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May 23, 2008

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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
Docket Nos. 50-277 and 50-278

Subject: Response to Request for Additional Information Concerning License Amendment Request – Application of Alternative Source Term

References:

1. Letter from Pamela B. Cowan, Exelon Generation Company, LLC, to U. S. Nuclear Regulatory Commission, "License Amendment Request – Application of Alternative Source Term," dated July 13, 2007

2. U.S. Nuclear Regulatory Commission e-mail dated April 14, 2008, Draft Request for Additional Information Regarding License Amendment Request for the Application of Alternative Source Term at Peach Bottom Atomic Power Station, Units 2 and 3

In Reference 1, Exelon Generation Company, LLC (Exelon) submitted an application requesting a change to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, respectively. The proposed change was requested to support the application of Alternative Source Term (AST) methodology at PBAPS, Units 2 and 3.

In Reference 2, the Nuclear Regulatory Commission (NRC) requested additional information concerning the PBAPS License Amendment Request (LAR). In particular, the NRC requested that Exelon provide additional information pertaining to meteorological and dose consequence issues related to AST. The enclosure to this letter restates each of the NRC's questions followed by Exelon's response.

Exelon has concluded that the information provided in this response does not impact the conclusions of the: 1) Technical Analysis, 2) No Significant Hazards Consideration under the standards set forth in 10 CFR 50.92(c), or 3) Environmental Consideration as provided in the original submittal (Reference 1).

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There are no regulatory commitments contained within this letter. If you have any further questions or require additional information, please contact Richard Gropp at 610-765-5557.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 23rd day of May 2008.

Respectfully,

Pamela B. Cowan
Director – Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Enclosure: Response to Request for Additional Information

cc:	Regional Administrator - NRC Region I	w/ Enclosure
	NRC Senior Resident Inspector - PBAPS	"
	NRC Project Manager, NRR - PBAPS	"
	Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Protection	"

ENCLOSURE

Peach Bottom Atomic Power Station
Units 2 and 3
Docket Nos. 50-277 and 50-278

License Amendment Request
Response to Request for Additional Information

Alternative Source Term (AST)

Background

By letter dated July 13, 2007, Exelon Generation Company, LLC (Exelon) submitted an application requesting a change to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, respectively. The proposed change was requested to support the application of Alternative Source Term (AST) methodology at PBAPS, Units 2 and 3.

Subsequently, in an e-mail dated April 14, 2008, the NRC requested additional information concerning certain issues regarding the PBAPS, Units 2 and 3, License Amendment Request (LAR). Exelon committed to provide a response to the request for additional information by May 27, 2008. The specific questions are restated below followed by Exelon's response.

NRC Question 1 (AADB RAI 1)

For the dose consequence design basis accidents (DBAs) evaluated for the proposed Alternative Source Term (AST) amendment, Exelon listed the design input parameters in Table 4.3.1 for the AST loss of coolant accident (LOCA) analysis. In the comments section of the table, Exelon notes when a parameter is unchanged from the current licensing basis (CLB) value. For other parameters, Exelon provides a Regulatory Guide (RG), NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (SRP) or other regulatory guidance reference. For the remaining revised or new parameters, Table 4.3.1 references a Peach Bottom calculation. For the remaining parameters, where Table 4.3.1 references a Peach Bottom calculation, please provide the regulatory basis for the CLB change or the new AST parameter.

Additionally, the NRC staff requests that the licensee provide the information requested above in an expanded Table 4.3.1 for the applicable AST LOCA analysis parameters. (See Regulatory Position 1.3.2 and 1.3.4 of RG 1.183 and Regulatory Issues Summary (RIS) 2006-04).

Response

The NRC re-analysis guidance in Regulatory Guide (RG) 1.183, Section 1.3.2, for full implementation of an AST, is satisfactorily implemented by complete recalculation of all facility radiological analyses and evaluation of the current design bases affected by the proposed AST characteristics, TEDE dose criteria, and resulting plant modifications. The Design Input Table in Section 5.0 of Calculation PM-1077 lists the current licensing basis (CLB) as-built design input values along with the modified values used in the revised analysis. These values are compatible with the AST characteristics and suitable for the proposed plant modifications. Table 4.3-1 which was included in the PBAPS LAR is a slightly modified version of Section 5.0 of Calculation PM-1077, and provides only the new design input values used in the AST analysis that replace the existing CLB design input values, as required for the NRC technical review. The design input information in Section 5.0 of Calculation PM-1077 is reproduced in Table 4 of this response to provide the NRC the CLB information requested in this RAI. Table 4 is an updated version of Table 4.3-1, which now includes information to clarify whether the regulatory basis was unchanged or considered as a new assumption in support of AST. The compliance to RG 1.183, Section 1.3.4 requirements is related to the updating of analyses following implementation of the AST, which is not the scope of the proposed license amendment request.

NRC Question 2 (AADB RAI 2)

The NRC staff requests that the licensee provide the regulatory basis references for revised or new licensing basis parameters for the Peach Bottom AST Fuel Handling Accident (FHA) in Table 4.4-2, as well as the assumptions used for the Control Rod Drop Accident (CRDA) and the assumptions used for the Main Steam Line Break Accident (MSLB). The design basis parameters should be clearly marked as a CLB parameter or a revised or new parameter with the associated regulatory basis referenced.

Response

As requested, refer to the attached tables in this enclosure for the regulatory basis references for the revised or new licensing basis parameters related to AST for the Fuel Handling Accident (FHA), Control Rod Drop Accident (CRDA), Main Steam Line Break Accident (MSLB), and Loss of Coolant Accident (LOCA). The following tables are included:

- Table 1 includes the information for the FHA
- Table 2 includes the information for the CRDA
- Table 3 includes the information for the MSLB
- Table 4 includes the information for the LOCA

NRC Question 3 (AADB RAI 3)

In section 4.1.2, Exelon states that, "For the DBA LOCA, all fuel assemblies in the core are assumed to be affected and the core average inventory is used. For DBA events that do not involve the entire core (CRDA and FHA), the fission product inventory of each of the damaged fuel rods is determined by dividing the total core inventory by the number of fuel rods in the core. To account for differences in power level across the core, radial peaking factors are applied in determining the inventory of the damaged rods. For the MSLB event, no fuel damage is postulated to occur."

Provide the justification or reference that supports the conclusion that no fuel damage (e.g. fuel does not reach a transition boiling state or critical heat flux) will occur in the event of a MSLB outside containment.

Response

General Electric (GE) Topical Report NEDO-24708A, *"Additional Information Required for NRC Staff Generic Report on Boiling Water Reactors,"* Revision 1, dated December 1980, provides the reference supporting the current MSLB event model with no fuel damage. PBAPS UFSAR Section 14.6.5.1.3, *"Coolant Loss and Reactor Vessel Water Level,"* indicates that: *"...Analysis of fuel conditions reveals that no fuel rod perforations due to high temperature occur during the* *depressurization, even with the conservative assumptions regarding the operation of the recirculation and feedwater systems for the transient steps assumed in the MSLB. MCHFR remains above 1.0 at all times during the transient. No fuel rod failures due to mechanical loading during the depressurization occur because the differential pressures resulting from the transient do not exceed the designed mechanical strength of the core assembly...."*

NRC Question 4 (AADB RAI 4)

In its submittal Exelon assumes a value of 0.77% fuel melting for the CRDA. Provide the basis or justification for using the assumed 0.77% fuel melting value for Peach Bottom.

Response

The current design basis for fuel damage from a CRDA is based on GE14 10x10 fuel in an 87.33 equivalent fuel pin array. The fuel damage (i.e., number of rods with failed cladding and fuel melting) assumptions correspond to those as documented in GE NEDE-31152P, Revision 7, *"General Electric Fuel Bundle Designs,"* June 2000. Attachment A of previously provided Calculation PM-1057, Revision 1, shows the parameters and breakdown of the fuel damage and subsequent activity released.

NRC Question 5 (AADB RAI 5)

In section 4.2.2.3, "Control Room," Exelon assumed the unfiltered in-leakage into the control room (CR) ventilation boundary is the equivalent of the CR intake condition. Provide further reference or justification of this assumption for the Peach Bottom CR dose consequence modeling. Did Exelon evaluate potential infiltration sources other than the CR intake location? For example, was intake or infiltration from areas and structures adjacent to the CR analyzed to determine the most limiting infiltration location (See Regulatory Position 4.2.1 of RG 1.183)?

Response

The PBAPS AST LAR Section 4.2.2.3 states, "The infiltration paths were not specifically identified via in-leakage testing via tracer gas." Since the control room was verified to be at a positive pressure with respect to adjacent areas, the in-leakage is through the ventilation system. The ventilation system, including the air supply ducts and fans that are located in the radwaste building adjacent to the control room (CR), becomes the prime source for the unfiltered in-leakage. The Main Control Room Emergency Ventilation (MCREV) system and radwaste building air supplies are located in the vicinity of each other in the west wall of the radwaste building. Therefore, the MCREV system air intake and infiltration use the same χ/Qs per RG 1.194, Section 3.3.3. The LAR Section 4.2.2.3 described the CR response during a LOCA. A parametric study was performed to determine the CR intake flow rate that maximizes the CR dose during the 30 minutes in which MCREV initiation is delayed; the parametric study results are plotted in Figure 1. Per RG 1.183, Section 4.2.1, the CR dose analysis includes the infiltration of 18,500 cfm and 500 cfm during the MCREV initiation delay and following the initiation of the MCREV system, respectively, as stated in LAR Section 4.3.3 and as shown in Figures 1 and 4. This information is captured in Design Inputs 5.6.4 and 5.6.5 of Calculation PM-1077.

Based on the information provided in this response, the CR dose analysis includes the infiltration from the adjacent radwaste building during and following the MCREV system delay as per RG 1.183, Section 4.1.2. The limiting infiltration χ/Qs are used in the analysis.

NRC Question 6 (AADB RAI 6)

In Section 4.4.3 of the submittal, Exelon determined that, "A drop over the reactor well is more limiting than accidents in the spent fuel pool." Provide the reference or detail that shows the drop in the well or as described in the Peach Bottom final safety analysis report (FSAR), "a drop onto the reactor core from the maximum height allowed by the refueling equipment," is the limiting accident (See Regulatory Position 2.4 of RG 1.183).

Response

Attachment F of Calculation PM-1059, Revision 2 provides an assessment that determined a drop over the reactor well is more limiting than accidents in the spent fuel pool. In particular, an assessment of a drop onto the reactor core from the maximum height allowed by refueling equipment is the limiting accident at PBAPS. Attachment F from Calculation PM-1059: a) evaluates water coverage for FHAs over the Reactor Well and over the Spent Fuel Pool; b) evaluates impact of water coverages of less than 23 feet for purposes of pool decontamination factor (DF) determination; and c) justifies that a FHA over the Reactor Well is the limiting event.

NRC Question 7 (AADB RAI 7)

Appendix B of RG 1.183 allows an overall decontamination factor of 200, for the FHA if the depth of water above the damaged fuel is 23 feet or greater. If the depth of the water is less than 23 feet, the decontamination factor will have to be determined on a case-by-case method as described in Reference B-1 of RG 1.183. Provide either a detailed analysis that proves the statement in Section 4.3 of the Exelon submittal, "that a shorter drop in the fuel pool would result in less radiological release to the containment," or conservatively adjust the decontamination factor used for the FHA to account for water depth less than 23 feet (See Regulatory Position 2.4 of RG 1.183 and Regulatory Position 2 of Appendix B of RG 1.183).

Response

Attachment F of Calculation PM-1059, Revision 2, provides an assessment that determined a drop over the reactor well is more limiting than accidents in the spent fuel pool. In particular, an assessment of a drop onto the reactor core from the maximum height allowed by refueling equipment is the limiting accident at PBAPS. Attachment F from Calculation PM-1059: a) evaluates water coverage for FHAs over the Reactor Well and over the Spent Fuel Pool; b) evaluates impact of water coverages of less than 23 feet for purposes of pool DF determination; and c) justifies that a FHA over the Reactor Well is the limiting event.

NRC Question 8 (AADB RAI 8)

For the LOCA analysis as described in Sections 4.3.11 and 4.3.12, Exelon assumed that the main steam isolation valve (MSIV) leakage source term would have a natural removal efficiency of 50% for elemental iodine in each steam line volume. In addition, Exelon calculated the main steam rate constant (λs) for different piping segments in the MSIV leakage release paths using the 40th percentile aerosol settling velocity. The licensee stated that both assumptions are derived from the Accident Evaluation Report (AEB) 98-03, "Assessment of Radiological Consequences for the Perry Pilot Plant Application Using the Revised (NUREG-1465) Source Term."

In RIS 2006-04, "Experience With Implementation Of Alternative Source Terms," the NRC stated that, "For calculation of aerosol settling velocity in the main steamline (MSL) piping of boiling water reactors, some LARs reference AEB 98-03. This is acceptable. However, it is important to note that the report was written based on the parameters of a particular plant and, therefore, the removal rate constant is specific to that plant. Any licensee who chooses to reference these AEB 98-03 assumptions should provide appropriate justification that the assumptions are applicable to their particular design." The RIS further states that, "deposition is strongly dependent upon the thermal and hydraulic conditions in the piping. Given the large uncertainty associated with iodine behavior in piping, deposition of gaseous iodine in piping should be omitted unless appropriate justification is provided (including providing estimates of the thermal and hydraulic conditions in the piping)."

In accordance with the guidance in RIS 2006-04, the NRC staff requests that the licensee provide detailed justification for crediting aerosol deposition removal assumptions for Peach Bottom. In this justification, include the analysis methods that Exelon used to validate the assumptions of AEB 98-03 cited in its amendment application.

Response

Elemental Iodine Removal:

Gaseous iodine tends to deposit on the piping surface by chemical adsorption. Since elemental iodine is the most reactive, it has the highest deposition rate. The iodine deposited on the surface undergoes both physical and chemical changes and can be re-emitted as an airborne gas (re-suspension) or permanently fixed to the surface (fixation). The RG 1.183, Appendix A, Section 6.5 indicates that Reference A-9 provides acceptable models for deposition of iodine on the pipe surface. Reference A-9 of RG 1.183 uses the following equation to determine the elemental iodine deposition velocity:

μ_{ei} = elemental iodine vapor deposition velocity (cm/s)
$= e^{(2809/T - 12.80 (\pm 0.33))}$
Where T = gas temperature (^{0}K)

This equation is the same as equation 30 in the Bixler Model addressed in the RADTRAD3.02 Code Manual (page 212):

$\mu_{ei} = \mathbf{e}^{(2809/T - 12.5)}$

The post-LOCA drywell temperature is 280°F (Design Input 5.3.1.9). Assuming that the MSIV leakage gas temperature is the same as the drywell temperature:
$T = [(280^0F - 32^0F) \times 5/9] + 273 = 410.78^0K$

Solving for the elemental iodine vapor deposition velocity:
exponential term = (2809/T – 12.5) = (2809/410.78 – 12.5) = -5.66
$\mu_{ei} = e^{-5.66} = 0.003483$ cm/s = 0.0001143 ft/s

When considering the intact main steam pipe header between the RPV nozzle and the outboard MSIV, the elemental iodine removal efficiency is calculated as follows:

Volume of header (V_i) (Calculation PM-1077, Sections 7.3.1.3.1, 7.3.1.3.2, and Table 3A)
$V_i = 305.12\ ft^3 + 66.05\ ft^3 = 371.17\ ft^3$

Inner surface area of intact main steam pipe header between the RPV nozzle and the outboard MSIV (A_i) based on line length (L) (Calculation PM-1077, Sections 7.3.1.3.1, and 7.3.1.3.2, and Table 3A)
L = 1.79' + 3.4' + 32.85' + 11.68' + 3.4' + 15.33' + 3.4' + 14.02' + 3.4' + 3.4' + 6.79' + 21.53'
L = 121.17'

Inner surface area for elemental iodine adsorption (elemental iodine is adsorbed on the entire piping surface area regardless of its orientation)
$A_i = \pi \times D \times L = 3.14 \times 1.977' \times 121.17' = 752.20\ ft^2$

Elemental iodine adsorption rate
$\lambda_{ei} = [(\mu_{ei} \times A_i) / V_i] \times 3600$ s/hr
$\lambda_{ei} = [(0.0001143\ ft/s \times 752.20\ ft^2) / 371.17\ ft^3] \times 3600\ s/hr = 0.83\ hr^{-1}$

Elemental iodine removal efficiency
$\eta_{ei} = 1 - e^{\lambda ei} = 1 - e^{-0.83} = 1 - 0.436 = 0.564$ or 56.4%, which is greater than the 50.0% (i.e., DF of 2) used in the analysis based on the NRC staff recommendation in the AEB 98-03, Appendix B, page B-3. This elemental iodine removal efficiency is negligibly reduced due to re-suspension of the elemental iodine, which further gets adsorbed on the piping surface during its migration through the main steam piping. It should be noted that the elemental iodine removal efficiency is calculated using the maximum post-LOCA gas temperature, which will be substantially reduced in a short time due to the continuous cooling of the drywell atmosphere and consequently, it further increases the elemental iodine adsorption velocity and removal efficiency.

Based on the derivation for plant-specific elemental iodine removal efficiency in the above section, it is concluded that the use of the elemental iodine removal efficiency of 50% is conservative.

Aerosol Deposition:

The aerosol deposition model in the analysis uses the following information from Appendix A of the AEB 98-03 Report:

1. 40^{th} percentile aerosol settling velocity of 0.00081 m/sec.
2. Use of Equations (2), (3), and (4) from Appendix A to calculate the rate constant for settling (λ_s) and equivalent aerosol removal filter efficiency.

As discussed in AEB 98-03, Appendix A, the settling velocity in the well-mixed volume is mainly a function of aerosol density, aerosol diameter, and shape factor having some uncertainty. Therefore, a Monte Carlo analysis was performed by the NRC to determine the distribution of aerosol settling velocities for the main steam line during in-vessel phase using the ranges and distributions of aerosol density, diameter, and shape factor. The results of the AEB 99-03 Monte Carlo analysis are listed as follows:

Percentile	**Settling Velocity u_s (m/sec)**	**Removal Rate Constant (hr^{-1})**
60^{th} (average)	0.00148	11.43
50^{th} (median)	0.00117	9.04
40^{th}	0.00081	6.26
10^{th}	0.00021	1.62

For the given well-mixed volume and shape factor, the settling velocity is mainly dependent on the aerosol density and diameter. As can be seen from the above table, the settling velocity gradually increases with the denser and coarser aerosol particles producing a higher gravitational deposition. Per AEB 98-03 (page 11), the NRC also concludes that the use of the 10^{th} percentile settling velocity with a well-mixed model is not appropriate because the model did not include the mechanisms such as the thermophoresis, diffusiophoresis, and flow irregularities including the hygroscopicity, which contribute to the additional deposition. Given the conservatism of the well-mixed model, the NRC believed it was acceptable to utilize median settling velocity values (as compared to more conservative values) for deposition parameter.

The settling velocity percentile distribution is derived using the uncertainty ranges associated with the key variables that constitute the settling velocity. The settling velocity percentile distribution is not dependent on any piping configuration or plant-specific thermal hydraulic condition. Therefore, its use is considered acceptable, as consistently accepted by the NRC in the previous Exelon AST license amendments for Clinton, Dresden, Units 2 and 3, Limerick, Units 1 and 2, Quad Cities, Units 1 and 2, and other AST license amendments (e.g., Fermi Unit 2). Only elemental iodine removal depends on the thermal condition inside the main steam pipe, which is discussed in the previous section for derivation of the elemental iodine removal efficiency. The aerosol iodine deposition is driven by the gravitation force. Despite the NRC recommendation of using the 50^{th} percentile settling velocity, Exelon conservatively used the 40^{th} percentile settling velocity in the analysis to minimize the aerosol deposition.

