07	2.589E-07	2.223E-07
SSW	1.788E-05	5.294E-06	2.653E-06	1.680E-06	9.225E-07	6.091E-07	4.429E-07	3.490E-07	2.856E-07	2.399E-07	2.057E-07
SW	1.493E-05	4.430E-06	2.232E-06	1.416E-06	7.815E-07	5.171E-07	3.764E-07	2.959E-07	2.416E-07	2.027E-07	1.735E-07
WSW	1.700E-05	5.007E-06	2.492E-06	1.573E-06	8.623E-07	5.693E-07	4.140E-07	3.266E-07	2.676E-07	2.250E-07	1.930E-07
W	1.771E-05	5.193E-06	2.574E-06	1.624E-06	8.929E-07	5.913E-07	4.312E-07	3.415E-07	2.807E-07	2.367E-07	2.036E-07
WNW	1.818E-05	5.318E-06	2.626E-06	1.653E-06	9.104E-07	6.040E-07	4.412E-07	3.498E-07	2.878E-07	2.430E-07	2.091E-07
NW	1.597E-05	4.715E-06	2.358E-06	1.492E-06	8.219E-07	5.442E-07	3.967E-07	3.133E-07	2.569E-07	2.163E-07	1.858E-07
NNW	1.161E-05	3.473E-06	1.777E-06	1.136E-06	6.303E-07	4.175E-07	3.039E-07	2.378E-07	1.934E-07	1.617E-07	1.381E-07
N	8.982E-06	2.728E-06	1.435E-06	9.284E-07	5.213E-07	3.458E-07	2.517E-07	1.953E-07	1.577E-07	1.309E-07	1.111E-07
NNE	7.077E-06	2.148E-06	1.127E-06	7.283E-07	4.030E-07	2.654E-07	1.921E-07	1.487E-07	1.198E-07	9.937E-08	8.425E-08
NE	5.180E-06	1.586E-06	8.378E-07	5.416E-07	2.989E-07	1.962E-07	1.416E-07	1.091E-07	8.759E-08	7.242E-08	6.124E-08
ENE	4.542E-06	1.377E-06	7.142E-07	4.573E-07	2.524E-07	1.662E-07	1.203E-07	9.319E-08	7.514E-08	6.237E-08	5.293E-08
E	6.315E-06	1.874E-06	9.424E-07	5.972E-07	3.284E-07	2.169E-07	1.577E-07	1.240E-07	1.013E-07	8.500E-08	7.280E-08
ESE	1.922E-05	5.604E-06	2.749E-06	1.725E-06	9.451E-07	6.258E-07	4.567E-07	3.631E-07	2.994E-07	2.533E-07	2.184E-07
SE	5.038E-05	1.464E-05	7.130E-06	4.464E-06	2.437E-06	1.613E-06	1.178E-06	9.413E-07	7.798E-07	6.623E-07	5.731E-07
SSE	2.576E-05	7.532E-06	3.715E-06	2.340E-06	1.282E-06	8.487E-07	6.191E-07	4.921E-07	4.057E-07	3.432E-07	2.959E-07

TABLE 2CC-214
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 2.26 day decay, undepleted, for each 22.5° sector at the distances (miles) shown at the top
Page 2 of 3

Sector	5	7.5	10	15	20	25	30	35	40	45	50
S	1.939E-07	1.141E-07	7.785E-08	4.486E-08	2.998E-08	2.172E-08	1.658E-08	1.311E-08	1.064E-08	8.817E-09	7.424E-09
SSW	1.791E-07	1.048E-07	7.126E-08	4.085E-08	2.720E-08	1.965E-08	1.495E-08	1.179E-08	9.553E-09	7.898E-09	6.637E-09
SW	1.509E-07	8.810E-08	5.984E-08	3.437E-08	2.297E-08	1.666E-08	1.274E-08	1.009E-08	8.212E-09	6.820E-09	5.757E-09
WSW	1.682E-07	9.871E-08	6.720E-08	3.859E-08	2.572E-08	1.859E-08	1.414E-08	1.116E-08	9.034E-09	7.467E-09	6.273E-09
W	1.779E-07	1.054E-07	7.230E-08	4.206E-08	2.834E-08	2.069E-08	1.590E-08	1.265E-08	1.033E-08	8.604E-09	7.282E-09
WNW	1.828E-07	1.084E-07	7.444E-08	4.332E-08	2.918E-08	2.130E-08	1.635E-08	1.300E-08	1.061E-08	8.838E-09	7.476E-09
NW	1.622E-07	9.591E-08	6.585E-08	3.850E-08	2.613E-08	1.922E-08	1.488E-08	1.193E-08	9.812E-09	8.232E-09	7.015E-09
NNW	1.199E-07	6.948E-08	4.706E-08	2.702E-08	1.812E-08	1.322E-08	1.017E-08	8.108E-09	6.643E-09	5.556E-09	4.723E-09
N	9.601E-08	5.465E-08	3.658E-08	2.069E-08	1.376E-08	9.985E-09	7.654E-09	6.094E-09	4.988E-09	4.171E-09	3.547E-09
NNE	7.271E-08	4.127E-08	2.756E-08	1.554E-08	1.030E-08	7.455E-09	5.701E-09	4.529E-09	3.700E-09	3.089E-09	2.623E-09
NE	5.276E-08	2.982E-08	1.989E-08	1.126E-08	7.521E-09	5.487E-09	4.231E-09	3.388E-09	2.790E-09	2.346E-09	2.006E-09
ENE	4.574E-08	2.614E-08	1.756E-08	1.003E-08	6.735E-09	4.928E-09	3.805E-09	3.048E-09	2.509E-09	2.109E-09	1.801E-09
E	6.338E-08	3.713E-08	2.531E-08	1.464E-08	9.855E-09	7.201E-09	5.542E-09	4.422E-09	3.623E-09	3.029E-09	2.574E-09
ESE	1.912E-07	1.143E-07	7.893E-08	4.639E-08	3.153E-08	2.320E-08	1.795E-08	1.439E-08	1.184E-08	9.935E-09	8.471E-09
SE	5.035E-07	3.050E-07	2.129E-07	1.274E-07	8.792E-08	6.558E-08	5.140E-08	4.169E-08	3.467E-08	2.939E-08	2.530E-08
SSE	2.591E-07	1.549E-07	1.070E-07	6.296E-08	4.282E-08	3.153E-08	2.441E-08	1.957E-08	1.609E-08	1.350E-08	1.149E-08