The 40th settling velocity is used with the PBAPS plant-specific projected pipe surface areas and volumes of various horizontal pipe segments to determine the values of rate constants for settling (λ_s) in Table 5, which are less than the 6.26 hr^{-1} removal rate constant derived in AEB 98-03 using the Perry plant-specific piping parameters. The projected surface areas and volumes are calculated in Calculation PM-1077 Sections 7.3.1 and 7.3.2 for Unit 2 and Unit 3, respectively, using the as-built piping isometric drawings and listed in Calculation PM-1077 Tables 3 through 5. Based on the above clarification, it is demonstrated that the removal rate constants in Table 5 are derived using the PBAPS as-built plant-specific parameters.

The aerosol deposition is driven by the natural gravitational force acting on any particle having size and weight. As shown in the AEB 98-03 Equation (5) and as discussed in AEB 98-03, Appendix A, Page A-3, the gravitational aerosol deposition is mainly a function of the aerosol density and diameter for a uniform distribution of the aerosol in a well-mixed volume. The variables in Equation (5) for the settling velocity neither show dependency on thermal condition nor hydraulic condition. It is purely a function of a physical condition that exists in a well-mixed volume under the influence of natural gravitational force. The lower end of settling velocity represents the lightly packed fine aerosol particles with lighter weights, which tend to be less affected by the gravitational force with a smaller removal rate. The upper end of settling velocity represents the highly packed heavier aerosol particles, which tend to be more affected by the gravitational force with a large removal rate. The use of the 40th percentile settling velocity indicates that the MSIV leakage is packed largely with finer aerosol particles than heavier particles, which tends to reduce the aerosol deposition and therefore is conservative.

The volumetric flow rates of MSIV leakage for different time intervals are calculated in Calculation PM-1077 Section 7.2. Knowing the rate constants for settling (λ_s), volumetric MSIV leak rates, and horizontal piping volumes, the time dependent aerosol (particulate) removal efficiencies are calculated using Equations (3) and (4) of AEB 98-03 in Calculation PM-1077 Section 7.4 and listed in Calculation PM-1077 Table 6.

As stated in AEB 98-03, page 11, the well-mixed volume model is inherently conservative because it does not account for many other removal mechanisms that contribute additional deposition of the aerosol. Exelon incorporated the following analytical conservatisms in the analysis:

1. The reactor building (RB) drawdown time is assumed to be 3 minutes instead of the 2 minutes (120 seconds) currently allowed by PBAPS Technical Specification Surveillance Requirement 3.6.1.4.3 (Calculation PM-1077, Figure 2)
2. The containment and ESF leakages are assumed to release directly to the environment at ground level without crediting the SGTS filtration during the drawdown time and through the main stack following the drawdown time without mixing in the RB volume (Calculation PM-1077 Figure 2)
3. The MSIV leakage model includes the following conservatisms:
    - Each MSIV release path consists of two well-mixed volume nodes consistent with AEB 98-03 to eliminate the in-series configuration of the aerosol and elemental iodine removal efficiencies in the multiple volume nodes, which is believed to underestimate the resulting dose.

- The aerosol and elemental iodine removal is not credited in any MSIV steam lines 96 hrs after the onset of a LOCA.
- Aerosol and elemental iodine removal is not credited in the MSIV failed line between the reactor pressure vessel (RPV) nozzle and outboard MSIV for the entire duration of a LOCA (refer to response RAI 9(a) for the resulting conservative CR dose).
- The total MSIV leakage is distributed between two worst-case steam lines instead of four lines for the purposes of this analysis.

4. The Main Control Room Emergency Ventilation (MCREV) system initiation is delayed for 30 minutes after onset of a LOCA for all release paths, and a maximum CR unfiltered inleakage of 18,500 cfm is assumed during the initial 0-30 minutes of the LOCA based on the result of a parametric study plotted in Calculation PM-1077 Figure 1.

Based on the technical justification provided in the above section, which already exists in Calculation PM-1077, Exelon believes that the aerosol deposition model in the analysis for the MSIV leakage path is technically appropriate and complies with the guidance in RG 1.183, Section 6.5 and AEB 98-03 in a very conservative manner.

NRC Question 9 (AADB RAI 9)

As part of attachment 8 of the July 13, 2007 AST license amendment request (LAR), Exelon provided the AST LOCA Calculation for Peach Bottom (No. PM-1077). On page 13 of the calculation, Exelon states, "A main steam line break in one steam line inside the drywell would maximize the dose contribution from the MSIV leakage."

Unlike AEB 98-03, Peach Bottom Calculation No. PM-1077 takes various forms of credit for the piping up to both inboard MSIVs. For the first line modeled (for the purpose of this discussion called SL-A), Peach Bottom credits holdup and dilution for volume V11. For the second line modeled (for the purpose of this discussion called SL-B) Peach Bottom credits holdup, dilution and deposition and plateout for volume V21.

a) The NRC staff requests that the licensee provide justification for crediting holdup and dilution in inboard section of the failed steamline (SL-A), considering that the most limiting failure occurs just prior to the inboard MSIV and that this piping will no longer be connected to the steamline.

b) The NRC staff requests that the licensee provide justification for aerosol and elemental deposition in the inboard piping of SL-B, noting that the methodology applied from AEB 98-03 assumed a quiescent environment where the only forces acting on the aerosol were due to gravitational settling.

Response

Section 2.3.3 of Calculation PM-1077 provides reasons why a LOCA through the main steam line break is not a credible event based on the definition of a large break LOCA in 10CFR50, Appendix A and based on the LOCA being the design basis event for the safety-related system design per

PBAPS UFSAR Section 6.2. The LOCA through a breach in the main steam line is a less limiting event because it does not impose the maximum challenge to the drywell pressure boundary (resulting in considerably less MSIV leakage) and because it does not impose the maximum challenge to fuel integrity in the entire core (resulting in a very small source term release). The steam lines are ASME Category I piping, which further exclude the postulation of a break in the piping in the inboard and outboard MSIV areas. Based on the above facts, the break in the steam lines inside the drywell is not credible during a LOCA. The postulating of a steam line break during a LOCA increases the resulting MSIV leakage dose. The concept of main steam line break in the MSIV failed line is incorporated in the LOCA analysis as discussed in the following section.

Response To AADB RAI 9(a):

The PBAPS AST MSIV leakage model is identical to the AEB 98-03 MSIV leakage model, with aerosol depositions in the MSIV failed and intact main steam lines calculated based on the horizontal projected piping surface areas and volumes using the PBAPS plant-specific piping configuration. The comparison of both models is shown in Table A below with the resulting PBAPS CR dose of 3.11 Rem TEDE. As discussed in Section 2.3.3 of Calculation PM-1077, although a break in the steam lines inside the drywell is not credible during a LOCA, the concept of a main steam line break is analytically incorporated just to add additional conservatism in the MSIV leakage model, without physically breaking the steam line.

Table B below documents a sensitivity evaluation in which the PBAPS MSIV leakage model neither postulates the break in main steam line segment between the RPV nozzle and outboard MSIV in the MSIV-failed release path nor credits the removal of the aerosol and elemental iodine in that pipe segment. The AEB 98-03 MSIV leakage model in Table B is the same as that in Table A below. The differences between Tables A and B (PBAPS MSIV leakage path models) are shown in Table B using a bold and italic font style with the resulting PBAPS CR dose of 4.36 Rem TEDE. This dose is 1.25 Rem TEDE higher than the PBAPS MSIV leakage path when it is modeled and is identical to the AEB 98-03 model, as shown in Table A. Despite the differences in the modeling techniques, the MSIV leakage path modeled in the PBAPS LOCA analysis in Calculation PM-1077 is grossly conservative.

Table A

Peach Bottom Plant-specific MSIV Leakage Model - 100% Compliance With AEB 98-03 Methodology

Variable Parameter	AEB 98-03				Peach Bottom AST Analysis - Parametric Study					
	MSIV Failed Line		Intact Line		MSIV Failed Line			Intact Line		
	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	Between Inboard MSIV & TSV	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	Between Inboard MSIV & TSV
Piping Integrity Assumed	Ruptured - not credited in analysis	Remains Intact	Remains Intact	Remains Intact	Ruptured - not credited in analysis	Remains Intact	Remains Intact	Remains Intact	Remains Intact	Remains Intact
Aerosol Deposition	Not Credited	Credited	Credited	Credited	Not Credited	Credited	Credited	Credited	Credited	Credited
Piping Volume	Not Credited	Credited	Credited	Credited	Not Credited	Credited	Credited	Credited	Credited	Credited
Holdup Time	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited
Deposition Velocity Distribution	40th Percentile				40th Percentile					
Elemental Iodine Removal	Not Credited	Credited (50%)	Credited (50%)	Credited (50%)	Not Credited	Credited (50%)	Credited (50%)	Credited (50%)	Credited (50%)	Credited (50%)
CR Dose	Not Provided				***3.11 Rem TEDE***					

Perry plant does not have the seismically supported main steam line beyond the outboard MSIV. Therefore, unlike the Peach Bottom Plant, the main steam line between the outboard MSIV and TSV is not modeled.

Table B

Peach Bottom Plant-specific MSIV Leakage Model - Used In Licensing Basis AST LOCA Analysis

Variable Parameter	**AEB 98-03**				**PBAPS Plant-specific Licensing Basis AST LOCA Analysis**					
	MSIV Failed Line		**Intact Line**		**MSIV Failed Line**			**Intact Line**		
	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	Between Inboard MSIV & TSV	RPV To Inboard MSIV	Between Inboard & Outboard MSIVs	Between Inboard MSIV & TSV
Piping Integrity Assumed	Ruptured - not credited in analysis	Remains Intact	Remains Intact	Remains Intact	***Remains Intact****	Remains Intact	Remains Intact	Remains Intact	Remains Intact	Remains Intact
Aerosol Deposition	Not Credited	Credited	Credited	Credited	Not Credited	***Not Credited***	Credited	Credited	Credited	Credited
Piping Volume	Not Credited	Credited	Credited	Credited	***Credited***	Credited	Credited	Credited	Credited	Credited
Holdup Time	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited	Not Credited
Deposition Velocity Distribution	40th Percentile				40th Percentile					
Elemental Iodine Removal	Not Credited	Credited (50%)	Credited (50%)	Credited (50%)	Not Credited	***Not Credited***	Credited (50%)	Credited (50%)	Credited (50%)	Credited (50%)
CR Dose	Not Provided				***4.36 Rem TEDE***					

*The Peach Bottom licensing basis AST LOCA analysis neither postulates the rupture of the main steam line between the RPV nozzle and outboard MSIV nor credits the deposition of aerosol and removal of elemental iodine in that line, which produces approximately 1.25 Rem TEDE additional dose to CR operator, proving that the PBAPS MSIV leakage model is conservative in comparison to the AEB 98-03 MSIV leakage model.

Response To AADB RAI 9(b):

Only one single failure is required to be postulated for a given release path. Therefore, the intact main steam line takes credit for elemental and aerosol iodine removal in well-mixed volume V_2 ($V_2 = V_{21} + V_{22}$), which consists of the second shortest piping segment between the RPV nozzle and outboard MSIV as shown in Calculation PM-1077 Table 6. The additional analytical conservatism is not applied to this well-mixed volume. As discussed in the response to AADB RAI9(a), the aerosol deposition credited in all main steam pipe segments complies with the regulatory guidance in RG 1.183, Appendix A, Section 6.5 and AEB 98-03 in a very conservative manner. Based on the clarification that only one single failure is required to be postulated for the MSIV leakage release, the modeling of intact steam line between the RPV nozzle and outboard MSIV is technically correct.

NRC Question 10 (AADB RAI 10)

On page 12 of Peach Bottom Calculation No. PM-1077, Exelon states, "To account for the assumed mixing between the wetwell and drywell after 2 hours and the resulting activity dilution, the flow rate through the MSIVs is reduced by the ratio of the drywell volume to the total volume at two hours."

Explain in detail how this assumption was used in the MSIV leak rate calculations for Peach Bottom and any deviation from regulatory position 6.2 of Appendix A of RG 1.183.

Response

The activity in the MSIV leakage paths is the same as the activity released inside the drywell during a LOCA. During the first two hours of a LOCA the gap and early-in-vessel phase activity released from the core is conservatively assumed to distribute in the drywell air volume only. Two hours after onset of a LOCA, the non-condensable gases buildup in the suppression chamber air space purges into the drywell air space via continuously opened vacuum breakers based on the setpoint of 0.2 psid. The drywell and suppression chamber air spaces reach an equilibrium condition. It is assumed that two hours after a LOCA the activity in the drywell is uniformly distributed in the combined drywell plus suppression chamber air volumes. This provides the dilution of activity released through the containment and MSIV leakage paths. This dilution is conservatively not accounted for in the containment leakage release but it is incorporated in the MSIV leakage release by reducing the MSIV leakage by the ratio of the drywell volume to the total volume to incorporate the dilution of drywell activity 2 hours after a LOCA as shown in Section 7.2.3 and Table 7 of Calculation PM-1077. The NRC in previous Exelon AST license amendments, and other non-Exelon license amendment (e.g., Fermi Unit 2), accepted the uniform distribution of activity among the drywell and suppression chamber air spaces 2 hours after onset of a LOCA.

As required by RG 1.183, Appendix A, Section 6.2, a site-specific analysis was performed to determine the reduction in primary containment leakage based on the post-LOCA containment pressure in Reference 9.17 of Calculation PM-1077. It was determined that the containment and MSIV leakages can be reduced to 50% of the technical specifications leak rate 38 hours after the onset of a LOCA. The reduction in the MSIV leak rate is calculated in Calculation PM-1077 Section 7.2.4, as listed in Table 7, and incorporated in the RADTRAD input file.

Based on the above discussion, the MSIV leakage is appropriately reduced to comply with the RG 1.183, Appendix A, Section 6.2 requirement.

NRC Question 11 (AADB RAI 11)

For the LOCA analysis described in Section 4.3.3, Exelon credits elemental iodine removal by wall deposition on wetted surfaces inside containment. Provide the basis for crediting iodine removal without crediting containment sprays for Peach Bottom.

Response

The gaseous elemental iodine tends to deposit on any surface by chemical adsorption. On the wetted surface area, the gaseous elemental is removed quickly because it is dissolved in water and chemically adsorbed on the surface area. The various exposed surfaces in the drywell get wet during a LOCA due to depressurization of a large amount of reactor coolant that immediately flashes into steam. As the accident progresses, the release through the break becomes a two phase flow mixture of steam and water, and at a later time it becomes a saturated liquid. The moisture released during and following a LOCA is continuously condensed on the relatively colder surfaces including but not limited to the drywell wall, floor, and ceiling concrete surfaces, various piping surfaces, duct and equipment surfaces, and Torus water surface. The drywell spray is not credited in the analysis; therefore, the resulting additional wetted surface area due to the drywell spray operation is not accounted for in the wetted surface estimate in Calculation PM-1077 Section 7.7. The estimated wetted surface area is conservatively reduced by 25% and compared with the corresponding wetted surface areas of Exelon's other BWR Mark I plants, Dresden and Quad Cities, to establish a conservative basis for the selection of its value. The elemental iodine removal in the MSIV leakage follows the similar adsorption mechanism as that in the drywell with an exception that a large amount of the gaseous elemental iodine in the drywell is dissolved on the wetted surface and removed from the drywell atmosphere while all elemental iodine is removed by adsorption on the pipe surface area. The elemental iodine vapor deposition velocity and adsorption rate constant μ_{el} (ft/sec) and λ_{el} (hr^{-1}) for the MSIV leakage (refer to response to RAI 8) and mass-transfer coefficient and first order removal coefficient K_w (meter/hr) and λ_w (hr^{-1}) for the drywell atmosphere are technically analogous to each other and perform the same function of removal of the elemental iodine via different removal mechanisms.

Based on the technical justification provided in the above discussion, the elemental iodine removal mechanism by the wetted drywell surface areas without crediting operation of the drywell spray is technically adequate and accepted by the NRC staff in the previous AST license amendments including the Dresden and Quad Cities AST license amendments.

NRC Question 12 (AADB RAI 12)

As shown on Sheet 1 of both Attachments A and B of Peach Bottom Calculation No. PM-1055, Revision 0, (PM-1055), Attachment 8 to the July 13, 2007 AST LAR, topography near the Peach

Bottom site is complex. The facility is located on the shore of the Susquehanna River adjacent to a bluff. The licensee postulated effluent releases from multiple locations, including from short stacks on top of facility structures, locations at or near ground level at the facility, and from the 152 meter off-gas stack on the bluff. The licensee used meteorological data from three towers to generate atmospheric dispersion factors (χ/Q values), namely from the River Tower based in the Susquehanna River, Tower 1A near the shore in the vicinity of the Peach Bottom facility structures, and Tower 2 on the bluff. Table 2-2 on page 7 and Table 3-4 on page 13 of PM-1055 list which data were used to model χ/Q values for each postulated release location. In some cases, two sets of data were used to generate χ/Q values for a single release/receptor pair and the limiting χ/Q values were selected for use in the dose assessment.

Page 13 of PM-1055 states that the Peach Bottom Reactor Building (RB) stack exclusion area boundary (EAB) χ/Q values were generated using meteorological data from the River Tower. Both the EAB and low population zone (LPZ) values were generated using meteorological data from Tower 2. The licensee apparently did not generate LPZ χ/Q values using data from the River Tower noting that those data measured local conditions that are likely not representative of conditions at the LPZ. While this may be the case, given that the initial effluent dispersion would occur in the river valley environment near the Peach Bottom facility, how was it determined that use of meteorological data from Tower 2 only would be adequate to generate the LPZ χ/Q values?

Page 59 of Attachment 1 to the LAR states that the RB stack EAB and LPZ χ/Q values are considered applicable for postulated releases from the personnel access door, railway bay door, reactor building scuttle, and ground level hatch. The personnel access door, railway bay door, and ground level hatch appear to be at a height more nearly representative of the height of measurements on Tower 1A. Please provide further detailed justification that the RB stack EAB and LPZ χ/Q values are adequately representative of releases from these locations.

Response

The River Tower and Tower 1A meteorological data were not utilized for the LPZ X/Q analysis of the RB Units 2 and 3 stacks in Calculation PM-1055. The RB stack tops are at 305 ft msl, essentially above the Valley's meteorological influences. As discussed in Calculation PM-1055, Section 3.2.4.2, and depicted in Calculation PM-1055 Attachment B, the RB stack tops at 305 ft msl are vertically much nearer the Tower 2 grade elevation of 367 ft msl than the River at 116 ft msl. Accordingly, the wind direction at the Tower 2 location, only about 500 feet south-southwest of the RB Units 2 and 3 would also correspond much better with wind flow at the RB stack tops than the River Tower (or Tower 1A). Unlike the area within the 823-meter radius EAB, for much of which the elevation is at or near river level, the great majority of area within the 7300-meter radius LPZ is well above the River.

As such, neither the winds from the River Tower or Tower 1A, nor the stability class from Tower 1A would well represent the conditions for which maximum X/Q at the LPZ would be expected to occur. The basis for applying the River Tower wind data and Tower 1A stability data for the EAB X/Q analysis in Calculation PM-1055 properly takes into account the non-elevated release assumption required by RG 1.145, implying the potential for building-enhanced plume spread (which relative effect on X/Q is as inverse function of downwind distance) and thus for such a condition to occur in the Valley in the immediate vicinity of the Station. This effect would be insignificant at the LPZ distance, and not associated with its maximum predicted X/Q. For the above reasons Tower 2 meteorological data were determined to be representative for this analysis of LPZ X/Qs.

While the Tower 2 based ground level release EAB X/Q result would also be considered applicable for releases from the Reactor Building TB/RB Vent Stack and the Roof Scuttle, this value is not used. All Reactor Building release pathways, whether at the roof elevation, or near plant grade (*personnel access door, railway bay door, and ground level hatches)* were evaluated using the River Tower wind data and Tower 1A stability data for the EAB since no stability data is measured at the River Tower. This applies to the FHA, CRDA, and LOCA analyses. MSLB analysis uses a more conservative Regulatory Guide 1.5 approach.

NRC Question 13 (AADB RAI 13)

Joint wind speed, wind direction and atmospheric stability distributions (JFDs) provided in Attachment J and used in the PAVAN calculations group the meteorological data into wind speed categories of 0.5, 3.5, 7.5, 12.5, 18.5, 20 and 55 miles per hour based upon RG 1.23, Revision 0, "Onsite Meteorological Programs," February 1972. NRC staff notes that use of these categories results in much of the Peach Bottom data being clustered into only a few wind speed classes in some of the JFDs (e.g., page 1169). Data clustering may skew the distribution of calculated χ/Q values. Therefore, NRC Regulatory Issue Summary (RIS) 2006-04, "Experience with Implementation of Alternative Source Terms," March 7, 2006, and RG 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants," March 2007, recommend that JFDs have a large number of wind speed categories at the lower wind speeds in order to produce the best results. Suggested categories are calm, 0.5, 0.75, 1.0, 1.25, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 8.0 and 10.0 meters per second. Please provide information to show that the use of the RG 1.23, Revision 0, wind speed categories has not biased the resultant χ/Q value distributions. However, if the resultant χ/Q value distributions have been biased, then provide information that demonstrates that the χ/Q values generated using the RG 1.23, Rev. 0, wind speed categories are more limiting than those generated using a large number of wind speed categories at the lower wind speeds.

Response

The joint wind speed, wind direction, atmospheric stability frequency distributions (JFDs) used by PAVAN in generating the X/Q values provided in Calculation PM-1055 were evaluated with the 11 wind speed categories, in accordance with RG 1.23, Revision 1, as shown in Attachment A, Sheet 3 of 6; and also shown for comparison are the 7 wind speed categories according to RG 1.23, Revision 0. Attachment B contains the JFDs for the 11 wind speed categories.

The revised JFDs were then used to re-calculate the X/Q values for each release-receptor scenario previously run with the RG1.23, Revision 0 JFDs. As Attachment A, Sheets 1, 2, and 4 illustrate for each scenario, the 11-bin JFDs resulted in slightly increased X/Q values for each time-averaging period.

The table provided in Attachment A, Sheet 5 of 6 presents the higher of the RG 1.23, Revision 0 and RG 1.23 Revision 1 PAVAN results for the Off-Gas Stack to Control Room Intake Scenario. Also presented are the ARCON96 X/Q results for the same scenario as taken from Calculation PM-1055. The PAVAN results are used in conjunction with the ARCON96 results to produce the final Off-Gas Stack to Control Room Intake X/Q values according to the methodology in RG 1.194, Section 3.2.2.

Attachment A, Sheet 6 of 6 presents a revision to Table 4-1 of Calculation PM-1055, as updated to indicate the higher X/Q values resulting from the additional PAVAN analyses produced in response to AADB RAI 13.

Attachment C contains the PAVAN input and summary output pages associated with each scenario.

Since the 11-bin X/Q results are slightly higher than the 7-bin results and the fact that the calculated doses are substantially lower than regulatory limits, Exelon will evaluate the need to calculate the resulting new dose consequences using the 11-bin X/Qs upon performance of the next dose calculation revision.

NRC Question 14 (AADB RAI 14)

The LAR provided χ/Q values for postulated releases from the reactor building (RB) stack, main steam line, personnel access door, railway bay door, reactor building scuttle, ground level hatch, and off-gas stack to the control room air intake, EAB and LPZ. The licensee used the χ/Q values as inputs to dose assessments for the LOCA, CRDA, MSLB, and FHA design basis accidents.

RG 1.183 states that the single active component failure that results in the most limiting radiological consequences should be assumed. Assumptions regarding the occurrence and timing of a loss of offsite power should be selected with the objective of maximizing the postulated radiological consequences. Please confirm that the locations identified above are the limiting release/receptor pairs for all design basis accident scenarios, including those postulated to involve loss of offsite power or other single failures.

Response

Releases from openings in secondary containment were considered and evaluated as indicated for postulated releases from the reactor building (RB) stack, main steam line, personnel access door, railway bay door, reactor building scuttle, ground level hatch, and off-gas stack. These release points were evaluated with respect to the control room air intake, EAB and LPZ. Plant walk-downs and reviews of plant general arrangement and layout drawings were performed to ensure that X/Qs for the most limiting of the release locations identified were analyzed. The most limiting X/Q values associated with these openings were utilized in the appropriate radiological dose analyses. No credit is taken for the loss of offsite power if it is beneficial. No accident was determined to be aggravated by the presence or loss of offsite power. The mitigative systems credited have been determined to be single-failure proof and powered by emergency power systems. Specifically, for each accident:

LOCA: The presence or loss of offsite power would not adversely impact the postulated release to containment, the release mechanism from containment, or the behavior of credited mitigative systems.

FHA: The availability of offsite power would not adversely impact the release from the spent fuel pool or release from the refuel floor airspace to the environment. Control room dose modeling with an artificial one air change per minute envelopes all possible control room ventilation and related power supply conditions.

MSLB: The analysis of this event does not take credit for the presence of offsite power or the lack thereof. The sole plant feature credited is the MSIV closure instrumentation, whose loss would result in valve closure. Control room dose modeling with an artificial one air change per minute envelopes all possible control room ventilation and related power supply conditions.

CRDA: Two CRDA scenarios are addressed. The path associated with the 1%/day release from the condenser is passive and requires no power. The path through the offgas system assumes offsite power availability. Loss of offsite power for this path would either revert to the first path, or would trap release activity in the charcoal delay beds, providing additional uncredited delay.

NRC Question 15 (AADB RAI 15)

Page 74 of Attachment 1 to the LAR states, "As calculated in the PAVAN run, at the conservatively assumed 823 meter EAB distance σ_y is 38.3 ..." for Pasquill stability class F. However, NRC staff notes that a printout from a PAVAN run, page 1199 of PM-1055, lists a σ_y value of 31.0 meters which can also be estimated from Figure 1 of RG 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants." Therefore, please justify use of 38.3 meters for the σ_y value or provide a revision to this calculation.

Response

As requested, the calculation has been revised. As shown in the revised MSLB Calculation PM-1058 Revision 1, attached in this enclosure, the calculated EAB dose increases proportionately to the ratio of the σ_y values noted; i.e. 38.3 m/ 31.0 m = 1.24, and the calculated dose increases from the Case 2 (Iodine spike) 1.60 rem TEDE value to a still quite acceptable 1.97 rem TEDE value, remaining well-below the Regulatory Guide 1.183 TEDE acceptance limit of 6.3 rem TEDE.

NRC Question 16 (AADB RAI 16)

Sheet 4 of 5 of Attachment H to PM-1055 is a JFD that shows a total frequency occurrence of approximately 94.5 percent in the lower right corner of the table. Sheets 1-3 and 5 of Attachment H which provide similar JFDs for other meteorological data each total 100 percent. Why is the total on Sheet 4 less than 100 percent and what is the significance?

Response

The JFD contained on Sheet 4 of 5 of Attachment H to Calculation PM-1055 has been corrected and is included herein as Attachment D. This error was editorial in nature and did not impact the X/Q calculations.

NRC Question 17 (AADB RAI 17)

NRC staff notes that there appears to be some duplication of pages in Attachment J to the LAR. For example, summary pages 1228 and 1353 appear to be identical, as are pages 1285 and 1410. Please review the information in Attachment J and confirm that all relevant pages were included or provide supplementary pages, if appropriate.

Response

Attachment J to Calculation PM-1055 includes information that was inadvertently duplicated. The PAVAN output information contained on pages 1228 through 1285 was duplicated on pages 1353 through 1410. However, no information was omitted and all pertinent documentation was provided.

NRC Question 18 (AADB RAI 18)

Figure 3-1 of Attachment G to Calculation No. PM-1055, Revision 2, is a plant plan showing postulated source and receptor locations. What is the scale of this figure? NRC staff had some difficulty regarding the clarity of the figure. Therefore, please provide another copy that more clearly highlights the locations of the sources and receptors.

Response

Figure 3-1 of Attachment G, which depicts the postulated source and receptor locations, is part of Calculation PM-1059, Revision 2. To address the NRC's request, refer to Figures 1 and 2 in this response, which more clearly highlight the source and receptor locations. Figure 1 is the general arrangement plan for the 135-foot elevation at PBAPS and Figure 2 is a floor plan for the 135-foot elevation. The figures are not to scale since they are reduced copies, but dimensions are depicted for reference purposes.

NRC Question 19 (AADB RAI 19)

In RIS 2006-04, the NRC advised licensees on the implementation of alternative source terms (ASTs) in design basis accident (DBA) radiological analyses of currently licensed light water reactors. In order to enhance the efficiency and potentially the timeliness of completing our review, the NRC staff requests a RIS Summary 2006-04 conformance table.

Response

As requested, Table 5 in this response includes information concerning conformance to the guidance specified in Regulatory Issue Summary (RIS) 2006-04, "Experience with Implementation of Alternative Source Terms."

Table 1

Updated Table 4.3-1

Parameters Applicable to AST Fuel Handling Accident Dose Considerations for Peach Bottom Atomic Power Station
Use of new parameters is acceptable per FHA results below the Regulatory Limit as found within previously provided Calculation PM-1059, Revision 2

Updated Table 4.3-1 (FHA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Reactor Power	3528 MWth	3528 MWth 3514 MWth nominal	No change. Includes the currently licensed 0.38% margin for instrument uncertainty relative to the rated thermal power of 3514 MWt after the 1.62% thermal power optimization uprate.
Fuel Assembly Configuration and properties	10 x 10 in an 87.33 fuel pin bundle and 172 total pins damaged	10 x 10 in an 87.33 fuel pin bundle and 172 total pins damaged	No change. Bounding current assumptions for current PBAPS licensing basis FHA as well as for AST.
Radial Peaking Factor	1.7	1.5	NEW bounding assumption, which is considered conservative. RG 1.183 justifies this change.
Allowable Fuel Burnup and non-LOCA gap fractions	RG 1.183, Table 3. Fuel bundle peak burnup will not exceed 62 GWD/MTU. For fuel exceeding 54 GWD/MTU, the maximum linear heat generation rate will not exceed 6.3 kW/ft.	N/A	NEW per RG 1.183. Some peak rod-average burnups can exceed 54 GWD/MT. However, the 6.3 kW/ft linear heat generation rate limit will not be exceeded. This data is reviewed for each cycle.

Updated Table 4.3-1 (FHA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
FHA Radionuclide Inventory	From the 60 isotopes forming the RADTRAD library used in the Loss of Coolant Accident (LOCA) analysis, with decay to 24 hours. Gap activities are per RG 1.183.	TID-14844	NEW design basis analysis used ORIGEN 2.1 to calculate values. Spent fuel source terms are based on the same bounding reactor core source terms as were used for the LOCA analysis. Use is based on RG 1.183 guidance. The Radionuclide inventory from the previous analysis was based on TID 14844 assumptions.
Underwater Decontamination Factor	Noble Gases: 1 Particulate (cesiums and rubidiums): infinity Iodine: 200, corresponding to a 23-ft water depth for an assembly drop into the reactor vessel	Noble Gases: 1 Particulates: infinity Iodine: 100	NEW, per RG 1.183. For conservatism, the effective minimum depth of 23 feet is assumed to be the water coverage over the reactor core. This is the worst-case location for a fuel drop FHA to take place (significantly more damage is produced than a shorter drop in the fuel pool).
Iodine chemical distribution	The chemical form of radioiodine released from the fuel to the spent fuel pool is assumed to be 95% CsI, 4.85% elemental iodine, and 0.15% organic iodide. 95% CsI, instantaneously dissociates in the pool water. All iodine is re-evolved as elemental iodine.	TID-14844	NEW, per RG 1.183. Since the pH of the pool water is not maintained above 7, iodine species is assumed to be commensurate with charcoal filtration only where credited. The design basis FHA calculation uses only gaseous iodine (no particulate).
Activity Transport to the Environment	Activity reaching the refuel floor airspace will essentially be all exhausted within 2 hours by using an artificially high exhaust rate.	Puff release with a two-hour duration through SGTS.	NEW, per RG 1.183. All (99.9999%) activity is exhausted to the environment within 2 hours. This also provides an allowance for uneven mixing in the refuel floor

Updated Table 4.3-1 (FHA Parameters)			
Parameter or Method	AST Value	Pre-AST and Current Licensing Basis	Regulatory Basis and Comments
			airspace.
Release Pathways	Activity reaching the refuel floor airspace will essentially be all exhausted within 2 hours by using an artificially high exhaust rate. The release pathways are described in Table 4-1.	Filtration by SGTS with elevated release through the Main Stack.	NEW assumption. For conservatism, no credit is taken for filtration by the SGTS, or the elevated release resulting from exhaust through the Peach Bottom Main Stack.
Dose Conversion Factors	EPA Federal Guidance Reports 11 and 12	ICRP60 Dose conversion Factors, RG 1.109	NEW, per RG 1.183 implemented in RADTRAD.
Offsite Dose Limit	6.3 rem TEDE	6.25 rem Whole Body 75 rem Thyroid	NEW, per 10CFR 50 Appendix A, and RG 1.183.
Control Room Dose Limit	5 rem TEDE for the duration of the accident	5 rem Whole Body, or its equivalent to any part.	NEW, Per 10 CFR50 Appendix A, GDC 19 and 10 CFR50.67
CR Volume	Volume 176,000 ft^3	Volume 176,000 ft^3	No change.
MCREV Operation for release from ground hatch	MCREV operability is required in order to account for the most limiting grade level hatch plugs that could be opened during movement of irradiated fuel that has been irridiated less than 84 hours. 3000 cfm –10% filtered intake (sensitivity analyses show the lower bound of the 10% flow uncertainty is conservative) plus an allowance of 500 cfm for unfiltered inleakage.	Required.	NEW assumption, which is considered conservative per RG 1.183. The assumed 500 cfm bounds the tracer gas test results. Note, the measured tracer gas test value was statistically zero. However, the upper tolerance value of uncertainty is assumed for conservatism.

Updated Table 4.3-1 (FHA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Refuel Floor Ventilation Rate and Volume	An artificial volume of 100 ft^3 with an artificially high exhaust rate is assumed for simplicity. This evacuates 99.99999% of all activity within 2-hours.	Exhaust flow via SGTS	NEW assumption, which is considered conservative per RG 1.183.
CR Limiting X/Qs (0-2 hrs)	Limiting X/Qs (0 – 2 hr) Personnel Access Doors: 1.04E-03 sec/m^3 Railroad Bay Doors: 4.54E-03 sec/m^3 RB Roof Scuttle: 1.90E-03 sec/m^3 Ground Level Hatch 4: 1.28E-02 sec/m^3	Current licensing basis value is not appropriate with AST assumptions.	NEW, AST values utilize ARCON96 assumptions per RG 1.194. Values used are the highest values for either Unit 2 or Unit 3 for conservatism.
EAB Release Point Basis Limiting Dispersion Factors (0 – 2 hr)	Normal RB exhaust stack 4.25E-04 sec/m^3	Main exhaust stack	NEW assumption, which is considered conservative. Current licensing basis value is not appropriate with AST assumptions.
LPZ Release Point Basis and Limiting Dispersion Factors (0 – 8 hr)	Normal RB exhaust stack 4.81E-05 sec/m^3	Main exhaust stack	NEW assumption, which is considered conservative. Current licensing basis value is not appropriate with AST assumptions.

Table 2

Updated Table 4.3-1

Parameters Applicable to AST Control Rod Drop Accident Dose Considerations for Peach Bottom Atomic Power Station
Use of new parameters is acceptable per Control rod Drop Accident results below the Regulatory Limit as found within previously provided Calculation PM-1057, Revision 1.

Updated Table 4.3-1 (CRDA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Reactor Power	3528 MWth	3528 MWth 3514 MWth nominal	No change. Includes the currently licensed 0.38% margin for instrument uncertainty relative to the rated thermal power of 3514 MWt after the 1.62% thermal power optimization uprate.
Allowable Fuel Burnup and non-LOCA gap fractions	RG 1.183, Table 3. Fuel bundle peak burnup will not exceed 62 GWD/MTU, the maximum linear heat generation rate will not exceed 6.3 kW/ft for fuel with greater than 54 GWD/MTU.	N/A	NEW, Per RG 1.183. The current licensing basis bounding fuel damage assessment scenario, which is associated with a drop over the reactor core, is used and meets the requirements of RG 1.183, footnote 11.
Number of Failed Fuel Rods	1200 pins of equivalent 10x10 fuel in an 87.33 equivalent fuel pin array	330 pins on 7x7 basis as the bounding evaluation.	NEW bounding assumption, which is considered conservative.
Number of fuel rods in full core	66,720.12 (87.33 pins/assembly x 764 assemblies in core)	66,720.12 (87.33 pins/assembly x 764 assemblies in core)	No change.
Radial Peaking Factor	1.7	1.5	NEW bounding assumption, per RG 1.183.
Gap activity Release Potential with Peaking	0.030575 (0.017986 x 1.7)	N/A	NEW, per RG 1.183.
Fraction of Fuel in	0.0077	0.0088 (for gap and	NEW, per GE document

Updated Table 4.3-1 (CRDA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Failed Rods assumed to melt		melt fractions combined)	NEDO-31400A, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor."
Melted Fuel activity release fraction with peaking	0.000235 (0.030575 x 0.0077)		NEW, gap fractions per RG 1.183.
CRDA Radionuclide Inventory	From the 60 isotopes forming the standard RADTRAD library, with decay to 24 hours. Gap activities are per RG 1.183.	TID 14844	NEW design basis analysis used ORIGEN 2.1 to calculate values. Spent fuel source terms are based on the same bounding reactor core source terms as were used for the LOCA analysis. Use is based on RG 1.183 guidance. The Radionuclide inventory from the previous analysis was based on TID 14844 assumptions.
Dose Conversion Factors	EPA Federal Guidance Reports 11 and 12	ICRP60 Dose conversion Factors, RG 1.109	NEW, per RG 1.183 implemented in RADTRAD.
Offsite Dose Limit	6.3 rem TEDE	6.25 rem Whole Body 75 rem Thyroid	NEW, per 10CFR 50 Appendix A, and RG 1.183.
Control Room Dose Limit	5 rem TEDE for the duration of the accident	5 rem Whole Body, or its equivalent to any part.	NEW, Per 10 CFR50 Appendix A, GDC 19 and 10 CFR50.67
CR Volume	Volume 176,000 ft^3	Volume 176,000 ft^3	No change.
Isotopic Release Fractions From Fuel	10% of the core inventory of noble gases is released from the fuel gap. Other nuclide groups contained in the gap are released per RG		NEW assumption, which is considered conservative per RG 1.183.

Updated Table 4.3-1 (CRDA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
	1.183, Table 3. 100% noble gases and 50% iodines from melted fuel. All activity released from the fuel mixes instantaneously with the reactor coolant.		
Activity transported to the Turbine/Condenser	100% of all noble gases, 10% of the iodines, and 1% of the remaining nuclides		NEW assumption, which is considered conservative per RG 1.183.
Activity available for release from the Turbine/Condenser	100% of all noble gases, 10% of the iodines, and 1% of the remaining nuclides		NEW assumption, which is considered conservative per RG 1.183.
CR occupancy factor	1	1	No change
CR Breathing Rate	3.5E-04	3.47E-04	NEW, Per RG 1.183
CR Unfiltered Inleakage	1600 cfm	Current licensing basis value is not appropriate with AST assumptions.	NEW, Per RG 1.183
CR Normal (unfiltered) Intake Flow	20,600 cfm	Current licensing basis value is not appropriate with AST assumptions.	NEW, Per RG 1.183
Offsite Breathing Rate	3.5 E-04 0-8 hr 1.8 E-04 8-24 hr	3.47 E-04 1.75 E-04	NEW assumption, which is considered conservative per RG 1.183
CR Limiting X/Qs	Limiting X/Qs 0 – 2 hr: 1.18E-03 sec/m^3 2 - 8 hr: 9.08E-04 sec/m^3 8 - 24 hr: 4.14E-04 sec/m^3	Current licensing basis value is not appropriate with AST assumptions.	NEW, AST values utilize ARCON96 assumptions per RG 1.194. Values used are the highest values for either Unit 2 or Unit 3 for conservatism.