TABLE 2CC-214
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 2.26 day decay, undepleted, for each 22.5° sector for each segment (miles) shown at the top
Page 3 of 3

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.008E-06	1.016E-06	4.819E-07	3.083E-07	2.227E-07	1.157E-07	4.558E-08	2.187E-08	1.316E-08	8.842E-09
SSW	2.808E-06	9.515E-07	4.496E-07	2.863E-07	2.060E-07	1.064E-07	4.154E-08	1.978E-08	1.184E-08	7.921E-09
SW	2.358E-06	8.051E-07	3.817E-07	2.423E-07	1.738E-07	8.951E-08	3.496E-08	1.677E-08	1.013E-08	6.839E-09
WSW	2.642E-06	8.899E-07	4.204E-07	2.682E-07	1.933E-07	1.002E-07	3.923E-08	1.871E-08	1.120E-08	7.489E-09
W	2.734E-06	9.213E-07	4.380E-07	2.813E-07	2.039E-07	1.068E-07	4.268E-08	2.082E-08	1.269E-08	8.626E-09
WNW	2.791E-06	9.392E-07	4.481E-07	2.885E-07	2.094E-07	1.098E-07	4.396E-08	2.142E-08	1.305E-08	8.860E-09
NW	2.497E-06	8.475E-07	4.027E-07	2.576E-07	1.861E-07	9.728E-08	3.908E-08	1.932E-08	1.196E-08	8.249E-09
NNW	1.869E-06	6.482E-07	3.078E-07	1.940E-07	1.383E-07	7.071E-08	2.752E-08	1.331E-08	8.138E-09	5.570E-09
N	1.497E-06	5.335E-07	2.543E-07	1.582E-07	1.114E-07	5.581E-08	2.114E-08	1.006E-08	6.118E-09	4.182E-09
NNE	1.177E-06	4.141E-07	1.943E-07	1.203E-07	8.446E-08	4.217E-08	1.588E-08	7.513E-09	4.548E-09	3.097E-09
NE	8.724E-07	3.072E-07	1.432E-07	8.796E-08	6.141E-08	3.050E-08	1.152E-08	5.527E-09	3.401E-09	2.352E-09
ENE	7.473E-07	2.596E-07	1.217E-07	7.543E-08	5.306E-08	2.668E-08	1.024E-08	4.960E-09	3.059E-09	2.113E-09
E	9.960E-07	3.386E-07	1.600E-07	1.016E-07	7.293E-08	3.771E-08	1.488E-08	7.245E-09	4.437E-09	3.036E-09
ESE	2.928E-06	9.764E-07	4.643E-07	3.000E-07	2.187E-07	1.157E-07	4.701E-08	2.332E-08	1.444E-08	9.957E-09
SE	7.613E-06	2.521E-06	1.199E-06	7.812E-07	5.738E-07	3.082E-07	1.289E-07	6.587E-08	4.179E-08	2.944E-08
SSE	3.952E-06	1.325E-06	6.295E-07	4.066E-07	2.963E-07	1.567E-07	6.379E-08	3.169E-08	1.963E-08	1.352E-08

TABLE 2CC-215
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 8.00 day decay, depleted, for each 22.5° sector at the distances (miles) shown at the top
Page 1 of 3

Sector	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	1.805E-05	5.213E-06	2.542E-06	1.579E-06	8.454E-07	5.474E-07	3.915E-07	3.045E-07	2.463E-07	2.048E-07	1.739E-07
SSW	1.668E-05	4.834E-06	2.377E-06	1.481E-06	7.920E-07	5.117E-07	3.653E-07	2.834E-07	2.287E-07	1.898E-07	1.608E-07
SW	1.392E-05	4.043E-06	1.999E-06	1.248E-06	6.700E-07	4.337E-07	3.098E-07	2.396E-07	1.928E-07	1.597E-07	1.351E-07
WSW	1.585E-05	4.572E-06	2.234E-06	1.387E-06	7.407E-07	4.786E-07	3.418E-07	2.655E-07	2.145E-07	1.782E-07	1.512E-07
W	1.651E-05	4.739E-06	2.306E-06	1.431E-06	7.657E-07	4.960E-07	3.550E-07	2.766E-07	2.241E-07	1.865E-07	1.585E-07
WNW	1.695E-05	4.854E-06	2.352E-06	1.457E-06	7.811E-07	5.070E-07	3.634E-07	2.836E-07	2.300E-07	1.917E-07	1.630E-07
NW	1.488E-05	4.299E-06	2.109E-06	1.313E-06	7.031E-07	4.550E-07	3.252E-07	2.525E-07	2.039E-07	1.693E-07	1.436E-07
NNW	1.082E-05	3.167E-06	1.590E-06	9.997E-07	5.393E-07	3.492E-07	2.493E-07	1.918E-07	1.536E-07	1.267E-07	1.068E-07
N	8.368E-06	2.487E-06	1.282E-06	8.159E-07	4.447E-07	2.887E-07	2.060E-07	1.571E-07	1.248E-07	1.022E-07	8.564E-08
NNE	6.594E-06	1.958E-06	1.008E-06	6.402E-07	3.444E-07	2.216E-07	1.572E-07	1.196E-07	9.489E-08	7.761E-08	6.496E-08
NE	4.824E-06	1.444E-06	7.481E-07	4.753E-07	2.548E-07	1.633E-07	1.155E-07	8.738E-08	6.900E-08	5.620E-08	4.688E-08
ENE	4.230E-06	1.255E-06	6.379E-07	4.015E-07	2.154E-07	1.385E-07	9.825E-08	7.474E-08	5.931E-08	4.851E-08	4.062E-08
E	5.886E-06	1.709E-06	8.433E-07	5.257E-07	2.812E-07	1.816E-07	1.295E-07	1.001E-07	8.059E-08	6.672E-08	5.645E-08
ESE	1.792E-05	5.113E-06	2.461E-06	1.519E-06	8.100E-07	5.245E-07	3.756E-07	2.937E-07	2.387E-07	1.992E-07	1.697E-07
SE	4.694E-05	1.334E-05	6.376E-06	3.925E-06	2.084E-06	1.348E-06	9.653E-07	7.579E-07	6.183E-07	5.177E-07	4.423E-07
SSE	2.401E-05	6.871E-06	3.325E-06	2.060E-06	1.098E-06	7.107E-07	5.086E-07	3.975E-07	3.230E-07	2.695E-07	2.295E-07