Updated Table 4.3-1 (CRDA Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
EAB Release Point Basis Limiting Dispersion Factors	0 – 2 hr: 4.25E-04 sec/m^3	Current licensing basis value is not appropriate with AST assumptions.	NEW assumption, whcih is considered conservative. Current licensing basis value is not appropriate with AST assumptions.
LPZ	0 – 8 hr: 2.08E-05 sec/m^3 8 – 24 hr: 1.37E-05 sec/m^3	Current licensing basis value is not appropriate with AST assumptions.	NEW assumption, which is considered conservative. Current licensing basis value is not appropriate with AST assumptions.

Table 3

Updated Table 4.3-1

Parameters Applicable to AST Main Steam Line Break Accident Dose Considerations for Peach Bottom Atomic Power Station
Use of new parameters is acceptable per Main Steam Line Break accident results below the Regulatory Limit as found within previously provided Calculation PM-1058, Revision 0

Updated Table 4.3-1 (MSLB Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Reactor Power	3528 MWth	3528 MWth 3514 MWth nominal	No change. Includes the currently licensed 0.38% margin for instrument uncertainty relative to the rated thermal power of 3514 MWt after the 1.62% thermal power optimization uprate.
Amount of Fuel Damage as a result of the MSLB	No fuel damage	No fuel damage	No change.
Iodine Activity Assumed in Reactor Coolant	Two cases (I-131 DEI): Iodine spike = 0.2 uCi/g Equilibrium Iodine = 4.0 uCi/g	Two cases (I-131 DEI): Iodine spike = 0.2 uCi/g Equilibrium Iodine = 4.0 uCi/g	No change. From UFSAR Section 14.6.5.2.1
CR HVAC	No emergency filtration system credit in AST analysis for conservatism	Rapid emergency HVAC actuation with filtration	NEW, Per RG 1.183.
MSIV closure time	10.5 seconds	10.5 seconds	No change. Per UFSAR section 14.6.5.1.1

Updated Table 4.3-1 (MSLB Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
Flashing Fraction of Liquid Water released	40%	N/A	NEW, per RG 1.183.
Fraction of liquid water contained in the steam	2%	2%	No change. Maximum carryover in steam to turbine
Mass release Data	Steam: 25,800 lb Liquid Water: 165,120 lb	Steam: 25,800 lb Liquid Water: 165,120 lb	No change. Per UFSAR Section 14.9.1.5
Iodine distribution	I-131 0.17 uCi/cc I-132 1.02 uCi/cc I-133 1.04 uCi/cc I-134 1.47 uCi/cc I-135 1.30 uCi/cc	I-131 0.17 uCi/cc I-132 1.02 uCi/cc I-133 1.04 uCi/cc I-134 1.47 uCi/cc I-135 1.30 uCi/cc	No change. From UFSAR Section 14.6.5.2.1
Noble Gas Distribution	Kr-83m:1.92E-03 uCi/g Kr-85m:3.44E-03 uCi/g Kr-85: 1.13E-05 uCi/g Kr-87: 1.13E-02 uCi/g Kr-88: 1.13E-02 uCi/g Kr-89: 7.33E-02 uCi/g Xe-131m: 8.46E-06 uCi/g Xe-133m: 1.63E-04 uCi/g Xe-133: 4.62E-03 uCi/g Xe-135m: 1.47E-02 uCi/g Xe-135: 1.24E-02 uCi/g Xe-137: 8.46E-02 uCi/g Xe-138: 5.02E-02 uCi/g	Kr-83m:1.92E-03 uCi/g Kr-85m:3.44E-03 uCi/g Kr-85: 1.13E-05 uCi/g Kr-87: 1.13E-02 uCi/g Kr-88: 1.13E-02 uCi/g Kr-89: 7.33E-02 uCi/g Xe-131m: 8.46E-06 uCi/g Xe-133m: 1.63E-04 uCi/g Xe-133: 4.62E-03 uCi/g Xe-135m: 1.47E-02 uCi/g Xe-135: 1.24E-02 uCi/g Xe-137: 8.46E-02 uCi/g Xe-138: 5.02E-02 uCi/g	No change
Control Room Occupancy Factor	1	1	No change
Dose Conversion Factors	EPA Federal Guidance Reports 11 and 12	ICRP60 Dose conversion Factors, RG 1.109	NEW, per RG 1.183 implemented in RADTRAD.
Offsite Dose Limit	Iodine Spike: 25 rem TEDE	Iodine Spike: 25 rem Whole	NEW, per 10

Updated Table 4.3-1 (MSLB Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
	Equilibrium Iodine: 2.5 rem TEDE	Body, 300 rem Thyroid Equilibrium Iodine: 2.5 rem, Whole Body and 30 rem Thyroid	CFR 50 Appendix A, and RG 1.183.
Control Room Dose Limit	5 rem TEDE for the duration of the accident	5 rem Whole Body, or its equivalent to any part.	NEW, Per 10 CFR 50 Appendix A, GDC 19 and 10 CFR50.67
CR Volume	Volume 176,000 ft^3	Volume 176,000 ft^3	No change.
Release Pathway	Ground level release from a double-ended rupture of a main steam pipe. The released steam plume is modeled as a hemispherical volume (cloud). This cloud is then carried towards the CR air intake by the wind at 1 meter per second. Inhalation doses based on concentrations at the CR air intake as the cloud passes by. Offsite doses use dispersion estimates as calculated using RG 1.5.	Directly to the environment 30m above grade.	NEW assumption, which is considered, conservative as justified in design analysis (PM-1058).
CR Limiting X/Qs	Limiting X/Qs - N/A Hemispherical cloud model used	Current licensing basis value is not appropriate with AST assumptions.	NEW assumption, which is considered conservative as justified in design analysis (PM-1058).

Updated Table 4.3-1 (MSLB Parameters)			
Parameter or Method	**AST Value**	**Pre-AST and Current Licensing Basis**	**Regulatory Basis and Comments**
EAB Limiting Dispersion Factors	4.29E-04 sec/m^3 (Recalculated value)	Current licensing basis value is not appropriate with AST assumptions.	NEW assumption, which is considered conservative. Current licensing basis value is not appropriate with AST assumptions.
LPZ	5.97E-05 sec/m^3	Current licensing basis value is not appropriate with AST assumptions.	NEW assumption, which is considered conservative. Current licensing basis value is not appropriate with AST assumptions.

Table 4

Updated Table 4.3-1

Peach Bottom Atomic Power Station
AST Design Inputs Used in the LOCA Analysis
(Updated with Current Licensing Basis Data and Justifications for Changes)

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
Containment Leakage Model Parameters		
Source Term		
Thermal Power Level	3,528 MWt (includes 0.38% margin relative to rated thermal power of 3,514 MWt)	**Unchanged** from currently licensed value
Extended Cycle Fuel Core Average Burnup	37.7 GWD/MTU	**Unchanged** from currently licensed value

Isotopic Core Inventory (Ci/MWt) (New Design Analysis values calculated using ORIGEN 2.1 for AST)					
Isotope	**Ci/MW$_t$**	**Isotope**	**Ci/MW$_t$**	**Isotope**	**Ci/MW$_t$**
CO-58*	1.529E+02	RU-103	4.202E+04	CS-136	2.027E+03
CO-60*	1.830E+02	RU-105	2.908E+04	CS-137	4.538E+03
KR-85	3.946E+02	RU-106	1.730E+04	BA-139	5.084E+04
KR-85M	8.313E+03	RH-105	2.752E+04	BA-140	4.896E+04
KR-87	1.633E+04	SB-127	2.896E+03	LA-140	5.019E+04
KR-88	2.303E+04	SB-129	8.638E+03	LA-141	4.640E+04
RB-86	6.518E+01	TE-127	2.873E+03	LA-142	4.532E+04
SR-89	2.798E+04	TE-127M	3.855E+02	CE-141	4.492E+04
SR-90	3.178E+03	TE-129	8.501E+03	CE-143	4.427E+04
SR-91	3.801E+04	TE-129M	1.267E+03	CE-144	3.596E+04
SR-92	4.017E+04	TE-131M	3.869E+03	PR-143	4.293E+04
Y-90	3.272E+03	TE-132	3.821E+04	ND-147	1.838E+04
Y-91	3.448E+04	I-131	2.687E+04	NP-239	5.397E+05
Y-92	4.029E+04	I-132	3.881E+04	PU-238	1.796E+02
Y-93	4.526E+04	I-133	5.556E+04	PU-239	1.200E+01
ZR-95	4.489E+04	I-134	6.165E+04	PU-240	1.288E+01
ZR-97	4.657E+04	I-135	5.192E+04	PU-241	6.182E+03
NB-95	4.512E+04	XE-133	5.491E+04	AM-241	9.528E+00
MO-99	5.078E+04	XE-135	2.228E+04	CM-242	2.388E+03
TC-99M	4.447E+04	CS-134	7.280E+03	CM-244	2.602E+02

* CO-58 & CO-60 activities are obtained from RADTRAD User's Manual, Table 1.4.3.2-3 (NUREG/CR-6604)

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
Radionuclide Composition		
Group	**Elements**	**Comments**
Noble Gases	Xe, Kr	**New** assumption **per RG 1.183**, Section 3.4, Table 5
Halogens	I, Br	
Alkali Metals	Cs, Rb	
Tellurium Group	Te, Sb, Se	
Barium, Strontium	Ba, Sr	
Noble Metals	Ru, Rh, Pd, Mo, Tc, Co	
Lanthanides	La, Zr, Nd, Eu, Nb, Pm, Pr, Sm, Y, Cm, Am	
Cerium	Ce, Pu, Np	
Timing of Release Phase **(New Assumption per RG 1.183**, Section 3.3, Table 4)		
Phase	**Onset**	**Duration**
Gap Release	2 min	0.5 hr
Early In-Vessel Release	0.5 hr	1.5 hr
BWR Core Inventory Fraction Released Into Containment (New Assumption per RG 1.183, Section 3.2, Table 1)		
Group	**Gap Release Phase**	**Early In-Vessel Release Phase**
Noble Gases	0.05	0.95
Halogens	0.05	0.25
Alkali Metals	0.05	0.20
Tellurium Metals	0.00	0.05
Ba, Sr	0.00	0.02
Noble Metals	0.00	0.0025
Cerium Group	0.00	0.0005
Lanthanides	0.00	0.0002
Iodine Chemical Form Released to the Containment		
Aerosol (CsI)	95%	**New** assumption **per RG 1.183**, Sections 3.5 and A.2
Elemental	4.85%	
Organic	0.15%	
Post-LOCA Drywell Pressure	49.1 psig	**Unchanged** from currently licensed value
Post-LOCA Drywell Temperature	280^0F	Reference 7.36, Section 8.3.4 **Unchanged** from currently licensed value

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
Activity Transport in Primary Containment		
Minimum Drywell Air Volume	159,000 ft^3	UFSAR Table 5.2.1 **Unchanged** from currently licensed value
Minimum Suppression Chamber Free Air Volume	127,700 ft^3	UFSAR Table 5.2.1 **Unchanged** from currently licensed value
Drywell plus Suppression Chamber Free Air Volume	286,700 ft^3 (159,000 ft^3 + 127,700 ft^3)	**Unchanged** from currently licensed value
Containment Elemental Iodine Removal Model	Standard Review Plan 6.5.2	**New** assumption **per SRP 6.5.2**, Page 6.5.2-10
Drywell Surface Area for Deposition/Plateout Model	33,200 ft^2	**New** Conservative assumption as **justified in Reference 7.37** Section 7.7.
Particulate (Aerosol) Deposition/Plateout Model	Powers' 10 percentile model	**New** assumption **per NUREG/CR-6604** (conservative application)
Containment Leak Rate into Reactor Building	0.700 w%/day for 2 min to 38 hrs 0.350 w%/day for > 38 hrs	**New** requirement **per TS 5.5.12** as **justified in Reference 7.37**.
Containment Drawdown Time	≤ 180 seconds (3 minutes)	**New** assumption as **justified in Reference 7.37**
SGT System Flow Rate	10,500 cfm	TS SR 3.6.4.1.4 **Unchanged** from currently licensed value
Reactor Building Volume	2,500,000 ft^3	**Unchanged** from currently licensed value
ESF Leakage Model Parameters		
Minimum Suppression Pool Water Volume	122,900 ft^3	**Unchanged** from currently licensed value
Sump Water Activity (New Assumption **per RG 1.183**, Sections A.5.1, A.5.3 & Tables 1 & 4)		
Group (RG 1.183)	**Gap Release Phase (RG 1.183)**	**Early In-Vessel Release Phase (RG 1.183)**
Timing Duration (Hrs)	2 min – 0.50 Hr (Conservatively earlier than actual end time of 0.52 hours)	0.50 – 2.0 Hr
Halogen	0.05	0.25
ESF Leakage Rate	10.0 gal/min (= 2 × 5.0 gal/min allowable leakage rate)	**New assumption to establish a new design basis** (as used in Reference 7.37) and applied per RG 1.183, Section A.5.2. **Justified in Reference 7.37**.
ESF Leakage Initiation Time and Duration	0 to 30 days	**New** conservative assumption **justified in Reference 7.37**
Suppression Pool Scrubbing	New assumption - Not credited	**RG 1.183**, Section A.3.5

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
Long-Term Suppression Pool Water pH	> 7.0	**New Calculated value PM-1056, Rev. 0** (Reference 7.33), page 11 and 9.1, Section A.2. No value previously calculated.
ESF Leakage Maximum Temperature	< 212°F	**Unchanged** from currently licensed value
Fraction of Iodine in ESF Leakage that becomes Airborne	0.10	**New** assumption **per RG 1.183 justified with Torus water temperature < 212°F**
Chemical Form of Iodine in ESF Leakage		
Elemental	97%	New assumption **per RG 1.183**, Section A.5.6
Organic	3%	
MSIV Leakage Model Parameters		
Total MSIV Leak Rate Through All Four Lines	360 scfh for < 38 hrs @ 49.1 psig (180 scfh for > 38 hrs)	**New** assumption **justified in Reference 7.37** (CLB value used is 46 scfh)
MSIV Leak Rate Through One Line With MSIV Failed	205 scfh for < 38 hrs @ 49.1 psig (102.5 scfh for >38 hrs)	**New** assumption **justified in Reference 7.37** - maximum leakage rate through any one line (CLB only has 46 scfh total)
MSIV Leak Rate Through Three Intact Lines		
First Intact Line	155 scfh for < 38 hrs @ 49.1 psig (77.5 scfh for > 38 hrs)	**New** assumption **justified in Reference 7.37** - remainder of unallocated leakage
Second Intact Line	0 scfh for < 30 days @ 49.1 psig	**New** assumption **justified in Reference 7.37** - remainder of unallocated leakage
Third Intact Line	0 scfh for < 30 days @ 49.1 psig	**New** assumption **justified in Reference 7.37** - remainder of unallocated leakage
Natural Removal Efficiency For Elemental Iodine In Each Steam Line Volume	50 percent	**New** assumption **justified in Reference 7.37** per AEB 98-03, Appendix B, page B-3 (Previous value not appropriate for AST)
Control Room Model Parameters		
CR Envelope Pressure Boundary Free Volume	176,000 ft^3	**Unchanged** from currently licensed value

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
MCREV Filtration System Actuation Time Following a LOCA	30 minutes	**New** conservative assumption **Justified in Reference 7.37** (Provides conservative time for unfiltered intake prior to initiation of emergency HVAC system.)
CR Emergency Ventilation Mode Air Intake Rate	3,000 cfm ± 10% 2,700 cfm maximizes dose	**Unchanged** from currently licensed value (TS 5.5.7). **AST values based on worst-case tolerance values** (nominal values previously used).
CR Unfiltered Inleakage during Normal Operation (< 0.5 hr)	18,500 cfm (includes ingress/egress inleakage of 10 cfm)	**New** conservative assumption **Justified based on Parametric Study in Attachment 1, Figure 1 of Reference 7.37.**
CR Unfiltered Inleakage during Emergency Ventilation Mode (> 0.5 hr)	**500 cfm** (includes ingress/egress inleakage of 10 cfm) **369 cfm by tracer gas testing (Note: The measured value was statistically zero. However, the upper tolerance value was used instead of zero for conservatism.)**	**New** conservative assumption **justified in Reference 7.37**. NCS Corporation Report for Control Room Envelope Inleakage Testing At Peach Bottom Atomic Power Station, 2004, (Reference 7.38)
CR Emergency Ventilation Mode Intake Charcoal and HEPA Filter Efficiencies		
Elemental Iodine	89% (CLB used 90%)	**New** conservative assumption **Justified in Reference 7.37**, Section 7.11.
Organic Iodide	89% (CLB used 90%)	
Particulate Aerosols	98% (CLB used 99%)	
CR χ/Qs For Containment & ESF Leakage Release Via Off-Gas Stack Release (CLB values not appropriate for AST)		
Time	**X/Q (sec/m^3)**	
0-2	2.72E-06	**New** values **from Design Analysis** (Reference 7.32). 24-96 hrs χ/Q value is conservatively used for 2-24 hrs χ/Q values.
2-8	1.46E-08	
8-24	1.46E-08	
24-96	1.46E-08	
96-720	4.21E-09	

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
CR X/Qs For MSIV Leakage Release Via Unit 2 TB/RB Exhaust Vent (CLB values not appropriate for AST)		
Time	**X/Q (sec/m^3)**	
0-2	1.18E-03	**New** values **from Design Analysis** (Reference 7.32). The higher Unit 2 RB Stack χ/Q values are conservative for use on Unit 3
2-8	9.08E-04	
8-24	4.14E-04	
24-96	2.90E-04	
96-720	2.26E-04	
CR Occupancy Factors and Breathing Rate		
Time (Hr)	**%**	
0-24	100	**No change** from currently used values (per RG 1.183, Section 4.2.6)
24-96	60	
96-720	40	
CR Breathing Rate	3.5E-04 m^3/sec	**New** value **per RG 1.183**, Section 4.2.6 (CLB used 3.47E-04)
Offsite Dose Receptor Release Model Parameters		
EAB X/Qs For Containment & ESF Leakage Release Via Off-Gas Stack Release (CLB values not appropriate for AST)		
Time (hrs)	**X/Q (sec/m^3)**	
0-0.5	5.30E-05	**New values from Design Analysis** (Reference 7.32).
0.5-2	8.89E-06	
2-720	8.89E-06	**New values from Design Analysis** (Reference 7.32) and used per RG 1.183, Section 4.1.5 (0.5-2 hr χ/Q value conservatively modeled after 2 hours)
EAB X/Q For MSIV Leakage Release (CLB values not appropriate for AST)		
Time (hrs)	**X/Q (sec/m^3)**	
0-2	4.25E-04	**New values from Design Analysis** (Reference 7.32)
2-720	4.25E-04	**New values from Design Analysis** (Reference 7.32) and used per RG 1.183, Section 4.1.5 (0-2 hr χ/Q value conservatively modeled after 2 hours)
EAB Breathing Rate	3.5E-04 m^3/sec	**RG 1.183**, Sections 4.1.3 & 4.1.5 (Previously used 3.47E-04)

Updated Table 4.3-1 (LOCA Parameters)		
Design Input Parameter	**AST Value Assigned**	**Comments**
LPZ X/Qs For Containment & ESF Leakage Release Via Off-Gas Stack Release (CLB values not appropriate for AST)		
Time (hrs)	**X/Q (sec/m^3)**	
0-0.5	1.75E-05	**New calculated values from Design Analysis** (Reference 7.32)
0.5-2	8.87E-06	
2-8	3.94E-06	
8-24	2.62E-06	
24-96	1.09E-06	
96-720	3.06E-07	
LPZ X/Qs For MSIV Leakage Release Via Unit 2 TB/RB Exhaust Vent (CLB values not appropriate for AST)		
Time (hrs)	**X/Q (sec/m^3)**	
0-2	4.81E-05	New calculated values from **Design Analysis** (Reference 7.32)
2-8	2.08E-05	
8-24	1.37E-05	
24-96	5.49E-06	
96-720	1.49E-06	
LPZ Breathing Rates		
Time (hrs)	**BR (m^3/sec)**	
0-8	3.5E-04	**New** assumption **per RG 1.183**, Sections 4.1.3 and 4.4 (Previously used unrounded values)
8-24	1.8E-04	
24-720	2.3E-04	

Table 5

RIS 2006-04 Conformance Table
Peach Bottom Atomic Power Station

RIS Issue	Licensee Comments
1. Level of Detail Contained in LARs	
(1) The AST amendment request should provide justification for each individual proposed change to the technical specifications (TS).	Provided in Section 2.0 of the Licensee's Evaluation for each individual proposed change to the TS.
(2) The AST amendment request should identify and justify each change to the licensing basis accident analyses.	Section 2.0 of the Licensee's Evaluation provides an overview justification. Section 4.0 and 5.0 provide the detailed justification. Updated Table 4.3-1 (included in this RAI Response) provides further clarity.
(3) The AST amendment request should contain enough details (e.g., assumptions, computer analyses input and output) to allow the NRC staff to confirm the dose analyses results in independent calculations.	Sufficient detail in tabular format is provided in Section 4.0 of the Licensee's Evaluation to allow the NRC staff to confirm the dose analyses results in independent calculations. In addition, the dose consequence calculations submitted contain computer input and output information to allow the NRC staff to confirm the dose analyses results in independent calculations.
Licensees should identify the most current analyses, assumptions, and TS changes in their submittal and supplements to the submittal.	The most current analyses, assumptions, and TS changes are identified throughout Attachment 1 of the License Amendment Request.
2. Main Steam Isolation Valve (MSIV) Leakage and Fission Product Deposition in Piping	
Any licensee who chooses to reference these AEB 98-03 assumptions should provide appropriate justification that the assumptions are applicable to their particular design.	This amendment request references the basic methodology used in the Perry Plant Application. However, it uses site-specific parameters and PBAPS design considerations.
If appropriate justification is provided, the suppression pool free air volume may be included provided there is a mechanism to ensure mixing between the drywell and wetwell.	This mixing is discussed in the design basis LOCA Calculation
For aerosol settling, only horizontal sections of piping should be credited.	Only horizontal sections of piping are credited for aerosol deposition.
Given the large uncertainty associated with iodine behavior in	Deposition of elemental iodine is credited and justified. No

RIS Issue	Licensee Comments
piping, deposition of gaseous iodine in piping should be omitted unless appropriate justification is provided (including providing estimates of the thermal and hydraulic conditions in the piping).	deposition of organic iodine in the MSIV leakage path is credited.
3. Control Room Habitability	
Use of non-ESF ventilation systems during a DBA should not be assumed unless the systems have emergency power and are part of the ventilation filter testing program in Section 5 of the TS.	No credit is taken for use of non-ESF ventilation systems during a DBA unless the operation of such a system (e.g., reactor building normal exhaust) makes it worse.
Generic Letter (GL) 2003-01, "Control Room Habitability" requested licensees to confirm the ability of their facility's control room to meet applicable habitability regulatory requirements. The GL placed emphasis on licensees confirming that the most limiting unfiltered inleakage into the control room envelope (CRE) was not greater than the value assumed in the DBA analyses.	Unfiltered inleakage testing was performed using the tracer gas method in response to GL 2003-01. The test indicated that the inleakage was statistically zero.
Some AST amendment requests proposed operating schemes for the control room and other ventilation systems which affect areas adjacent to the CRE and are different from the manner of operation and performance described in the response to the GL. without providing sufficient justification for the proposed changes in the operating scheme.	Control room and other ventilation systems, which affect areas adjacent to the CRE and are the same as the operation and performance described in the response to the GL.
4. Atmospheric Dispersion	
Licensees have the option to adopt the generally less conservative (more realistic) updated NRC staff guidance on determining *X/Q* values in support of design basis control room radiological habitability assessments provided in RG 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants".	CR *X/Q* values for releases were calculated using the computer code ARCON96, the methods of Regulatory Guide 1.194, and as supplemented using PAVAN.
Regulatory positions on X/Q values for offsite (i.e., exclusion area boundary and low population zone) accident radiological consequence assessments are provided in RG 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants".	The X/Q values for offsite locations were evaluated using PAVAN and the methods of Regulatory Guide 1.145.

RIS Issue	Licensee Comments
The submittal should include a site plan showing true North and indicating locations of all potential accident release pathways and control room intake and unfiltered inleakage pathways (whether assumed or identified during inleakage testing).	Appropriate plot plan showing true north is included in the design basis X/Q calculation provided (Attachments C and D of the Calculation PM-1055) and as supplemented in this response.
The submittal should include a justification for using control room intake X/Q values for modeling the unfiltered inleakage, if applicable.	The most limiting X/Q is used for CR unfiltered inleakage as described in response to Question 5.
The submittal should include a copy of the meteorological data inputs and program outputs along with a discussion of assumptions and potential deviations from staff guidelines. Meteorological data input files should be checked to ensure quality (e.g., compared against historical or other data and against the raw data to ensure that the electronic file has been properly formatted, any unit conversions are correct, and invalid data are properly identified).	The revised X/Q values used for the AST application have been developed using appropriate meteorological data.
When running the control room atmospheric dispersion model ARCON96, two or more files of meteorological data representative of each potential release height should be used if X/Q values are being calculated for both ground-level and elevated releases.	Two levels of meteorological data used in the calculation of ground level and elevated X/Qs have been provided.
In addition, licensees should be aware that (1) two levels of wind speed and direction data should always be provided as input to each data file, (2) fields of "nines" (e.g., 9999) should be used to indicate invalid or missing data, and (3) valid wind direction data should range from l° to 360°.	(1) Two levels of wind speed data are used where appropriate. (2) Invalid or missing data are correctly indicated using a field of "nines." (3) Wind direction data is from 1 to 360 degrees.
Licensees should also provide detailed engineering information when applying the default plume rise adjustment cited in RG 1.194 to control room *X/Q* values to account for buoyancy or mechanical jets of high energy releases.	No such adjustments are made relative to this LAR.
This information should demonstrate that the minimum effluent velocity during any time of the release over which the adjustment	N/A

RIS Issue	Licensee Comments
is being applied is greater than the 95th percentile wind speed at the height of release.	
When running the offsite atmospheric dispersion model PAVAN, two or more files of meteorological data representative of each potential release height should be used if *X/Q* values are being calculated for pathways with significantly different release heights (e.g., ground level versus elevated stack).	Five (5) years of meteorological data were used in the calculation.
The joint frequency distributions of wind speed, wind direction, and atmospheric stability data used as input to PAVAN should have a large number of wind speed categories at the lower wind speeds in order to produce the best results.	See response to question 13.
5. Modeling of ESF Leakage	
The radiological consequences from the postulated [ESF] leakage should be analyzed and combined with consequences postulated for other fission product release paths to determine the total calculated radiological consequences from the [loss-of-coolant accident] LOCA.	ESF leakage is analyzed and combined with the consequences postulated for other fission product release paths to determine the total calculated radiological consequences from the LOCA.
Licensees should account for ESF leakage at accident conditions in their dose analyses so as not to underestimate the release rate.	ESF leakage was accounted for at accident conditions.
In Appendix A to RG 1.183, Regulatory Position 5.5, the NRC staff provided a conservative value of 10 percent as the assumed amount of iodine that may become airborne from ESF leakage that is less than 212°F.	The RG 1.183 recommended value of 10% is used. The suppression pool pH value remains above 7.0 for the 30-day duration of the accident. Suppression pool temperature remains below 212°F.
Figure 3.1 in NUREG/CR-5950 can be used to quantify the amount of elemental iodine as a function of the sump water pH and the concentration of iodine in the solution. In some cases, however, licensees have misapplied this figure. Rather than using the total concentration of iodine (i.e., stable and radioactive), licensees based their assessment on only the radioactive iodine in the sump water. By using only the	The calculation methodology for containment sump pH control was based on the approach outlined in NUREG-1465 and NUREG/CR-5950. Both stable and radioactive iodine were considered.

RIS Issue	Licensee Comments
radioactive iodine, licensees have underestimated how much iodine evolves during postaccident conditions.	
6. Release Pathways	
Changes to the plant configuration associated with an LAR (e.g., an "open" containment during refueling) may require a reanalysis of the design basis dose calculations. A request for TS modifications allowing containment penetrations (i.e., personnel air lock, equipment hatch) to be open during refueling cannot rely on the current dose analysis if this analysis has not already considered these release pathways. Releases from personnel air locks and equipment hatches exposed to the environment and containment purge releases prior to containment isolation need to be addressed.	The AST application re-analyzes the design basis dose calculations for an open containment during refueling and following a fuel handling accident.
Licensees are responsible for identifying all release pathways and for considering these pathways in their AST analyses, consistent with any proposed modification.	Control room, exclusion area boundary, and low population zone atmospheric dispersion factors (X/Q) for all applicable release paths were reviewed and revised for AST as necessary.
7. Primary to Secondary Leakage	
Some analysis parameters can be affected by density changes that occur in the process steam. The NRC staff continues to find errors in LAR submittals concerning the modeling of primary to secondary leakage during a postulated accident. This issue is discussed in Information Notice (IN) 88-31, "Steam Generator Tube Rupture Analysis Deficiency," (Ref. 11) and Item 3.f in RIS 2001-19. An acceptable methodology for modeling this leakage is provided in Appendix F to RG 1.183, Regulatory Position 5.2.	N/A for BWR
8. Elemental Iodine Decontamination Factor (DF)	
Appendix B to RG 1.183, provides assumptions for evaluating the radiological consequences of a fuel handling accident. If the water depth above the damaged fuel is 23 feet or greater, Regulatory Position 2 states that "the decontamination factors for the elemental and organic [iodine] species are 500 and 1,	The depth of water over the damaged fuel is not less than 23 feet for the bounding fuel handling accident in the reactor cavity. Due to the submergence of the damaged fuel, the iodine release is assumed to experience a DF of 200 per RG 1.183.

RIS Issue	Licensee Comments
respectively, giving an overall effective decontamination factor of 200." However, an overall DF of 200 is achieved when the DF for elemental iodine is 285, not 500.	
9. Isotopes Used in Dose Assessments	
For some accidents (e.g., main steamline break and rod drop), licensees have excluded noble gas and cesium isotopes from the dose assessment. The inclusion of these isotopes should be addressed in the dose assessments for AST implementation.	Noble gas isotopes were included in the dose assessment. The contribution due to cesium has been shown to be insignificant in other Exelon submittals such as for Dresden, Quad Cities, Limerick, and Clinton. For this reason, and the fact that cesium is not specifically included in RG 1.183 Appendix D, Section 4.4, cesium is not included in the analysis.
10. Definition of Dose Equivalent 131	
In the conversion to an AST, licensees have proposed a modification to the TS definition of dose equivalent 131. Although different references are available for dose conversion factors, the TS definition should be based on the same dose conversion factors that are used in the determination of the reactor coolant dose equivalent iodine curie content for the main steamline break and steam generator tube rupture accident analyses.	The definition of DEI-131 is modified to reflect that the dose conversion factors are those listed in Federal Guidance Report 11.
11. Acceptance Criteria for Off-Gas or Waste Gas System Release	
As part of full AST implementation, some licensees have included an accident involving a release from their off-gas or waste gas system. Any licensee who chooses to implement AST for an off-gas or waste gas system release should base its acceptance criteria on 100 mrem TEDE. Licensees may also choose not to implement AST for this accident and continue with their existing analysis and acceptance criteria of 500 mrem whole body.	Accident not included with this submittal.
12. Containment Spray Mixing	
Some plants with mechanical means for mixing containment air have assumed that the containment fans intake air solely from a sprayed area and discharge it solely to an unsprayed region or	Containment spray is not credited in this submittal.

RIS Issue	Licensee Comments
vice versa. Without additional analysis, test measurements or further justification, it should be assumed that the intake of air by containment ventilation systems is supplied proportionally to the sprayed and unsprayed volumes in containment.	

ATTACHMENT A

PAVAN X/Q (sec/m^3)

Off-Gas Stack and Reactor Building Stacks EAB X/Q Values[1, 2]

RELEASE LOCATION	X/Q PARAMETER[3]	0-0.5 hour	0-2 hour	0-8 hour	8-24 hour	1-4 day	4-30 day	JFD Wind Speed Category Compliance[4]
EAB (823 m)								
Off-Gas Stack								
Tower 2 320' winds; Tower 2 316' - 33' stability	Direction-Specific Max	NA	5.50E-06 (N)	1.76E-06 (WSW)	1.06E-06 (WSW)	3.53E-07 (W)	8.86E-08 (W)	RG 1.23, Revision 0
		NA	6.02E-06 (SW)	1.88E-06 (SW)	1.08E-06 (WSW)	3.73E-07 (W)	9.29E-08 (W)	RG 1.23, Revision 1
	Site Limit	NA	8.89E-06	3.14E-06	1.87E-06	6.03E-07	1.19E-07	RG 1.23, Revision 0
		NA	**9.17E-06**	**3.24E-06**	**1.92E-06**	**6.22E-07**	**1.23E-07**	RG 1.23, Revision 1
	Max Fumigation	**5.30E-05 (S, W, WNW, SSE)**	NA	NA	NA	NA	NA	RG 1.23, Revision 0
		5.30E-05 (S, W, WNW, SSE)	NA	NA	NA	NA	NA	RG 1.23, Revision 1
Units 2 and 3 Reactor Building Stacks								
Tower 2 33' winds; Tower 2 150' - 33' stability	Direction-Specific Max	NA	3.46E-04 (ENE)	1.79E-04 (ENE)	1.29E-04 (ENE)	6.33E-05 (ENE)	2.27E-05 (ENE)	RG 1.23, Revision 0
		NA	3.54E-04 (E)	1.85E-04 (E)	1.34E-04 (E)	6.61E-05 (E)	2.40E-05 (E)	RG 1.23, Revision 1
	Site Limit	NA	2.45E-04	1.34E-04	9.95E-05	5.19E-05	2.04E-05	RG 1.23, Revision 0
		NA	2.95E-04	1.59E-04	1.16E-04	5.95E-05	2.27E-05	RG 1.23, Revision 1
Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch								
River Tower 45' winds; Tower 1A 89' - 33' stability	Direction-Specific Max	NA	4.25E-04 (E)	2.26E-04 (SE)	1.66E-04 (SE)	8.45E-05 (SE)	3.22E-05 (SE)	RG 1.23, Revision 0
		NA	**4.51E-04 (SE)**	**2.42E-04 (SE)**	**1.77E-04 (SE)**	**8.97E-05 (SE)**	**3.39E-05 (SE)**	RG 1.23, Revision 1
	Site Limit	NA	4.05E-04	2.19E-04	1.61E-04	8.28E-05	3.18E-05	RG 1.23, Revision 0
		NA	4.08E-04	2.22E-04	1.64E-04	8.47E-05	3.28E-05	RG 1.23, Revision 1

1 Blue highlighting indicates X/Q values obtained from Calculation PM-1055, Revision 0.
2 Non-blue highlighting indicates X/Q values additionally generated for purpose of providing AADB RAI 13 responses.
3 The highest of the Direction-Specific and the Site Limit values are indicated in bold.
4 RG 1.23, Revision 0 and RG 1.23, Revision 1 (March 2007) wind speed categories are shown in Attachment A, Sheet 3 of 6.

ATTACHMENT A

PAVAN X/Q (sec/m^3)

Off-Gas Stack and Reactor Building Stacks LPZ X/Q Values[1, 2]

<table>
<tr><th>RELEASE LOCATION</th><th>X/Q PARAMETER[3]</th><th>0-0.5 hour</th><th>0-2 hour</th><th>0-8 hour</th><th>8-24 hour</th><th>1-4 day</th><th>4-30 day</th><th>JFD Wind Speed Category Compliance[4]</th></tr>
<tr><td colspan="9">LPZ (7300 m)</td></tr>
<tr><td colspan="9">Off-Gas Stack</td></tr>
<tr><td rowspan="6">Tower 2 320' winds; Tower 2 316' - 33' stability</td><td rowspan="2">Direction-Specific Max</td><td>NA</td><td>5.29E-06 (N)</td><td>2.56E-06 (N)</td><td>1.78E-06 (N)</td><td>8.08E-07 (N)</td><td>2.60E-07 (N)</td><td>RG 1.23, Revision 0</td></tr>
<tr><td>NA</td><td>5.67E-06 (N)</td><td>2.71E-06 (N)</td><td>1.88E-06 (N)</td><td>8.44E-07 (N)</td><td>2.67E-07 (N)</td><td>RG 1.23, Revision 1</td></tr>
<tr><td rowspan="2">Site Limit</td><td>NA</td><td>8.87E-06</td><td>3.94E-06</td><td>2.62E-06</td><td>1.09E-06</td><td>3.06E-07</td><td>RG 1.23, Revision 0</td></tr>
<tr><td>NA</td><td>9.05E-06</td><td>4.01E-06</td><td>2.67E-06</td><td>1.10E-06</td><td>3.10E-07</td><td>RG 1.23, Revision 1</td></tr>
<tr><td rowspan="2">Max Fumigation</td><td>1.75E-05 (SW, WSW, NW, N)</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td><td>RG 1.23, Revision 0</td></tr>
<tr><td>1.75E-05 (SW, WSW, NW, N)</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td><td>RG 1.23, Revision 1</td></tr>
<tr><td colspan="9">Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch</td></tr>
<tr><td rowspan="4">Tower 2 33' winds; Tower 2 150' - 33' stability</td><td rowspan="2">Direction-Specific Max</td><td>NA</td><td>4.81E-05 (ENE)</td><td>2.08E-05 (ENE)</td><td>1.37E-05 (ENE)</td><td>5.49E-06 (ENE)</td><td>1.49E-06 (ENE)</td><td>RG 1.23, Revision 0</td></tr>
<tr><td>NA</td><td>4.82E-05 (E)</td><td>2.10E-05 (E)</td><td>1.39E-05 (E)</td><td>5.66E-06 (E)</td><td>1.55E-06 (E)</td><td>RG 1.23, Revision 1</td></tr>
<tr><td rowspan="2">Site Limit</td><td>NA</td><td>3.07E-05</td><td>1.43E-05</td><td>9.74E-06</td><td>4.25E-06</td><td>1.29E-06</td><td>RG 1.23, Revision 0</td></tr>
<tr><td>NA</td><td>3.65E-05</td><td>1.67E-05</td><td>1.13E-05</td><td>4.82E-06</td><td>1.42E-06</td><td>RG 1.23, Revision 1</td></tr>
</table>

[1] Blue highlighting indicates X/Q values obtained from calculation PM-1055, Revision 0.
[2] Non-blue highlighting indicates X/Q values additionally generated for purpose of providing AADB RAI 13 responses.
[3] The highest of the Direction-Specific and the Site Limit values are indicated in bold.
[4] RG 1.23, Revision 0 and RG 1.23, Revision 1 (March 2007) wind speed categories are shown in Attachment A, Sheet 3 of 6.

ATTACHMENT A

PAVAN X/Q Wind Speed Categories

Wind Speed Categories[a] (Regulatory Guide 1.23, Revision 0)	
Category	Wind Speed (mph)
1 (Calm)[b]	<0.5
2	>=0.5 to <3.5
3	>=3.5 to <7.5
4	>=7.5 to <12.5
5	>=12.5 to <18.5
6	>=18.5 to <24
7	>=24

Wind Speed Categories[a] (Regulatory Guide 1.23, Revision 1)	
Category	Wind Speed (mph)
1 (Calm)[b]	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.30
8	>=11.30 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

[a] To be inclusive of all monitored wind speeds, a midpoint was assumed between each designated wind speed category.

[b] The higher of the starting speeds of the Climatronics® wind vane and anemometer equipment (i.e. 0.50 mph) was used as the threshold for calm winds, per Regulatory Guide 1.145, Section 1.1.