TABLE 2CC-215
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 8.00 day decay, depleted, for each 22.5° sector at the distances (miles) shown at the top
Page 2 of 3

Sector	5	7.5	10	15	20	25	30	35	40	45	50
S	1.501E-07	8.514E-08	5.642E-08	3.124E-08	2.033E-08	1.446E-08	1.088E-08	8.515E-09	6.856E-09	5.643E-09	4.725E-09
SSW	1.387E-07	7.825E-08	5.168E-08	2.849E-08	1.849E-08	1.312E-08	9.854E-09	7.697E-09	6.189E-09	5.087E-09	4.256E-09
SW	1.163E-07	6.527E-08	4.297E-08	2.361E-08	1.531E-08	1.086E-08	8.158E-09	6.376E-09	5.131E-09	4.222E-09	3.535E-09
WSW	1.304E-07	7.384E-08	4.887E-08	2.702E-08	1.757E-08	1.248E-08	9.385E-09	7.337E-09	5.903E-09	4.855E-09	4.062E-09
W	1.370E-07	7.805E-08	5.189E-08	2.887E-08	1.887E-08	1.347E-08	1.016E-08	7.976E-09	6.440E-09	5.315E-09	4.462E-09
WNW	1.410E-07	8.048E-08	5.357E-08	2.984E-08	1.951E-08	1.393E-08	1.051E-08	8.250E-09	6.661E-09	5.496E-09	4.614E-09
NW	1.239E-07	7.017E-08	4.650E-08	2.580E-08	1.686E-08	1.204E-08	9.100E-09	7.153E-09	5.786E-09	4.784E-09	4.026E-09
NNW	9.164E-08	5.089E-08	3.328E-08	1.814E-08	1.171E-08	8.294E-09	6.225E-09	4.864E-09	3.915E-09	3.223E-09	2.701E-09
N	7.309E-08	3.977E-08	2.563E-08	1.371E-08	8.736E-09	6.126E-09	4.564E-09	3.545E-09	2.840E-09	2.329E-09	1.945E-09
NNE	5.541E-08	3.010E-08	1.939E-08	1.036E-08	6.604E-09	4.630E-09	3.448E-09	2.677E-09	2.143E-09	1.756E-09	1.465E-09
NE	3.988E-08	2.147E-08	1.375E-08	7.306E-09	4.652E-09	3.263E-09	2.433E-09	1.892E-09	1.518E-09	1.247E-09	1.044E-09
ENE	3.467E-08	1.890E-08	1.221E-08	6.567E-09	4.217E-09	2.975E-09	2.228E-09	1.739E-09	1.399E-09	1.152E-09	9.662E-10
E	4.860E-08	2.732E-08	1.801E-08	9.922E-09	6.451E-09	4.589E-09	3.456E-09	2.707E-09	2.184E-09	1.801E-09	1.511E-09
ESE	1.470E-07	8.438E-08	5.639E-08	3.160E-08	2.076E-08	1.487E-08	1.127E-08	8.867E-09	7.179E-09	5.940E-09	4.999E-09
SE	3.839E-07	2.224E-07	1.496E-07	8.467E-08	5.603E-08	4.041E-08	3.079E-08	2.437E-08	1.983E-08	1.649E-08	1.394E-08
SSE	1.987E-07	1.140E-07	7.612E-08	4.264E-08	2.800E-08	2.007E-08	1.521E-08	1.197E-08	9.698E-09	8.028E-09	6.759E-09

TABLE 2CC-215
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
Annual Average X/Q (sec/m^3) for a 8.00 day decay, depleted, for each 22.5° sector for each segment (miles) shown at the top
Page 3 of 3

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.706E-06	8.760E-07	3.983E-07	2.471E-07	1.742E-07	8.681E-08	3.199E-08	1.460E-08	8.559E-09	5.662E-09
SSW	2.525E-06	8.206E-07	3.716E-07	2.295E-07	1.612E-07	7.986E-08	2.920E-08	1.324E-08	7.739E-09	5.106E-09
SW	2.119E-06	6.934E-07	3.147E-07	1.936E-07	1.354E-07	6.669E-08	2.422E-08	1.096E-08	6.411E-09	4.237E-09
WSW	2.377E-06	7.679E-07	3.478E-07	2.152E-07	1.515E-07	7.532E-08	2.767E-08	1.260E-08	7.376E-09	4.872E-09
W	2.458E-06	7.936E-07	3.612E-07	2.248E-07	1.589E-07	7.953E-08	2.954E-08	1.359E-08	8.016E-09	5.332E-09
WNW	2.510E-06	8.094E-07	3.698E-07	2.307E-07	1.633E-07	8.196E-08	3.052E-08	1.405E-08	8.291E-09	5.514E-09
NW	2.242E-06	7.283E-07	3.307E-07	2.046E-07	1.439E-07	7.159E-08	2.643E-08	1.215E-08	7.188E-09	4.800E-09
NNW	1.678E-06	5.571E-07	2.529E-07	1.542E-07	1.071E-07	5.212E-08	1.865E-08	8.378E-09	4.891E-09	3.235E-09
N	1.343E-06	4.579E-07	2.085E-07	1.254E-07	8.590E-08	4.089E-08	1.415E-08	6.197E-09	3.568E-09	2.338E-09
NNE	1.056E-06	3.555E-07	1.593E-07	9.537E-08	6.517E-08	3.096E-08	1.070E-08	4.684E-09	2.694E-09	1.763E-09
NE	7.815E-07	2.632E-07	1.170E-07	6.938E-08	4.705E-08	2.213E-08	7.558E-09	3.301E-09	1.904E-09	1.252E-09
ENE	6.699E-07	2.226E-07	9.958E-08	5.960E-08	4.075E-08	1.943E-08	6.777E-09	3.008E-09	1.750E-09	1.157E-09
E	8.946E-07	2.912E-07	1.316E-07	8.089E-08	5.659E-08	2.791E-08	1.018E-08	4.632E-09	2.722E-09	1.807E-09
ESE	2.632E-06	8.407E-07	3.825E-07	2.394E-07	1.700E-07	8.585E-08	3.229E-08	1.500E-08	8.909E-09	5.959E-09
SE	6.835E-06	2.166E-06	9.844E-07	6.198E-07	4.430E-07	2.259E-07	8.637E-08	4.073E-08	2.447E-08	1.654E-08
SSE	3.551E-06	1.140E-06	5.181E-07	3.239E-07	2.300E-07	1.160E-07	4.358E-08	2.024E-08	1.203E-08	8.053E-09