ATTACHMENT A

PAVAN Results for Off-Gas Stack to Control Room Intake X/Q Calculations[1, 2]

Averaging Period	JFD Wind Speed Category Compliance	Modeled Horizontal Distance (m) from Stack to Control Room Intake											
		209 (Actual Distance)	280	300	500[3]	750	1000	1500	2000	3000	4000	5000	6000
		X/Q (sec/m³) [6]											
0-2 hr[4, 5]	RG 1.23, Revision 0	2.72E-06	2.72E-06	2.72E-06	2.72E-06	2.31E-06	2.06E-06	1.95E-06	1.83E-06	1.77E-06	1.71E-06	1.70E-06	1.60E-06
	RG 1.23, Revision 1	**3.31E-06**	**3.31E-06**	**3.31E-06**	**<u>3.31E-06</u>**	2.60E-06	2.32E-06	2.18E-06	2.05E-06	1.95E-06	1.87E-06	1.86E-06	1.75E-06
1-4 day[4, 5]	RG 1.23, Revision 0	2.03E-08	1.50E-07	1.94E-07	3.50E-07	2.80E-07	2.34E-07	2.07E-07	2.15E-07	2.50E-07	2.59E-07	2.58E-07	2.47E-07
	RG 1.23, Revision 1	2.28E-08	1.68E-07	2.18E-07	**<u>3.93E-07</u>**	3.02E-07	2.55E-07	2.26E-07	2.34E-07	2.65E-07	2.74E-07	2.72E-07	2.62E-07
4-30 day[4, 5]	RG 1.23, Revision 0	1.06E-09	2.60E-08	3.95E-08	1.01E-07	7.83E-08	6.31E-08	5.35E-08	6.38E-08	8.36E-08	8.93E-08	8.86E-08	8.43E-08
	RG 1.23, Revision 1	1.14E-09	2.79E-08	4.23E-08	**<u>1.09E-07</u>**	8.26E-08	6.75E-08	5.77E-08	6.61E-08	8.60E-08	9.17E-08	9.07E-08	8.67E-08

[1] Blue highlighting indicates X/Q values obtained from calculation PM-1055, Revision 0.
[2] Non-blue highlighting indicates X/Q values additionally generated for purpose of providing AADB RAI 13 responses.
[3] Maximum hourly X/Q (which is assigned to represent the 0-2 hour period) is actually predicted to occur at 500 m; however, in accordance with PAVAN model methodology for elevated releases, this maximum value is conservatively also assigned to any lesser desired boundary distance.
[4] Averaging period maxima are indicated in bold.
[5] Underlined values are incorporated into ARCON96 determination of Control Room Intake per NRC RG 1.194, Section 3.2.2.
[6] The maximum of the Direction-Specific Max and Site Limit values is listed.

Off-Gas Stack to Control Room Intake X/Q Summary
(Calculated in accordance with RG 1.194, Section 3.2.2)

			X/Q Values (sec/m^3)				
Model	Horizontal Distance (m)	Release Height (m) [1]	0-2 hr	2-8 hr	8-24 hrs	1-4 days	4-30 days
ARCON96[2]	209	112	1.00E-15	1.00E-15	1.00E-15	7.25E-15	5.92E-15
PAVAN [3, 4]	209 (actual distance)	72.1	3.31E-06	NA[5]	NA	2.28E-08	1.14E-09
PAVAN [3, 4]	280	72.1	3.31E-06	NA	NA	1.68E-07	2.79E-08
PAVAN [3, 4]	300	72.1	3.31E-06	NA	NA	2.18E-07	4.23E-08
PAVAN [3, 4]	500	72.1	3.31E-06	NA	NA	3.93E-07	1.09E-07
PAVAN [3, 4]	750	72.1	2.60E-06	NA	NA	3.02E-07	8.26E-08
PAVAN [3, 4]	1000	72.1	2.32E-06	NA	NA	2.55E-07	6.75E-08
PAVAN [3, 4]	1500	72.1	2.18E-06	NA	NA	2.26E-07	5.77E-08
PAVAN [3, 4]	2000	72.1	2.05E-06	NA	NA	2.34E-07	6.61E-08
PAVAN [3, 4]	3000	72.1	1.95E-06	NA	NA	2.65E-07	8.60E-08
PAVAN [3, 4]	4000	72.1	1.87E-06	NA	NA	2.74E-07	9.17E-08
PAVAN [3, 4]	5000	72.1	1.86E-06	NA	NA	2.72E-07	9.07E-08
PAVAN [3, 4]	6000	72.1	1.75E-06	NA	NA	2.62E-07	8.67E-08
X/Q values calculated according to RG 1.194, Section 3.2.2			**3.31E-06**	**1.00E-15**	**1.00E-15**	**1.64E-08**	**4.54E-09**

[1] The release height for PAVAN model runs is measured from the Control Room Intake elevation instead of plant grade per RG 1.194, Section 3.2.2.

[2] ARCON96 X/Q values, taken from Table 2-2 in Calculation PM-1055, Revision 0.

[3] The higher of the max sector X/Q and site limit value is selected.

[4] The higher of the RG 1.23, Revision 0 and RG 1.23, Revision 1 X/Q values was selected.

[5] Not applicable

ATTACHMENT A

X/Q (sec/m^3) Results Summary

(Incorporating revisions to Table 4-1 from PM-1055, per AADB RAI 13)

RECEPTOR	RELEASE POINT	0 – 0.5 hour	0-2 hour	2-8 hour	8-24 hour	1-4 day	4-30 day
Control Room Intake	Off-Gas Stack		3.31E-06	1.00E-15	1.00E-15	1.64E-08	4.54E-09
	Unit 2 Reactor Building Stacks		1.18E-03	9.08E-04	4.14E-04	2.90E-04	2.26E-04
	Unit 3 Reactor Building Stacks		1.18E-03	8.91E-04	4.00E-04	2.51E-04	1.98E-04
EAB (823 m)	Off-Gas Stack	5.30E-05	9.17E-06	3.24E-06*	1.92E-06	6.22E-07	1.23E-07
	Units 2 and 3 Reactor Building Stacks, RB Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch		4.51E-04 (SE)	2.42E-04* (SE)	1.77E-04 (SE)	8.97E-05 (SE)	3.39E-05 (SE)
LPZ (7,300 m)	Off-Gas Stack	1.75E-05	9.05E-06	4.01E-06*	2.67E-06	1.10E-06	3.10E-07
	Units 2 and 3 Reactor Building Stacks, RB Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch		4.82E-05 (E)	2.10E-05* (E)	1.39E-05 (E)	5.66E-06 (E)	1.55E-06 (E)

*PAVAN result representing 0-8 hour time period.

ATTACHMENT B

Peach Bottom

Joint Frequency Distribution
1984-1988
Tower 2
320' wind
316'-33' Delta T

	Wind Speed Category(1)	Wind Direction Category N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calms	Total
1 (A)	1(Calm)																	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0		3
	4	0	2	10	10	15	3	0	0	0	0	0	0	0	0	0	0		40
	5	5	6	10	23	59	25	2	0	0	1	2	0	0	0	0	1		134
	6	1	3	11	18	43	40	10	4	2	2	2	0	1	3	0	0		140
	7	0	6	10	11	13	17	9	0	7	4	3	3	2	3	0	5		93
	8	0	1	2	13	8	3	9	0	4	3	0	6	13	7	3	4		76
	9	2	4	9	11	2	3	7	0	6	2	2	1	14	5	2	14		84
	10	1	2	0	1	0	1	0	0	0	0	0	2	10	2	0	1		20
	11	1	0	0	0	0	1	0	0	0	0	0	1	6	5	1	1		16
	Subtotal	10	24	52	87	143	93	37	4	19	12	9	13	46	25	6	26	0	606
2 (B)	1(Calm)																	0	0
	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		2
	3	0	1	1	9	5	0	2	0	0	0	0	0	0	0	0	0		18
	4	1	7	5	8	21	5	1	0	0	0	0	0	1	0	1	0		50
	5	12	15	9	11	34	19	6	1	1	4	3	1	3	1	2	3		125
	6	1	11	11	18	6	21	11	4	4	4	4	2	3	5	1	7		113
	7	2	5	4	2	5	9	13	5	17	9	6	5	13	2	1	12		110
	8	3	0	3	1	3	0	9	6	14	5	6	7	10	8	3	15		93
	9	8	2	1	1	0	2	5	3	22	5	3	13	21	15	6	20		127
	10	1	3	0	0	0	1	1	1	6	1	1	2	11	12	5	6		51
	11	0	0	1	0	0	0	0	0	1	1	0	1	7	10	0	0		21
	Subtotal	28	45	36	50	74	57	48	20	65	29	23	31	69	53	19	63	0	710
3 (C)	1(Calm)																	0	0
	2	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0		5
	3	0	3	10	14	1	0	0	0	0	0	0	0	0	0	0	0		28
	4	4	7	11	16	31	17	2	0	1	0	0	0	0	0	0	1		90
	5	18	14	15	17	17	40	6	4	11	4	7	3	2	2	3	16		179
	6	26	12	8	11	10	21	26	13	20	13	9	4	16	6	8	35		238
	7	21	6	3	8	5	11	31	10	40	14	15	14	23	13	9	45		268
	8	8	8	0	3	2	3	15	12	37	17	11	15	11	21	18	43		224
	9	14	2	4	2	2	3	7	5	48	18	16	24	48	45	26	74		338
	10	4	1	0	0	1	2	0	1	10	0	3	3	29	27	22	14		117
	11	1	3	0	0	0	0	0	0	1	0	2	2	16	33	12	4		74
	Subtotal	96	58	53	72	69	97	87	45	168	66	63	65	145	147	98	232	0	1561
4 (D)	1(Calm)																	2	2
	2	18	18	28	26	28	20	14	13	12	6	9	6	8	19	8	10		243
	3	41	40	80	93	87	66	31	22	29	17	23	9	18	19	28	40		643
	4	67	53	78	99	130	77	54	50	39	31	28	24	30	19	40	50		869
	5	209	119	120	174	227	179	192	134	171	110	98	90	89	59	118	231		2320
	6	216	175	125	187	215	168	282	234	320	203	128	80	109	115	186	390		3133
	7	237	151	118	123	134	129	212	204	330	193	142	89	134	160	235	438		3029
	8	233	99	80	54	103	102	129	147	274	132	80	103	142	196	332	406		2612
	9	278	113	52	44	87	94	107	58	345	108	91	139	311	543	821	694		3885
	10	69	28	13	11	24	24	15	10	96	21	15	20	211	392	489	230		1668
	11	25	10	10	2	18	7	8	1	40	6	5	12	124	227	256	94		845
	Subtotal	1393	806	704	813	1053	866	1044	873	1656	827	619	572	1176	1749	2513	2583	2	19249
5 (E)	1(Calm)																	6	6
	2	21	15	15	20	24	17	26	16	26	16	17	19	30	17	23	11		313
	3	39	29	21	41	36	43	35	43	44	40	42	35	24	19	16	23		530
	4	50	43	35	51	65	48	90	69	60	65	63	36	42	23	30	36		806
	5	137	92	91	138	168	113	186	176	263	196	164	111	102	82	112	115		2246
	6	177	131	95	87	123	134	205	234	432	273	191	116	120	116	154	200		2788
	7	180	79	69	40	68	116	152	195	423	257	165	149	193	161	255	213		2715
	8	102	30	25	9	37	61	88	142	284	182	99	157	213	232	277	276		2214
	9	110	26	17	6	39	46	69	103	367	150	159	177	417	441	493	336		2956
	10	24	10	3	4	11	20	16	11	72	19	27	38	88	124	101	48		616
	11	8	1	6	1	21	3	9	1	9	2	2	2	10	12	10	14		111
	Subtotal	848	456	377	397	592	601	876	990	1980	1200	929	840	1239	1227	1471	1272	6	15301
6 (F)	1(Calm)																	5	5
	2	16	7	13	10	11	12	10	12	12	12	15	15	14	13	13	7		192
	3	10	12	9	16	20	11	18	20	11	20	17	18	16	15	13	15		241
	4	26	13	14	10	13	18	27	34	33	29	27	36	22	18	18	20		358
	5	53	19	18	17	15	28	43	44	75	89	99	64	43	39	60	59		765
	6	62	19	7	10	14	18	37	32	89	72	105	77	88	49	69	53		801
	7	29	9	6	0	5	11	18	46	46	46	66	85	85	74	87	57		670
	8	12	4	3	0	0	2	7	15	40	19	31	57	85	55	67	47		444
	9	2	0	0	0	0	1	4	6	24	20	23	80	128	104	61	19		472
	10	0	0	0	0	0	0	0	0	1	3	1	21	23	23	0	5		77
	11	1	0	0	0	4	0	0	0	0	0	0	1	1	0	0	0		7
	Subtotal	211	83	70	63	82	101	164	209	331	310	384	454	505	390	388	282	5	4032

ATTACHMENT B

7 (G)	1(Calm)																	0	0
	2	7	9	6	6	8	2	1	7	8	8	1	10	8	8	7	10		106
	3	4	5	5	4	5	3	3	2	9	1	5	8	5	6	6	9		80
	4	4	9	5	4	5	1	11	4	8	9	6	8	7	8	11	12		112
	5	35	8	15	13	7	5	12	5	22	19	22	19	25	22	44	34		307
	6	17	3	5	4	3	1	8	3	6	16	36	25	28	26	53	62		296
	7	7	4	1	0	0	1	4	3	8	4	16	40	27	20	41	29		205
	8	0	0	0	0	0	0	2	1	1	5	10	23	37	10	17	8		114
	9	1	0	0	0	0	0	0	1	1	0	5	14	24	32	5	4		87
	10	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0		5
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	75	38	37	31	28	13	41	26	63	62	101	149	162	134	184	168	0	1312
	Total	2661	1510	1329	1513	2041	1828	2297	2167	4282	2506	2128	2124	3342	3725	4679	4626	13	42771

Notes:

1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.3
8	>=11.3 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

ATTACHMENT B

Peach Bottom

Joint Frequency Distribution

1984-1988

Tower 2

320' wind

316'-33' Delta T

	Wind Speed Category[1]	Wind Direction Category 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Calm	Total
1 (A)	1(Calm)																	0.000000	0.000000
	2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	3	0.000000	0.000000	0.000000	0.000000	0.007014	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.007014
	4	0.000000	0.004676	0.023380	0.023380	0.035070	0.007014	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.093521
	5	0.011690	0.014028	0.023380	0.053775	0.137944	0.058451	0.004676	0.000000	0.000000	0.002338	0.004676	0.000000	0.000000	0.000000	0.000000	0.002338		0.313296
	6	0.002338	0.007014	0.025718	0.042085	0.100535	0.093521	0.023380	0.009352	0.004676	0.004676	0.004676	0.000000	0.002338	0.007014	0.000000	0.000000		0.327325
	7	0.000000	0.014028	0.023380	0.025718	0.030394	0.039747	0.021042	0.000000	0.016366	0.009352	0.007014	0.007014	0.004676	0.007014	0.000000	0.011690		0.217437
	8	0.000000	0.002338	0.004676	0.030394	0.018704	0.007014	0.021042	0.000000	0.009352	0.007014	0.000000	0.014028	0.030394	0.016366	0.007014	0.009352		0.177690
	9	0.004676	0.009352	0.021042	0.025718	0.004676	0.007014	0.016366	0.000000	0.014028	0.004676	0.004676	0.002338	0.032732	0.011690	0.004676	0.032732		0.196395
	10	0.002338	0.004676	0.000000	0.002338	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.004676	0.023380	0.004676	0.000000	0.002338		0.046761
	11	0.002338	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.014028	0.011690	0.002338	0.002338		0.037409
	Subtotal	0.023380	0.056113	0.121578	0.203409	0.334339	0.217437	0.086507	0.009352	0.044423	0.028056	0.021042	0.030394	0.107550	0.058451	0.014028	0.060789	0.000000	1.416848
2 (B)	1 (Calm)																	0.000000	0.000000
	2	0.000000	0.002338	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.004676
	3	0.000000	0.002338	0.002338	0.021042	0.011690	0.000000	0.004676	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.042085
	4	0.002338	0.016366	0.011690	0.018704	0.049099	0.011690	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.002338	0.000000		0.116902
	5	0.028056	0.035070	0.021042	0.025718	0.079493	0.044423	0.014028	0.002338	0.002338	0.009352	0.007014	0.002338	0.007014	0.002338	0.004676	0.007014		0.292254
	6	0.002338	0.025718	0.025718	0.042085	0.014028	0.049099	0.025718	0.009352	0.009352	0.009352	0.009352	0.004676	0.007014	0.011690	0.002338	0.016366		0.264198
	7	0.004676	0.011690	0.009352	0.004676	0.011690	0.021042	0.030394	0.011690	0.039747	0.021042	0.014028	0.011690	0.030394	0.004676	0.002338	0.028056		0.257184
	8	0.007014	0.000000	0.007014	0.002338	0.007014	0.000000	0.021042	0.014028	0.032732	0.011690	0.014028	0.016366	0.023380	0.018704	0.007014	0.035070		0.217437
	9	0.018704	0.004676	0.002338	0.002338	0.000000	0.004676	0.011690	0.007014	0.051437	0.011690	0.007014	0.030394	0.049099	0.035070	0.014028	0.046761		0.296930
	10	0.002338	0.007014	0.000000	0.000000	0.000000	0.002338	0.002338	0.002338	0.014028	0.002338	0.002338	0.004676	0.025718	0.028056	0.011690	0.014028		0.119240
	11	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.002338	0.000000	0.002338	0.016366	0.023380	0.000000	0.000000		0.049099
	Subtotal	0.065465	0.105211	0.084169	0.116902	0.173014	0.133268	0.112226	0.046761	0.151972	0.067803	0.053775	0.072479	0.161324	0.123916	0.044423	0.147296	0.000000	1.660003
3 (C)	1 (Calm)																	0.000000	0.000000
	2	0.000000	0.004676	0.004676	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.011690
	3	0.000000	0.007014	0.023380	0.032732	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.065465
	4	0.009352	0.016366	0.025718	0.037409	0.072479	0.039747	0.004676	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338		0.210423
	5	*0.042085*	*0.032732*	*0.035070*	*0.039747*	*0.039747*	*0.093521*	*0.014028*	*0.009352*	*0.025718*	*0.009352*	*0.016366*	*0.007014*	*0.004676*	*0.004676*	*0.007014*	*0.037409*		0.418508
	6	0.060789	0.028056	0.018704	0.025718	0.023380	0.049099	0.060789	0.030394	0.046761	0.030394	0.021042	0.009352	0.037409	0.014028	0.018704	0.081831		0.556452
	7	0.049099	0.014028	0.007014	0.018704	0.011690	0.025718	0.072479	0.023380	0.093521	0.032732	0.035070	0.032732	0.053775	0.030394	0.021042	0.105211		0.626593
	8	0.018704	0.018704	0.000000	0.007014	0.004676	0.007014	0.035070	0.028056	0.086507	0.039747	0.025718	0.035070	0.025718	0.049099	0.042085	0.100535		0.523719
	9	0.032732	0.004676	0.009352	0.004676	0.004676	0.007014	0.016366	0.011690	0.112226	0.042085	0.037409	0.056113	0.112226	0.105211	0.060789	0.173014		0.790255
	10	0.009352	0.002338	0.000000	0.000000	0.002338	0.004676	0.000000	0.002338	0.023380	0.000000	0.007014	0.007014	0.067803	0.063127	0.051437	0.032732		0.273550
	11	0.002338	0.007014	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.004676	0.004676	0.037409	0.077155	0.028056	0.009352		0.173014
	Subtotal	0.224451	0.135606	0.123916	0.168338	0.161324	0.226789	0.203409	0.105211	0.392790	0.154310	0.147296	0.151972	0.339015	0.343691	0.229127	0.542424	0.000000	3.649669
4 (D)	1 (Calm)																	0.004676	0.004676
	2	0.042085	0.042085	0.065465	0.060789	0.065465	0.046761	0.032732	0.030394	0.028056	0.014028	0.021042	0.014028	0.018704	0.044423	0.018704	0.023380		0.568142
	3	0.095859	0.093521	0.187043	0.217437	0.203409	0.154310	0.072479	0.051437	0.067803	0.039747	0.053775	0.021042	0.042085	0.044423	0.065465	0.093521		1.503355
	4	0.156648	0.123916	0.182367	0.231465	0.303944	0.180029	0.126254	0.116902	0.091183	0.072479	0.065465	0.056113	0.070141	0.044423	0.093521	0.116902		2.031750
	5	0.488649	0.278226	0.280564	0.406818	0.530733	0.418508	0.448902	0.313296	0.399804	0.257184	0.229127	0.210423	0.208085	0.137944	0.275888	0.540086		5.424236
	6	0.505015	0.409156	0.292254	0.437212	0.502677	0.392790	0.659325	0.547100	0.748170	0.474621	0.299268	0.187043	0.254846	0.268874	0.434874	0.911833		7.325057
	7	0.554114	0.353043	0.275888	0.287578	0.313296	0.301606	0.495663	0.476959	0.771551	0.451240	0.332001	0.208085	0.313296	0.374085	0.549438	1.024058		7.081901
	8	0.544762	0.231465	0.187043	0.126254	0.240817	0.238479	0.301606	0.343691	0.640621	0.308620	0.187043	0.240817	0.332001	0.458254	0.776227	0.949241		6.106942
	9	0.649973	0.264198	0.121578	0.102873	0.203409	0.219775	0.250170	0.135606	0.806621	0.252508	0.212761	0.324987	0.727128	1.269552	1.919525	1.622595		9.083257
	10	0.161324	0.065465	0.030394	0.025718	0.056113	0.056113	0.035070	0.023380	0.224451	0.049099	0.035070	0.046761	0.493325	0.916509	1.143298	0.537748		3.899839
	11	0.058451	0.023380	0.023380	0.004676	0.042085	0.016366	0.018704	0.002338	0.093521	0.014028	0.011690	0.028056	0.289916	0.530733	0.598536	0.219775		1.975638
	Subtotal	3.256880	1.884454	1.645975	1.900821	2.461949	2.024736	2.440906	2.041103	3.871782	1.933553	1.447242	1.337355	2.749527	4.089219	5.875476	6.039139	0.004676	45.004793
5 (E)	1 (Calm)																	0.014028	0.014028
	2	0.049099	0.035070	0.035070	0.046761	0.056113	0.039747	0.060789	0.037409	0.060789	0.037409	0.039747	0.044423	0.070141	0.039747	0.053775	0.025718		0.731804
	3	0.091183	0.067803	0.049099	0.095859	0.084169	0.100535	0.081831	0.100535	0.102873	0.093521	0.098197	0.081831	0.056113	0.044423	0.037409	0.053775		1.239157
	4	0.116902	0.100535	0.081831	0.119240	0.151972	0.112226	0.210423	0.161324	0.140282	0.151972	0.147296	0.084169	0.098197	0.053775	0.070141	0.084169		1.884454
	5	0.320310	0.215099	0.212761	0.322649	0.392790	0.264198	0.434874	0.411494	0.614903	0.458254	0.383437	0.259522	0.238479	0.191719	0.261860	0.268874		5.251222
	6	0.413832	0.306282	0.222113	0.203409	0.287578	0.313296	0.479297	0.547100	1.010030	0.638283	0.446564	0.271212	0.280564	0.271212	0.360057	0.467607		6.518435
	7	0.420846	0.184705	0.161324	0.093521	0.158986	0.271212	0.355381	0.455916	0.988988	0.600874	0.385775	0.348367	0.451240	0.376423	0.596198	0.498001		6.347759
	8	0.238479	0.070141	0.058451	0.021042	0.086507	0.142620	0.205747	0.332001	0.664001	0.425522	0.231465	0.367071	0.498001	0.542424	0.647635	0.645297		5.176405
	9	0.257184	0.060789	0.039747	0.014028	0.091183	0.107550	0.161324	0.240817	0.858058	0.350705	0.371747	0.413832	0.974960	1.031072	1.152650	0.785579		6.911225
	10	0.056113	0.023380	0.007014	0.009352	0.025718	0.046761	0.037409	0.025718	0.168338	0.044423	0.063127	0.088845	0.205747	0.289916	0.236141	0.112226		1.440226
	11	0.018704	0.002338	0.014028	0.002338	0.049099	0.007014	0.021042	0.002338	0.021042	0.004676	0.004676	0.004676	0.023380	0.028056	0.023380	0.032732		0.259522
	Subtotal	1.982652	1.066143	0.881438	0.928199	1.384115	1.405158	2.048117	2.314652	4.629305	2.805639	2.172032	1.963948	2.896823	2.868766	3.439246	2.973978	0.014028	35.774240
6 (F)	1 (Calm)																	0.011690	0.011690
	2	0.037409	0.016366	0.030394	0.023380	0.025718	0.028056	0.023380	0.028056	0.028056	0.028056	0.035070	0.035070	0.032732	0.030394	0.030394	0.016366		0.448902
	3	0.023380	0.028056	0.021042	0.037409	0.046761	0.025718	0.042085	0.046761	0.025718	0.046761	0.039747	0.042085	0.037409	0.035070	0.030394	0.035070		0.563466
	4	0.060789	0.030394	0.032732	0.023380	0.030394	0.042085	0.063127	0.079493	0.077155	0.067803	0.063127	0.084169	0.051437	0.042085	0.042085	0.046761		0.837016
	5	0.123916	0.044423	0.042085	0.039747	0.035070	0.065465	0.100535	0.102873	0.175352	0.208085	0.231465	0.149634	0.100535	0.091183	0.140282	0.137944		1.788595
	6	0.144958	0.044423	0.016366	0.023380	0.032732	0.042085	0.086507	0.074817	0.208085	0.168338	0.245493	0.180029	0.205747	0.114564	0.161324	0.123916		1.872764
	7	0.067803	0.021042	0.014028	0.000000	0.011690	0.025718	0.042085	0.107550	0.107550	0.107550	0.154310	0.198733	0.198733	0.173014	0.203409	0.133268		1.566482
	8	0.028056	0.009352	0.007014	0.000000	0.000000	0.004676	0.016366	0.035070	0.093521	0.044423	0.072479	0.133268	0.198733	0.128592	0.156648	0.109888		1.038087
	9	0.004676	0.000000	0.000000	0.000000	0.000000	0.002338	0.009352	0.014028	0.056113	0.046761	0.053775	0.187043	0.299268	0.243155	0.142620	0.044423		1.103551
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.007014	0.002338	0.049099	0.053775	0.053775	0.000000	0.011690		0.180029
	11	0.002338	0.000000	0.000000	0.000000	0.009352	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.002338	0.000000	0.000000	0.000000		0.016366
	Subtotal	0.493325	0.194057	0.163662	0.147296	0.191719	0.236141	0.383437	0.488649	0.773889	0.724790	0.897805	1.061467	1.180707	0.911833	0.907157	0.659325	0.011690	9.426948