TABLE 2CC-216
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
D/Q (m^{-2}) at each 22.5° sector for each distance (miles) shown at the top
Page 1 of 3

Sector	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	3.387E-08	1.145E-08	5.881E-09	3.611E-09	1.800E-09	1.092E-09	7.383E-10	5.350E-10	4.068E-10	3.213E-10	2.595E-10
SSW	3.661E-08	1.238E-08	6.357E-09	3.903E-09	1.946E-09	1.180E-09	7.980E-10	5.782E-10	4.397E-10	3.464E-10	2.804E-10
SW	3.561E-08	1.204E-08	6.182E-09	3.796E-09	1.893E-09	1.148E-09	7.761E-10	5.624E-10	4.276E-10	3.369E-10	2.727E-10
WSW	3.164E-08	1.070E-08	5.494E-09	3.374E-09	1.682E-09	1.020E-09	6.897E-10	4.998E-10	3.800E-10	2.994E-10	2.424E-10
W	2.642E-08	8.935E-09	4.588E-09	2.817E-09	1.404E-09	8.518E-10	5.759E-10	4.173E-10	3.173E-10	2.500E-10	2.024E-10
WNW	2.493E-08	8.429E-09	4.328E-09	2.658E-09	1.325E-09	8.036E-10	5.433E-10	3.937E-10	2.994E-10	2.358E-10	1.909E-10
NW	3.196E-08	1.081E-08	5.549E-09	3.407E-09	1.699E-09	1.030E-09	6.965E-10	5.047E-10	3.838E-10	3.024E-10	2.448E-10
NNW	3.264E-08	1.104E-08	5.668E-09	3.480E-09	1.735E-09	1.052E-09	7.115E-10	5.156E-10	3.920E-10	3.089E-10	2.500E-10
N	3.640E-08	1.231E-08	6.320E-09	3.881E-09	1.935E-09	1.173E-09	7.934E-10	5.749E-10	4.371E-10	3.444E-10	2.788E-10
NNE	4.124E-08	1.395E-08	7.161E-09	4.397E-09	2.192E-09	1.330E-09	8.989E-10	6.514E-10	4.953E-10	3.902E-10	3.159E-10
NE	3.871E-08	1.309E-08	6.722E-09	4.127E-09	2.058E-09	1.248E-09	8.438E-10	6.114E-10	4.649E-10	3.663E-10	2.965E-10
ENE	2.622E-08	8.868E-09	4.553E-09	2.796E-09	1.394E-09	8.453E-10	5.715E-10	4.142E-10	3.149E-10	2.481E-10	2.009E-10
E	1.803E-08	6.096E-09	3.130E-09	1.922E-09	9.582E-10	5.812E-10	3.929E-10	2.847E-10	2.165E-10	1.706E-10	1.381E-10
ESE	3.804E-08	1.286E-08	6.605E-09	4.056E-09	2.022E-09	1.226E-09	8.292E-10	6.008E-10	4.569E-10	3.599E-10	2.914E-10
SE	8.618E-08	2.914E-08	1.496E-08	9.188E-09	4.581E-09	2.778E-09	1.878E-09	1.361E-09	1.035E-09	8.154E-10	6.601E-10
SSE	4.048E-08	1.369E-08	7.029E-09	4.316E-09	2.152E-09	1.305E-09	8.823E-10	6.394E-10	4.862E-10	3.830E-10	3.101E-10

TABLE 2CC-216
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
D/Q (m^{-2}) at each 22.5° sector for each distance (miles) shown at the top
Page 2 of 3

Sector	5	7.5	10	15	20	25	30	35	40	45	50
S	2.146E-10	1.052E-10	6.599E-11	3.336E-11	2.019E-11	1.354E-11	9.699E-12	7.283E-12	5.663E-12	4.523E-12	3.692E-12
SSW	2.320E-10	1.137E-10	7.133E-11	3.605E-11	2.182E-11	1.463E-11	1.048E-11	7.872E-12	6.121E-12	4.889E-12	3.991E-12
SW	2.256E-10	1.106E-10	6.937E-11	3.506E-11	2.122E-11	1.423E-11	1.020E-11	7.656E-12	5.952E-12	4.755E-12	3.881E-12
WSW	2.005E-10	9.825E-11	6.164E-11	3.116E-11	1.886E-11	1.264E-11	9.060E-12	6.803E-12	5.290E-12	4.225E-12	3.449E-12
W	1.674E-10	8.204E-11	5.148E-11	2.602E-11	1.575E-11	1.056E-11	7.566E-12	5.681E-12	4.417E-12	3.528E-12	2.880E-12
WNW	1.579E-10	7.740E-11	4.856E-11	2.455E-11	1.486E-11	9.961E-12	7.137E-12	5.359E-12	4.167E-12	3.329E-12	2.717E-12
NW	2.025E-10	9.923E-11	6.226E-11	3.147E-11	1.905E-11	1.277E-11	9.150E-12	6.871E-12	5.342E-12	4.268E-12	3.483E-12
NNW	2.068E-10	1.014E-10	6.360E-11	3.214E-11	1.946E-11	1.304E-11	9.347E-12	7.019E-12	5.457E-12	4.359E-12	3.558E-12
N	2.306E-10	1.130E-10	7.091E-11	3.584E-11	2.169E-11	1.455E-11	1.042E-11	7.826E-12	6.085E-12	4.861E-12	3.968E-12
NNE	2.613E-10	1.281E-10	8.035E-11	4.061E-11	2.458E-11	1.648E-11	1.181E-11	8.868E-12	6.895E-12	5.508E-12	4.495E-12
NE	2.453E-10	1.202E-10	7.542E-11	3.812E-11	2.307E-11	1.547E-11	1.108E-11	8.324E-12	6.472E-12	5.170E-12	4.220E-12
ENE	1.661E-10	8.142E-11	5.109E-11	2.582E-11	1.563E-11	1.048E-11	7.509E-12	5.638E-12	4.384E-12	3.502E-12	2.858E-12
E	1.142E-10	5.598E-11	3.512E-11	1.775E-11	1.074E-11	7.204E-12	5.162E-12	3.876E-12	3.014E-12	2.407E-12	1.965E-12
ESE	2.410E-10	1.181E-10	7.411E-11	3.746E-11	2.267E-11	1.520E-11	1.089E-11	8.179E-12	6.360E-12	5.080E-12	4.147E-12
SE	5.460E-10	2.676E-10	1.679E-10	8.486E-11	5.136E-11	3.444E-11	2.468E-11	1.853E-11	1.441E-11	1.151E-11	9.394E-12
SSE	2.565E-10	1.257E-10	7.887E-11	3.986E-11	2.413E-11	1.618E-11	1.159E-11	8.704E-12	6.768E-12	5.406E-12	4.413E-12

TABLE 2CC-216
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
D/Q (m^{-2}) at each 22.5° sector for each segment (miles) shown at the top
Page 3 of 3

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	6.111E-09	1.888E-09	7.513E-10	4.106E-10	2.609E-10	1.121E-10	3.476E-11	1.378E-11	7.356E-12	4.553E-12
SSW	6.605E-09	2.041E-09	8.120E-10	4.437E-10	2.820E-10	1.211E-10	3.757E-11	1.489E-11	7.951E-12	4.921E-12
SW	6.424E-09	1.985E-09	7.897E-10	4.316E-10	2.743E-10	1.178E-10	3.653E-11	1.448E-11	7.733E-12	4.786E-12
WSW	5.708E-09	1.764E-09	7.018E-10	3.835E-10	2.437E-10	1.047E-10	3.247E-11	1.287E-11	6.872E-12	4.253E-12
W	4.767E-09	1.473E-09	5.860E-10	3.202E-10	2.035E-10	8.743E-11	2.711E-11	1.075E-11	5.738E-12	3.552E-12
WNW	4.497E-09	1.389E-09	5.529E-10	3.021E-10	1.920E-10	8.248E-11	2.558E-11	1.014E-11	5.413E-12	3.351E-12
NW	5.765E-09	1.781E-09	7.088E-10	3.873E-10	2.462E-10	1.057E-10	3.279E-11	1.300E-11	6.940E-12	4.296E-12
NNW	5.889E-09	1.819E-09	7.240E-10	3.956E-10	2.515E-10	1.080E-10	3.349E-11	1.328E-11	7.089E-12	4.388E-12
N	6.567E-09	2.029E-09	8.073E-10	4.412E-10	2.804E-10	1.204E-10	3.735E-11	1.480E-11	7.905E-12	4.893E-12
NNE	7.441E-09	2.299E-09	9.147E-10	4.999E-10	3.177E-10	1.365E-10	4.232E-11	1.677E-11	8.957E-12	5.544E-12
NE	6.984E-09	2.158E-09	8.586E-10	4.692E-10	2.982E-10	1.281E-10	3.972E-11	1.574E-11	8.407E-12	5.204E-12
ENE	4.731E-09	1.462E-09	5.816E-10	3.178E-10	2.020E-10	8.677E-11	2.691E-11	1.066E-11	5.695E-12	3.525E-12
E	3.252E-09	1.005E-09	3.999E-10	2.185E-10	1.389E-10	5.965E-11	1.850E-11	7.331E-12	3.915E-12	2.423E-12
ESE	6.863E-09	2.120E-09	8.438E-10	4.611E-10	2.930E-10	1.259E-10	3.903E-11	1.547E-11	8.261E-12	5.113E-12
SE	1.555E-08	4.803E-09	1.911E-09	1.045E-09	6.639E-10	2.852E-10	8.843E-11	3.505E-11	1.872E-11	1.158E-11
SSE	7.303E-09	2.256E-09	8.979E-10	4.907E-10	3.118E-10	1.340E-10	4.154E-11	1.646E-11	8.791E-12	5.441E-12