ATTACHMENT B

7 (G)	1 (Calm)																	0.000000	0.000000
	2	0.016366	0.021042	0.014028	0.014028	0.018704	0.004676	0.002338	0.016366	0.018704	0.018704	0.002338	0.023380	0.018704	0.018704	0.016366	0.023380		0.247831
	3	0.009352	0.011690	0.011690	0.009352	0.011690	0.007014	0.007014	0.004676	0.021042	0.002338	0.011690	0.018704	0.011690	0.014028	0.014028	0.021042		0.187043
	4	0.009352	0.021042	0.011690	0.009352	0.011690	0.002338	0.025718	0.009352	0.018704	0.021042	0.014028	0.018704	0.016366	0.018704	0.025718	0.028056		0.261860
	5	0.081831	0.018704	0.035070	0.030394	0.016366	0.011690	0.028056	0.011690	0.051437	0.044423	0.051437	0.044423	0.058451	0.051437	0.102873	0.079493		0.717776
	6	0.039747	0.007014	0.011690	0.009352	0.007014	0.002338	0.018704	0.007014	0.014028	0.037409	0.084169	0.058451	0.065465	0.060789	0.123916	0.144958		0.692058
	7	0.016366	0.009352	0.002338	0.000000	0.000000	0.002338	0.009352	0.007014	0.018704	0.009352	0.037409	0.093521	0.063127	0.046761	0.095859	0.067803		0.479297
	8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004676	0.002338	0.002338	0.011690	0.023380	0.053775	0.086507	0.023380	0.039747	0.018704		0.266536
	9	*0.002338*	*0.000000*	*0.000000*	*0.000000*	*0.000000*	*0.000000*	*0.000000*	*0.002338*	*0.002338*	*0.000000*	*0.011690*	*0.032732*	*0.056113*	*0.074817*	*0.011690*	*0.009352*		*0.203409*
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004676	0.002338	0.004676	0.000000	0.000000		0.011690
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	**0.175352**	**0.088845**	**0.086507**	**0.072479**	**0.065465**	**0.030394**	**0.095859**	**0.060789**	**0.147296**	**0.144958**	**0.236141**	**0.348367**	**0.378761**	**0.313296**	**0.430198**	**0.392790**	**0.000000**	**3.067499**
	Total	**6.22**	**3.53**	**3.11**	**3.54**	**4.77**	**4.27**	**5.37**	**5.07**	**10.01**	**5.86**	**4.98**	**4.97**	**7.81**	**8.71**	**10.94**	**10.82**	**0.03**	**100.00**

Notes:
1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.3
8	>=11.3 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

ATTACHMENT B

Peach Bottom

Joint Frequency Distribution
1984-1988
Tower 2
33' wind
150'-33' Delta T

	Wind Speed Category[1]	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calms	Total
		Wind Direction Category																	
1 (A)	1(Calm)																	0	0
	2	37	63	66	49	22	20	12	12	4	0	0	4	5	10	19	17		340
	3	51	71	76	94	83	59	38	21	4	3	4	3	11	6	7	26		557
	4	67	41	27	27	37	56	43	26	12	6	14	8	25	24	17	46		476
	5	95	35	4	1	7	35	62	48	42	28	29	23	57	65	51	125		707
	6	26	7	1	0	0	14	9	20	59	22	33	26	45	34	18	88		402
	7	12	0	0	0	0	1	2	13	46	14	16	9	21	12	12	32		190
	8	2	0	0	0	0	0	0	4	16	4	2	1	4	8	6	6		53
	9	0	0	0	0	0	0	0	4	8	1	2	1	3	5	1	2		27
	10	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		1
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	290	217	174	171	149	185	166	148	192	78	100	75	171	164	131	342	0	2753
2 (B)	1(Calm)																	0	0
	2	25	32	31	18	16	8	10	3	5	1	2	1	7	3	6	15		183
	3	35	24	33	49	45	36	13	10	7	1	4	5	8	9	3	23		305
	4	37	27	8	13	8	19	18	14	14	12	13	4	16	15	11	35		264
	5	97	13	3	2	4	10	34	47	59	25	42	31	40	45	42	98		592
	6	42	2	0	0	1	3	12	25	85	25	24	17	24	37	51	117		465
	7	7	0	0	0	0	1	1	17	66	24	12	14	30	40	43	71		326
	8	4	0	0	0	0	4	0	8	27	7	2	0	7	12	19	18		108
	9	1	0	0	0	0	0	0	3	10	0	2	0	0	10	13	4		43
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		1
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	248	98	75	82	74	81	88	127	273	95	101	72	132	172	188	381	0	2287
3 (C)	1(Calm)																	0	0
	2	18	24	10	16	10	7	7	1	3	0	2	2	3	4	4	11		122
	3	14	23	17	32	25	20	4	4	3	0	3	2	3	3	5	22		180
	4	23	6	1	7	7	8	14	14	13	4	3	7	14	9	11	22		163
	5	33	4	2	1	2	2	16	34	48	17	14	10	19	25	25	75		327
	6	11	0	0	0	0	1	8	13	40	19	17	13	25	22	40	95		304
	7	6	1	0	0	0	0	0	8	33	15	13	13	18	30	44	48		229
	8	3	0	0	0	1	0	0	3	10	1	0	0	6	12	11	19		66
	9	1	0	0	0	0	1	0	2	6	0	0	0	0	8	15	8		41
	10	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0		1
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	109	58	30	56	45	39	49	80	156	56	52	47	88	113	155	300	0	1433
4 (D)	1(Calm)																	10	10
	2	179	185	272	182	128	91	79	101	65	41	40	49	67	69	99	117		1764
	3	216	158	169	138	170	86	78	132	116	51	39	57	56	62	93	125		1746
	4	186	98	51	21	35	75	115	185	130	62	45	53	79	84	145	198		1562
	5	314	59	15	14	28	66	242	328	323	148	111	103	164	266	446	568		3195
	6	191	10	0	0	4	9	78	175	256	81	84	54	133	325	538	556		2494
	7	85	2	0	0	0	4	23	44	138	42	25	34	110	273	421	324		1525
	8	25	0	0	0	0	0	5	15	40	14	4	7	49	96	217	135		607
	9	17	0	0	0	0	0	2	8	28	4	2	2	21	28	88	70		270
	10	0	0	0	0	0	0	0	0	1	3	0	0	0	1	2	7		14
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3		4
	Subtotal	1213	512	507	355	365	331	622	988	1097	446	350	359	679	1204	2050	2103	10	13191
5 (E)	1(Calm)																	54	54
	2	296	270	315	300	374	310	315	294	286	192	167	234	248	267	332	260		4460
	3	231	152	102	86	147	162	236	309	353	185	162	163	202	235	279	171		3175
	4	201	54	51	35	77	103	164	285	310	172	126	154	235	315	276	235		2793
	5	216	35	26	34	26	63	211	355	388	210	181	250	381	601	558	432		3967
	6	84	5	1	5	9	23	54	83	196	49	46	65	139	228	274	228		1489
	7	21	2	0	0	0	5	20	18	63	15	16	15	41	55	88	71		430
	8	7	0	0	0	0	0	2	10	28	5	3	3	8	10	20	16		112
	9	2	0	0	0	0	0	0	3	16	1	0	0	2	5	3	6		38
	10	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1		3
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	1058	518	495	460	633	666	1002	1357	1641	829	701	884	1257	1716	1830	1420	54	16521
6 (F)	1(Calm)																	26	26
	2	115	72	69	85	151	161	97	71	90	128	169	228	294	257	215	114		2316
	3	22	9	7	7	30	64	32	29	31	70	126	225	208	160	116	50		1186
	4	6	0	1	1	2	12	20	10	24	29	49	116	135	89	66	26		586
	5	1	0	4	1	1	2	4	8	24	17	46	127	79	47	23	10		394
	6	0	0	0	0	0	0	0	0	2	0	3	12	3	2	2	4		28
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	144	81	81	94	184	239	153	118	171	244	393	708	719	555	423	204	26	4537

ATTACHMENT B

7 (G)	1(Calm)																	15	15
	2	29	25	29	50	84	42	27	24	20	28	79	184	213	150	98	50		1132
	3	7	5	0	0	7	14	5	3	3	5	87	312	216	85	27	8		784
	4	1	4	0	0	3	4	2	0	0	6	48	224	56	13	6	3		370
	5	0	0	0	0	0	1	0	0	0	1	11	30	15	2	1	0		61
	6	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1		4
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	37	34	29	50	94	61	34	27	23	40	226	751	500	251	132	62	15	2366
	Total	3099	1518	1391	1268	1544	1602	2114	2845	3553	1788	1923	2896	3546	4175	4909	4812	105	43088

Notes:
1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.3
8	>=11.3 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