TABLE 2CC-217
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for no decay undepleted, at each receptor location
Page 1 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) No Decay Undepleted	D/Q (m^{-2})
EAB	S	0.87	1395	2.30E-06	4.60E-09
EAB	SSW	0.87	1395	2.10E-06	5.00E-09
EAB	SW	0.96	1547	1.50E-06	4.10E-09
EAB	WSW	1.02	1649	1.50E-06	3.20E-09
EAB	W	0.75	1208	2.60E-06	4.60E-09
EAB	WNW	0.75	1208	2.60E-06	4.30E-09
EAB	NW	0.75	1215	2.30E-06	5.50E-09
EAB	NNW	0.42	668	4.80E-06	1.50E-08
EAB	N	0.4	644	4.00E-06	1.80E-08
EAB	NNE	0.4	644	3.10E-06	2.00E-08
EAB	NE	0.44	705	2.00E-06	1.60E-08
EAB	ENE	0.59	952	1.00E-06	6.70E-09
EAB	E	0.8	1282	8.60E-07	2.80E-09
EAB	ESE	0.96	1544	1.90E-06	4.40E-09
EAB	SE	0.83	1339	6.00E-06	1.30E-08
EAB	SSE	0.83	1339	3.20E-06	5.90E-09
House	S	1	1614	1.80E-06	3.60E-09
House	SSW	1.1	1775	1.50E-06	3.30E-09
House	SW	1.26	2020	1.00E-06	2.60E-09
House	WSW	2.45	3948	4.40E-07	7.10E-10
House	W	1.79	2878	7.00E-07	1.00E-09
House	WNW	2.2	3534	5.40E-07	6.80E-10

TABLE 2CC-217
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for no decay undepleted, at each receptor location
Page 2 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) No Decay Undepleted	D/Q (m^{-2})
House	NW	2.04	3289	5.40E-07	9.90E-10
House	NNW	1.39	2242	7.10E-07	2.00E-09
House	N	1.05	1687	8.70E-07	3.60E-09
House	NNE	1.4	2255	4.50E-07	2.50E-09
House	NE	1.14	1829	4.50E-07	3.30E-09
House	ENE	1.14	1835	3.80E-07	2.20E-09
House	E	1.24	1997	4.40E-07	1.30E-09
House	ESE	2.42	3893	4.90E-07	8.80E-10
House	SE	1	1610	4.50E-06	9.20E-09
House	SSE	1.1	1773	2.00E-06	3.70E-09
Garden	S	1	1610	1.80E-06	3.60E-09
Garden	SSW	1.2	1927	1.30E-06	2.90E-09
Garden	SW	1.26	2020	1.00E-06	2.60E-09
Garden	WSW	2.46	3959	4.30E-07	7.10E-10
Garden	W	2.2	3534	5.30E-07	7.20E-10
Garden	WNW	2.54	4094	4.40E-07	5.30E-10
Garden	NW	2.02	3258	5.40E-07	1.00E-09
Garden	NNW	1.51	2431	6.30E-07	1.70E-09
Garden	N	1.4	2246	5.80E-07	2.20E-09
Garden	NNE	1.37	2203	4.60E-07	2.60E-09
Garden	NE	1.11	1794	4.60E-07	3.40E-09
Garden	ENE	0.97	1567	4.80E-07	2.90E-09

TABLE 2CC-217
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for no decay undepleted, at each receptor location
Page 3 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) No Decay Undepleted	D/Q (m^{-2})
Garden	E	2.78	4469	1.40E-07	3.30E-10
Garden	ESE	2.71	4355	4.20E-07	7.20E-10
Garden	SE	4.1	6591	6.60E-07	7.80E-10
Garden	SSE	1.01	1627	2.30E-06	4.20E-09
Milk Cow or Goat	S	3.25	5223	3.50E-07	4.70E-10
Milk Cow or Goat	SSW	1.06	1705	1.60E-06	3.50E-09
Milk Cow or Goat	SW	1.22	1959	1.10E-06	2.70E-09
Milk Cow or Goat	WSW	2.79	4494	3.70E-07	5.70E-10
Milk Cow or Goat	W	2.39	3850	4.70E-07	6.20E-10
Milk Cow or Goat	WNW	2.5	4016	4.50E-07	5.50E-10
Milk Cow or Goat	NW	3.82	6143	2.40E-07	3.30E-10
Milk Cow or Goat	NNW	2.92	4700	2.50E-07	5.40E-10
Milk Cow or Goat	N	2.25	3629	3.00E-07	9.50E-10
Milk Cow or Goat	NNE	3.39	5449	1.30E-07	5.30E-10
Milk Cow or Goat	NE	1.46	2356	3.10E-07	2.10E-09
Milk Cow or Goat	ENE	1.22	1957	3.40E-07	2.00E-09
Milk Cow or Goat	E	3.06	4926	1.20E-07	2.70E-10
Milk Cow or Goat	ESE	3.12	5017	3.60E-07	5.60E-10
Milk Cow or Goat	SE	1.66	2670	2.10E-06	3.80E-09
Milk Cow or Goat	SSE	1.09	1749	2.10E-06	3.70E-09
Animal for Meat	S	3.25	5223	3.50E-07	4.70E-10
Animal for Meat	SSW	1.06	1705	1.60E-06	3.50E-09

TABLE 2CC-217
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for no decay undepleted, at each receptor location
Page 4 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) No Decay Undepleted	D/Q (m^{-2})
Animal for Meat	SW	1.22	1959	1.10E-06	2.70E-09
Animal for Meat	WSW	2.79	4494	3.70E-07	5.70E-10
Animal for Meat	W	2.39	3850	4.70E-07	6.20E-10
Animal for Meat	WNW	2.5	4016	4.50E-07	5.50E-10
Animal for Meat	NW	3.82	6143	2.40E-07	3.30E-10
Animal for Meat	NNW	2.92	4700	2.50E-07	5.40E-10
Animal for Meat	N	2.25	3629	3.00E-07	9.50E-10
Animal for Meat	NNE	3.39	5449	1.30E-07	5.30E-10
Animal for Meat	NE	1.46	2356	3.10E-07	2.10E-09
Animal for Meat	ENE	1.22	1957	3.40E-07	2.00E-09
Animal for Meat	E	3.06	4926	1.20E-07	2.70E-10
Animal for Meat	ESE	3.12	5017	3.60E-07	5.60E-10
Animal for Meat	SE	1.66	2670	2.10E-06	3.80E-09
Animal for Meat	SSE	1.09	1749	2.10E-06	3.70E-09

TABLE 2CC-218
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for 2.26 day decay, undepleted, and 8.00 day decay, depleted, at each receptor location
Page 1 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) 2.26 Day Decay Undepleted	X/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
EAB	S	0.87	1395	2.20E-06	2.00E-06	4.60E-09
EAB	SSW	0.87	1395	2.10E-06	1.90E-06	5.00E-09
EAB	SW	0.96	1547	1.50E-06	1.30E-06	4.10E-09
EAB	WSW	1.02	1649	1.50E-06	1.30E-06	3.20E-09
EAB	W	0.75	1208	2.60E-06	2.30E-06	4.60E-09
EAB	WNW	0.75	1208	2.60E-06	2.30E-06	4.30E-09
EAB	NW	0.75	1215	2.30E-06	2.10E-06	5.50E-09
EAB	NNW	0.42	668	4.80E-06	4.40E-06	1.50E-08
EAB	N	0.4	644	4.00E-06	3.60E-06	1.80E-08
EAB	NNE	0.4	644	3.10E-06	2.90E-06	2.00E-08
EAB	NE	0.44	705	2.00E-06	1.80E-06	1.60E-08
EAB	ENE	0.59	952	1.00E-06	9.40E-07	6.70E-09
EAB	E	0.8	1282	8.60E-07	7.60E-07	2.80E-09
EAB	ESE	0.96	1544	1.80E-06	1.60E-06	4.40E-09
EAB	SE	0.83	1339	6.00E-06	5.30E-06	1.30E-08
EAB	SSE	0.83	1339	3.10E-06	2.80E-06	5.90E-09
House	S	1	1614	1.80E-06	1.60E-06	3.60E-09
House	SSW	1.1	1775	1.40E-06	1.30E-06	3.30E-09
House	SW	1.26	2020	1.00E-06	8.80E-07	2.60E-09
House	WSW	2.45	3948	4.30E-07	3.50E-07	7.10E-10
House	W	1.79	2878	6.90E-07	5.90E-07	1.00E-09
House	WNW	2.2	3534	5.30E-07	4.40E-07	6.80E-10

TABLE 2CC-218
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for 2.26 day decay, undepleted, and 8.00 day decay, depleted, at each receptor location
Page 2 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) 2.26 Day Decay Undepleted	X/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
House	NW	2.04	3289	5.30E-07	4.40E-07	9.90E-10
House	NNW	1.39	2242	7.00E-07	6.00E-07	2.00E-09
House	N	1.05	1687	8.70E-07	7.60E-07	3.60E-09
House	NNE	1.4	2255	4.40E-07	3.80E-07	2.50E-09
House	NE	1.14	1829	4.50E-07	3.90E-07	3.30E-09
House	ENE	1.14	1835	3.80E-07	3.30E-07	2.20E-09
House	E	1.24	1997	4.30E-07	3.80E-07	1.30E-09
House	ESE	2.42	3893	4.80E-07	3.90E-07	8.80E-10
House	SE	1	1610	4.50E-06	3.90E-06	9.20E-09
House	SSE	1.1	1773	2.00E-06	1.80E-06	3.70E-09
Garden	S	1	1610	1.80E-06	1.60E-06	3.60E-09
Garden	SSW	1.2	1927	1.30E-06	1.10E-06	2.90E-09
Garden	SW	1.26	2020	1.00E-06	8.80E-07	2.60E-09
Garden	WSW	2.46	3959	4.20E-07	3.50E-07	7.10E-10
Garden	W	2.2	3534	5.20E-07	4.30E-07	7.20E-10
Garden	WNW	2.54	4094	4.30E-07	3.50E-07	5.30E-10
Garden	NW	2.02	3258	5.30E-07	4.50E-07	1.00E-09
Garden	NNW	1.51	2431	6.20E-07	5.30E-07	1.70E-09
Garden	N	1.4	2246	5.80E-07	5.00E-07	2.20E-09
Garden	NNE	1.37	2203	4.60E-07	4.00E-07	2.60E-09
Garden	NE	1.11	1794	4.60E-07	4.00E-07	3.40E-09
Garden	ENE	0.97	1567	4.80E-07	4.20E-07	2.90E-09

TABLE 2CC-218
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for 2.26 day decay, undepleted, and 8.00 day decay, depleted, at each receptor location
Page 3 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) 2.26 Day Decay Undepleted	X/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
Garden	E	2.78	4469	1.40E-07	1.10E-07	3.30E-10
Garden	ESE	2.71	4355	4.10E-07	3.40E-07	7.20E-10
Garden	SE	4.1	6591	6.40E-07	5.00E-07	7.80E-10
Garden	SSE	1.01	1627	2.30E-06	2.00E-06	4.20E-09
Milk Cow or Goat	S	3.25	5223	3.40E-07	2.70E-07	4.70E-10
Milk Cow or Goat	SSW	1.06	1705	1.50E-06	1.40E-06	3.50E-09
Milk Cow or Goat	SW	1.22	1959	1.10E-06	9.20E-07	2.70E-09
Milk Cow or Goat	WSW	2.79	4494	3.60E-07	2.90E-07	5.70E-10
Milk Cow or Goat	W	2.39	3850	4.60E-07	3.80E-07	6.20E-10
Milk Cow or Goat	WNW	2.5	4016	4.40E-07	3.60E-07	5.50E-10
Milk Cow or Goat	NW	3.82	6143	2.30E-07	1.80E-07	3.30E-10
Milk Cow or Goat	NNW	2.92	4700	2.50E-07	2.00E-07	5.40E-10
Milk Cow or Goat	N	2.25	3629	2.90E-07	2.40E-07	9.50E-10
Milk Cow or Goat	NNE	3.39	5449	1.30E-07	1.00E-07	5.30E-10
Milk Cow or Goat	NE	1.46	2356	3.10E-07	2.60E-07	2.10E-09
Milk Cow or Goat	ENE	1.22	1957	3.40E-07	3.00E-07	2.00E-09
Milk Cow or Goat	E	3.06	4926	1.20E-07	9.70E-08	2.70E-10
Milk Cow or Goat	ESE	3.12	5017	3.50E-07	2.80E-07	5.60E-10
Milk Cow or Goat	SE	1.66	2670	2.10E-06	1.80E-06	3.80E-09
Milk Cow or Goat	SSE	1.09	1749	2.10E-06	1.80E-06	3.70E-09
Animal for Meat	S	3.25	5223	3.40E-07	2.70E-07	4.70E-10
Animal for Meat	SSW	1.06	1705	1.50E-06	1.40E-06	3.50E-09

TABLE 2CC-218
NORMAL RELEASE X/Q AND D/Q VALUES FOR TWO YEARS OF MET DATA
X/Q and D/Q values for 2.26 day decay, undepleted, and 8.00 day decay, depleted, at each receptor location
Page 4 of 4

Type of Location	Sector	Distance (miles)	Distance (meters)	X/Q (sec/m^3) 2.26 Day Decay Undepleted	X/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
Animal for Meat	SW	1.22	1959	1.10E-06	9.20E-07	2.70E-09
Animal for Meat	WSW	2.79	4494	3.60E-07	2.90E-07	5.70E-10
Animal for Meat	W	2.39	3850	4.60E-07	3.80E-07	6.20E-10
Animal for Meat	WNW	2.5	4016	4.40E-07	3.60E-07	5.50E-10
Animal for Meat	NW	3.82	6143	2.30E-07	1.80E-07	3.30E-10
Animal for Meat	NNW	2.92	4700	2.50E-07	2.00E-07	5.40E-10
Animal for Meat	N	2.25	3629	2.90E-07	2.40E-07	9.50E-10
Animal for Meat	NNE	3.39	5449	1.30E-07	1.00E-07	5.30E-10
Animal for Meat	NE	1.46	2356	3.10E-07	2.60E-07	2.10E-09
Animal for Meat	ENE	1.22	1957	3.40E-07	3.00E-07	2.00E-09
Animal for Meat	E	3.06	4926	1.20E-07	9.70E-08	2.70E-10
Animal for Meat	ESE	3.12	5017	3.50E-07	2.80E-07	5.60E-10
Animal for Meat	SE	1.66	2670	2.10E-06	1.80E-06	3.80E-09
Animal for Meat	SSE	1.09	1749	2.10E-06	1.80E-06	3.70E-09

TABLE 2CC-219
MAXIMUM INDIVIDUAL VEGETABLE DOSE COMPARISON

	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Child (One Year)	4.22E-01	4.15E-01	2.15E+00	4.32E-01	4.22E-01	2.36E+00	4.08E-01	4.06E-01
Child (Two Years)	4.41E-01	4.33E-01	2.22E+00	4.50E-01	4.40E-01	2.36E+00	4.26E-01	4.24E-01
Difference	4.5%	4.3%	3.3%	4.2%	4.3%	0.0%	4.4%	4.4%

TABLE 2CC-220
COMPARISON OF THE MAXIMUM INDIVIDUAL DOSE DUE TO NOBLE GASES

Description	Limit	One Year of Met Data Calculated Values	Two Years of Met Data Calculated Values	One Year of Met Data Ratio to the Limit	Two Years of Met Data Ratio to the Limit	Change in Margin
Noble Gases						
Gamma Dose (mrad)	10	6.13E-01	7.36E-01	6.1%	7.4%	1.2%
Beta Dose (mrad)	20	2.93E+00	3.09E+00	14.7%	15.5%	0.8%
Total Body Dose (mrem)	5	3.70E-01	4.51E-01	7.4%	9.0%	1.6%
Skin Dose (mrem)	15	2.06E+00	2.26E+00	13.7%	15.1%	1.3%

Note:

Doses from noble gases effluents were calculated at the point of maximum concentration at the EAB.

TABLE 2CC-221
POPULATION DOSE COMPARISON
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One Year of Met Data

	Dose (person-rem)							
Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Plume	1.43E+00	1.43E+00	1.43E+00	1.43E+00	1.43E+00	1.43E+00	1.65E+00	1.43E+01
Ground	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	2.78E-01	3.26E-01
Inhalation	3.90E-01	3.91E-01	4.41E-02	3.97E-01	4.02E-01	2.99E+00	4.74E-01	3.82E-01
Vegetable	7.15E-01	7.14E-01	3.15E+00	7.17E-01	7.04E-01	7.29E-01	6.99E-01	6.97E-01
Cow Milk	2.59E-01	2.52E-01	1.08E+00	2.69E-01	2.62E-01	1.81E+00	2.51E-01	2.50E-01
Meat	1.72E+00	1.79E+00	7.72E+00	1.72E+00	1.71E+00	2.30E+00	1.70E+00	1.70E+00
Total	4.79E+00	4.85E+00	1.37E+01	4.81E+00	4.78E+00	9.52E+00	5.06E+00	1.76E+01

TEDE	5.08	person-rem

TABLE 2CC-221
POPULATION DOSE COMPARISON
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Two Years of Met Data

	Dose (person-rem)							
Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Plume	1.44E+00	1.44E+00	1.44E+00	1.44E+00	1.44E+00	1.44E+00	1.68E+00	1.48E+01
Ground	2.75E-01	2.75E-01	2.75E-01	2.75E-01	2.75E-01	2.75E-01	2.75E-01	3.23E-01
Inhalation	4.07E-01	4.09E-01	4.58E-02	4.14E-01	4.19E-01	3.06E+00	4.95E-01	3.99E-01
Vegetable	7.55E-01	7.55E-01	3.31E+00	7.58E-01	7.44E-01	7.70E-01	7.40E-01	7.37E-01
Cow Milk	2.73E-01	2.66E-01	1.14E+00	2.83E-01	2.77E-01	1.82E+00	2.66E-01	2.64E-01
Meat	1.82E+00	1.89E+00	8.16E+00	1.82E+00	1.81E+00	2.39E+00	1.80E+00	1.80E+00
Total	4.97E+00	5.04E+00	1.44E+01	5.00E+00	4.97E+00	9.76E+00	5.26E+00	1.83E+01
Percent change from first year data	3.8%	3.9%	5.1%	4.0%	4.0%	2.5%	4.0%	4.0%

TEDE	5.26	person-rem
	3.7%	Percent Change