ATTACHMENT B

Peach Bottom

Joint Frequency Distribution
1984-1988
Tower 2
33' wind
150'-33' Delta T

	Wind Speed Category[1]	Wind Direction Category 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Calm	Total
1 (A)	1(Calm)																	0.000000	0.000000
	2	0.085871	0.146212	0.153175	0.113721	0.051058	0.046417	0.027850	0.027850	0.009283	0.000000	0.000000	0.009283	0.011604	0.023208	0.044096	0.039454		0.789083
	3	0.118362	0.164779	0.176383	0.218158	0.192629	0.136929	0.088192	0.048737	0.009283	0.006962	0.009283	0.006962	0.025529	0.013925	0.016246	0.060342		1.292703
	4	0.155496	0.095154	0.062662	0.062662	0.085871	0.129967	0.099796	0.060342	0.027850	0.013925	0.032492	0.018567	0.058021	0.055700	0.039454	0.106758		1.104716
	5	0.220479	0.081229	0.009283	0.002321	0.016246	0.081229	0.143892	0.111400	0.097475	0.064983	0.067304	0.053379	0.132287	0.150854	0.118362	0.290104		1.640828
	6	0.060342	0.016246	0.002321	0.000000	0.000000	0.032492	0.020887	0.046417	0.136929	0.051058	0.076587	0.060342	0.104437	0.078908	0.041775	0.204233		0.932974
	7	0.027850	0.000000	0.000000	0.000000	0.000000	0.002321	0.004642	0.030171	0.106758	0.032492	0.037133	0.020887	0.048737	0.027850	0.027850	0.074267		0.440958
	8	0.004642	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.009283	0.037133	0.009283	0.004642	0.002321	0.009283	0.018567	0.013925	0.013925		0.123004
	9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.009283	0.018567	0.002321	0.004642	0.002321	0.006962	0.011604	0.002321	0.004642		0.062662
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.002321
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.673041	0.503620	0.403825	0.396862	0.345804	0.429354	0.385258	0.343483	0.445600	0.181025	0.232083	0.174062	0.396862	0.380616	0.304029	0.793724	0.000000	6.389250
2 (B)	1 (Calm)																	0.000000	0.000000
	2	0.058021	0.074267	0.071946	0.041775	0.037133	0.018567	0.023208	0.006962	0.011604	0.002321	0.004642	0.002321	0.016246	0.006962	0.013925	0.034812		0.424712
	3	0.081229	0.055700	0.076587	0.113721	0.104437	0.083550	0.030171	0.023208	0.016246	0.002321	0.009283	0.011604	0.018567	0.020887	0.006962	0.053379		0.707854
	4	0.085871	0.062662	0.018567	0.030171	0.018567	0.044096	0.041775	0.032492	0.032492	0.027850	0.030171	0.009283	0.037133	0.034812	0.025529	0.081229		0.612700
	5	0.225121	0.030171	0.006962	0.004642	0.009283	0.023208	0.078908	0.109079	0.136929	0.058021	0.097475	0.071946	0.092833	0.104437	0.097475	0.227442		1.373932
	6	0.097475	0.004642	0.000000	0.000000	0.002321	0.006962	0.027850	0.058021	0.197271	0.058021	0.055700	0.039454	0.055700	0.085871	0.118362	0.271537		1.079187
	7	0.016246	0.000000	0.000000	0.000000	0.000000	0.002321	0.002321	0.039454	0.153175	0.055700	0.027850	0.032492	0.069625	0.092833	0.099796	0.164779		0.756591
	8	0.009283	0.000000	0.000000	0.000000	0.000000	0.009283	0.000000	0.018567	0.062662	0.016246	0.004642	0.000000	0.016246	0.027850	0.044096	0.041775		0.250650
	9	0.002321	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.006962	0.023208	0.000000	0.004642	0.000000	0.000000	0.023208	0.030171	0.009283		0.099796
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000		0.002321
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.575566	0.227442	0.174062	0.190308	0.171742	0.187987	0.204233	0.294746	0.633587	0.220479	0.234404	0.167100	0.306350	0.399183	0.436316	0.884237	0.000000	5.307742
3 (C)	1 (Calm)																	0.000000	0.000000
	2	0.041775	0.055700	0.023208	0.037133	0.023208	0.016246	0.016246	0.002321	0.006962	0.000000	0.004642	0.004642	0.006962	0.009283	0.009283	0.025529		0.283141
	3	0.032492	0.053379	0.039454	0.074267	0.058021	0.046417	0.009283	0.009283	0.006962	0.000000	0.006962	0.004642	0.006962	0.006962	0.011604	0.051058		0.417750
	4	0.053379	0.013925	0.002321	0.016246	0.016246	0.018567	0.032492	0.032492	0.030171	0.009283	0.006962	0.016246	0.032492	0.020887	0.025529	0.051058		0.378296
	5	0.076587	0.009283	0.004642	0.002321	0.004642	0.004642	0.037133	0.078908	0.111400	0.039454	0.032492	0.023208	0.044096	0.058021	0.058021	0.174062		0.758912
	6	0.025529	0.000000	0.000000	0.000000	0.000000	0.002321	0.018567	0.030171	0.092833	0.044096	0.039454	0.030171	0.058021	0.051058	0.092833	0.220479		0.705533
	7	0.013925	0.002321	0.000000	0.000000	0.000000	0.000000	0.000000	0.018567	0.076587	0.034812	0.030171	0.030171	0.041775	0.069625	0.102117	0.111400		0.531470
	8	0.006962	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.006962	0.023208	0.002321	0.000000	0.000000	0.013925	0.027850	0.025529	0.044096		0.153175
	9	0.002321	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.004642	0.013925	0.000000	0.000000	0.000000	0.000000	0.018567	0.034812	0.018567		0.095154
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.002321
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.252971	0.134608	0.069625	0.129967	0.104437	0.090512	0.113721	0.185667	0.362050	0.129967	0.120683	0.109079	0.204233	0.262254	0.359729	0.696250	0.000000	3.325752
4 (D)	1 (Calm)																	0.023208	0.023208
	2	0.415429	0.429354	0.631266	0.422391	0.297066	0.211196	0.183346	0.234404	0.150854	0.095154	0.092833	0.113721	0.155496	0.160137	0.229762	0.271537		4.093947
	3	0.501300	0.366691	0.392221	0.320275	0.394541	0.199592	0.181025	0.306350	0.269216	0.118362	0.090512	0.132287	0.129967	0.143892	0.215837	0.290104		4.052172
	4	0.431675	0.227442	0.118362	0.048737	0.081229	0.174062	0.266896	0.429354	0.301708	0.143892	0.104437	0.123004	0.183346	0.194950	0.336521	0.459525		3.625139
	5	*0.728741*	*0.136929*	*0.034812*	*0.032492*	*0.064983*	*0.153175*	*0.561641*	*0.761233*	*0.749629*	*0.343483*	*0.257612*	*0.239046*	*0.380616*	*0.617341*	*1.035091*	*1.318232*		*7.415058*
	6	0.443279	0.023208	0.000000	0.000000	0.009283	0.020887	0.181025	0.406146	0.594133	0.187987	0.194950	0.125325	0.308671	0.754270	1.248608	1.290382		5.788154
	7	0.197271	0.004642	0.000000	0.000000	0.000000	0.009283	0.053379	0.102117	0.320275	0.097475	0.058021	0.078908	0.255291	0.633587	0.977070	0.751949		3.539268
	8	0.058021	0.000000	0.000000	0.000000	0.000000	0.000000	0.011604	0.034812	0.092833	0.032492	0.009283	0.016246	0.113721	0.222800	0.503620	0.313312		1.408745
	9	0.039454	0.000000	0.000000	0.000000	0.000000	0.000000	0.004642	0.018567	0.064983	0.009283	0.004642	0.004642	0.048737	0.064983	0.204233	0.162458		0.626625
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.006962	0.000000	0.000000	0.000000	0.002321	0.004642	0.016246		0.032492
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.006962		0.009283
	Subtotal	2.815169	1.188266	1.176662	0.823895	0.847104	0.768195	1.443557	2.292982	2.545952	1.035091	0.812291	0.833179	1.575845	2.794281	4.757705	4.860709	0.023208	30.614092
5 (E)	1 (Calm)																	0.125325	0.125325
	2	0.686966	0.626625	0.731062	0.696250	0.867991	0.719458	0.731062	0.682325	0.663758	0.445600	0.387579	0.543075	0.575566	0.619662	0.770516	0.603416		10.350910
	3	0.536112	0.352766	0.236725	0.199592	0.341162	0.375975	0.547716	0.717137	0.819254	0.429354	0.375975	0.378296	0.468808	0.545395	0.647512	0.396862		7.368641
	4	0.466487	0.125325	0.118362	0.081229	0.178704	0.239046	0.380616	0.661437	0.719458	0.399183	0.292425	0.357408	0.545395	0.731062	0.640550	0.545395		6.482083
	5	0.501300	0.081229	0.060342	0.078908	0.060342	0.146212	0.489696	0.823895	0.900483	0.487375	0.420071	0.580208	0.884237	1.394820	1.295024	1.002599		9.206740
	6	0.194950	0.011604	0.002321	0.011604	0.020887	0.053379	0.125325	0.192629	0.454883	0.113721	0.106758	0.150854	0.322596	0.529150	0.635908	0.529150		3.455719
	7	0.048737	0.004642	0.000000	0.000000	0.000000	0.011604	0.046417	0.041775	0.146212	0.034812	0.037133	0.034812	0.095154	0.127646	0.204233	0.164779		0.997958
	8	0.016246	0.000000	0.000000	0.000000	0.000000	0.000000	0.004642	0.023208	0.064983	0.011604	0.006962	0.006962	0.018567	0.023208	0.046417	0.037133		0.259933
	9	0.004642	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.006962	0.037133	0.002321	0.000000	0.000000	0.004642	0.011604	0.006962	0.013925		0.088192
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.002321		0.006962
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	2.455440	1.202191	1.148812	1.067583	1.469087	1.545674	2.325473	3.149369	3.808485	1.923970	1.626903	2.051615	2.917286	3.982547	4.247122	3.295581	0.125325	38.342462
6 (F)	1 (Calm)																	0.060342	0.060342
	2	0.266896	0.167100	0.160137	0.197271	0.350446	0.373654	0.225121	0.164779	0.208875	0.297066	0.392221	0.529150	0.682325	0.596454	0.498979	0.264575		5.375046
	3	0.051058	0.020887	0.016246	0.016246	0.069625	0.148533	0.074267	0.067304	0.071946	0.162458	0.292425	0.522187	0.482733	0.371333	0.269216	0.116042		2.752506
	4	0.013925	0.000000	0.002321	0.002321	0.004642	0.027850	0.046417	0.023208	0.055700	0.067304	0.113721	0.269216	0.313312	0.206554	0.153175	0.060342		1.360007
	5	0.002321	0.000000	0.009283	0.002321	0.002321	0.004642	0.009283	0.018567	0.055700	0.039454	0.106758	0.294746	0.183346	0.109079	0.053379	0.023208		0.914408
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004642	0.000000	0.006962	0.027850	0.006962	0.004642	0.004642	0.009283		0.064983
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000		0.002321
	8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.334200	0.187987	0.187987	0.218158	0.427033	0.554679	0.355087	0.273858	0.396862	0.566283	0.912087	1.643149	1.668678	1.288062	0.981712	0.473450	0.060342	10.529614

ATTACHMENT B

7 (G)	1 (Calm)																	0.034812	0.034812
	2	0.067304	0.058021	0.067304	0.116042	0.194950	0.097475	0.062662	0.055700	0.046417	0.064983	0.183346	0.427033	0.494337	0.348125	0.227442	0.116042		2.627182
	3	0.016246	0.011604	0.000000	0.000000	0.016246	0.032492	0.011604	0.006962	0.006962	0.011604	0.201912	0.724100	0.501300	0.197271	0.062662	0.018567		1.819532
	4	0.002321	0.009283	0.000000	0.000000	0.006962	0.009283	0.004642	0.000000	0.000000	0.013925	0.111400	0.519866	0.129967	0.030171	0.013925	0.006962		0.858708
	5	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.000000	0.000000	0.000000	0.002321	0.025529	0.069625	0.034812	0.004642	0.002321	0.000000		0.141571
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002321	0.002321	0.000000	0.002321	0.000000	0.002321		0.009283
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.085871	0.078908	0.067304	0.116042	0.218158	0.141571	0.078908	0.062662	0.053379	0.092833	0.524508	1.742945	1.160416	0.582529	0.306350	0.143892	0.034812	5.491088
	Total	7.19	3.52	3.23	2.94	3.58	3.72	4.91	6.60	8.25	4.15	4.46	6.72	8.23	9.69	11.39	11.17	0.24	100.00

Notes:

1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.3
8	>=11.3 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

ATTACHMENT B

Peach Bottom

Joint Frequency Distribution
1984-1988
Tower 1A/River Tower
45' River Tower wind
89'-33' Tower 1A Delta T

	Wind Speed Category[1]	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calms	Total
		Wind Direction Category																	
1 (A)	1(Calm)																	0	0
	2	48	50	50	45	40	42	35	23	28	17	14	25	18	22	18	33		508
	3	41	33	31	44	82	90	88	27	30	14	15	8	19	20	14	38		594
	4	42	26	26	32	88	99	88	58	18	8	4	0	9	17	24	36		575
	5	78	51	47	63	92	184	249	79	39	15	9	9	14	12	105	89		1135
	6	112	45	26	31	58	83	240	112	64	22	13	12	19	18	146	153		1154
	7	103	19	17	7	22	26	121	131	77	19	23	20	27	39	151	189		991
	8	90	11	2	8	3	10	27	135	50	9	1	4	21	29	160	217		777
	9	78	11	4	1	1	9	10	103	44	7	0	1	22	76	267	348		982
	10	24	1	1	0	0	2	0	11	0	1	0	0	0	26	131	105		302
	11	5	0	0	0	0	0	0	2	0	0	0	0	0	11	72	43		133
	Subtotal	621	247	204	231	386	545	858	681	350	112	79	79	149	270	1088	1251	0	7151
2 (B)	1(Calm)																	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 (C)	1(Calm)																	1	1
	2	16	17	18	7	14	17	19	8	7	3	3	6	7	6	11	10		169
	3	19	16	15	22	22	27	29	11	6	1	2	4	3	7	13	21		218
	4	15	10	10	30	44	30	26	8	5	1	3	4	2	8	13	22		231
	5	40	18	25	29	62	73	86	39	16	14	10	9	13	12	60	42		548
	6	47	28	30	14	28	51	70	41	22	9	19	12	26	21	54	48		520
	7	45	10	9	5	20	41	48	41	31	10	23	17	32	51	71	73		527
	8	42	9	5	1	6	13	20	48	18	2	6	5	20	44	81	66		386
	9	34	0	3	1	0	10	8	26	7	3	3	4	16	112	172	128		527
	10	5	0	1	0	0	2	3	7	0	1	0	1	1	55	68	47		191
	11	0	0	0	0	0	0	0	2	0	0	0	0	0	15	51	26		94
	Subtotal	263	108	116	109	196	264	309	231	112	44	69	62	120	331	594	483	1	3412
4 (D)	1(Calm)																	1	1
	2	58	32	23	45	46	55	42	25	16	9	15	13	17	15	30	42		483
	3	34	30	47	36	46	39	62	24	18	8	10	15	16	25	31	28		469
	4	27	30	63	55	73	71	94	32	23	17	17	19	16	36	58	43		674
	5	110	60	83	93	119	162	213	98	74	39	37	48	67	68	122	90		1483
	6	120	53	42	39	80	125	219	146	75	39	39	70	95	105	181	120		1546
	7	93	32	18	21	58	89	97	197	60	17	36	27	87	161	234	126		1353
	8	60	21	7	6	17	48	45	112	47	15	22	10	55	229	219	152		1065
	9	45	14	4	1	13	29	32	99	23	7	5	6	64	432	422	237		1433
	10	7	2	0	0	3	4	6	41	1	0	0	0	6	124	259	111		564
	11	3	1	0	0	0	0	1	4	0	0	0	0	1	31	107	43		191
	Subtotal	557	275	287	296	455	622	811	778	337	151	181	208	424	1226	1663	992	1	9264
5 (E)	1(Calm)																	4	4
	2	65	28	29	24	36	50	69	44	27	27	27	29	32	29	48	78		642
	3	40	32	16	32	28	59	86	36	10	18	34	20	33	33	34	83		594
	4	38	25	30	35	34	68	127	45	48	30	35	25	45	35	56	59		735
	5	87	27	35	50	47	90	171	127	87	16	43	53	73	81	148	71		1206
	6	97	21	18	22	36	80	143	160	72	23	23	30	63	131	164	70		1153
	7	71	25	12	8	19	49	84	158	40	4	18	6	22	134	192	90		932
	8	39	7	4	1	9	13	16	90	13	2	3	1	11	120	137	74		540
	9	29	1	0	2	14	20	18	68	9	1	1	1	2	87	150	70		473
	10	2	0	0	0	7	0	0	25	6	0	0	0	0	10	44	20		114
	11	0	0	0	0	0	2	1	1	0	0	0	0	0	10	6	3		23
	Subtotal	468	166	144	174	230	431	715	754	312	121	184	165	281	670	979	618	4	6416
6 (F)	1(Calm)																	4	4
	2	64	37	30	19	36	63	88	71	53	21	33	28	61	54	103	102		863
	3	27	15	18	23	24	33	80	48	46	30	42	60	60	45	70	74		695
	4	29	14	15	6	22	37	93	73	44	21	28	41	65	45	67	58		658
	5	53	14	17	11	17	52	111	135	73	17	21	33	53	105	119	69		900
	6	28	4	11	8	4	30	70	127	44	15	8	15	25	81	128	60		658
	7	14	1	1	1	4	11	20	85	26	5	0	4	5	74	104	46		401
	8	2	0	0	1	1	0	1	19	9	0	0	0	2	28	45	19		127
	9	0	0	0	1	10	0	0	10	3	0	0	0	0	5	7	9		45
	10	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	2		6
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0		2
	Subtotal	217	85	92	70	121	226	463	568	298	109	132	181	272	437	645	439	4	4359

ATTACHMENT B

7 (G)	1(Calm)																	4	4
	2	99	41	38	36	46	74	121	147	179	127	221	290	403	351	423	265		2861
	3	95	37	25	45	43	59	147	167	178	146	223	304	520	448	491	325		3253
	4	57	21	27	7	27	52	151	137	121	82	122	218	443	286	303	218		2272
	5	63	22	9	4	20	54	147	160	102	53	78	125	315	264	346	209		1971
	6	49	6	4	2	1	28	32	63	29	10	6	16	90	142	191	78		747
	7	10	1	1	0	0	4	5	12	12	3	0	1	6	81	90	17		243
	8	1	1	2	0	0	0	0	6	4	0	0	2	0	16	21	10		63
	9	0	0	0	0	0	0	0	7	3	0	0	0	0	3	6	4		23
	10	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0		3
	11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0		1
	Subtotal	374	129	106	94	137	271	603	701	630	421	650	956	1777	1591	1871	1126	4	11441
	Total	2500	1010	949	974	1525	2359	3759	3713	2039	958	1295	1651	3023	4525	6840	4909	14	42043

Notes:
1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	>=2.35 to <3.47
4	>=3.47 to <4.59
5	>=4.59 to <6.82
6	>=6.82 to <9.06
7	>=9.06 to <11.3
8	>=11.3 to <13.53
9	>=13.53 to <18.01
10	>=18.01 to <22.37
11	>=22.37

ATTACHMENT B

Peach Bottom
Joint Frequency Distribution
1984-1988
Tower 1A/River Tower
45' River Tower wind
89'-33' Tower 1A Delta T

	Wind Speed Category[1]	Wind Direction Category 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Calm	Total
1 (A)	1(Calm)																	0.000000	0.000000
	2	0.114169	0.118926	0.118926	0.107033	0.095141	0.099898	0.083248	0.054706	0.066598	0.040435	0.033299	0.059463	0.042813	0.052327	0.042813	0.078491		1.208267
	3	0.097519	0.078491	0.073734	0.104655	0.195038	0.214067	0.209310	0.064220	0.071356	0.033299	0.035678	0.019028	0.045192	0.047570	0.033299	0.090384		1.412839
	4	0.099898	0.061841	0.061841	0.076113	0.209310	0.235473	0.209310	0.137954	0.042813	0.019028	0.009514	0.000000	0.021407	0.040435	0.057084	0.085627		1.367647
	5	0.185524	0.121304	0.111790	0.149847	0.218824	0.437647	0.592251	0.187903	0.092762	0.035678	0.021407	0.021407	0.033299	0.028542	0.249744	0.211688		2.699617
	6	0.266394	0.107033	0.061841	0.073734	0.137954	0.197417	0.570844	0.266394	0.152225	0.052327	0.030921	0.028542	0.045192	0.042813	0.347264	0.363913		2.744809
	7	0.244987	0.045192	0.040435	0.016650	0.052327	0.061841	0.287801	0.311586	0.183146	0.045192	0.054706	0.047570	0.064220	0.092762	0.359156	0.449540		2.357111
	8	0.214067	0.026164	0.004757	0.019028	0.007136	0.023785	0.064220	0.321100	0.118926	0.021407	0.002379	0.009514	0.049949	0.068977	0.380563	0.516138		1.848108
	9	0.185524	0.026164	0.009514	0.002379	0.002379	0.021407	0.023785	0.244987	0.104655	0.016650	0.000000	0.002379	0.052327	0.180767	0.635064	0.827724		2.335704
	10	0.057084	0.002379	0.002379	0.000000	0.000000	0.004757	0.000000	0.026164	0.000000	0.002379	0.000000	0.000000	0.000000	0.061841	0.311586	0.249744		0.718312
	11	0.011893	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004757	0.000000	0.000000	0.000000	0.000000	0.000000	0.026164	0.171253	0.102276		0.316343
	Subtotal	1.477059	0.587494	0.485218	0.549437	0.918108	1.296292	2.040768	1.619770	0.832481	0.266394	0.187903	0.187903	0.354399	0.642200	2.587827	2.975525	0.000000	17.008777
2 (B)	1 (Calm)																	0.000000	0.000000
	2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3 (C)	1 (Calm)																	0.002379	0.002379
	2	0.038056	0.040435	0.042813	0.016650	0.033299	0.040435	0.045192	0.019028	0.016650	0.007136	0.007136	0.014271	0.016650	0.014271	0.026164	0.023785		0.401969
	3	0.045192	0.038056	0.035678	0.052327	0.052327	0.064220	0.068977	0.026164	0.014271	0.002379	0.004757	0.009514	0.007136	0.016650	0.030921	0.049949		0.518517
	4	0.035678	0.023785	0.023785	0.071356	0.104655	0.071356	0.061841	0.019028	0.011893	0.002379	0.007136	0.009514	0.004757	0.019028	0.030921	0.052327		0.549437
	5	0.095141	0.042813	0.059463	0.068977	0.147468	0.173632	0.204552	0.092762	0.038056	0.033299	0.023785	0.021407	0.030921	0.028542	0.142711	0.099898		1.303427
	6	0.111790	0.066598	0.071356	0.033299	0.066598	0.121304	0.166496	0.097519	0.052327	0.021407	0.045192	0.028542	0.061841	0.049949	0.128440	0.114169		1.236829
	7	0.107033	0.023785	0.021407	0.011893	0.047570	0.097519	0.114169	0.097519	0.073734	0.023785	0.054706	0.040435	0.076113	0.121304	0.168875	0.173632		1.253479
	8	0.099898	0.021407	0.011893	0.002379	0.014271	0.030921	0.047570	0.114169	0.042813	0.004757	0.014271	0.011893	0.047570	0.104655	0.192660	0.156982		0.918108
	9	0.080870	0.000000	0.007136	0.002379	0.000000	0.023785	0.019028	0.061841	0.016650	0.007136	0.007136	0.009514	0.038056	0.266394	0.409105	0.304450		1.253479
	10	0.011893	0.000000	0.002379	0.000000	0.000000	0.004757	0.007136	0.016650	0.000000	0.002379	0.000000	0.002379	0.002379	0.130818	0.161739	0.111790		0.454297
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004757	0.000000	0.000000	0.000000	0.000000	0.000000	0.035678	0.121304	0.061841		0.223581
	Subtotal	0.625550	0.256880	0.275908	0.259258	0.466189	0.627929	0.734962	0.549437	0.266394	0.104655	0.164118	0.147468	0.285422	0.787289	1.412839	1.148824	0.002379	8.115501
4 (D)	1 (Calm)																	0.002379	0.002379
	2	0.137954	0.076113	0.054706	0.107033	0.109412	0.130818	0.099898	0.059463	0.038056	0.021407	0.035678	0.030921	0.040435	0.035678	0.071356	0.099898		1.148824
	3	0.080870	0.071356	0.111790	0.085627	0.109412	0.092762	0.147468	0.057084	0.042813	0.019028	0.023785	0.035678	0.038056	0.059463	0.073734	0.066598		1.115525
	4	0.064220	0.071356	0.149847	0.130818	0.173632	0.168875	0.223581	0.076113	0.054706	0.040435	0.040435	0.045192	0.038056	0.085627	0.137954	0.102276		1.603121
	5	0.261637	0.142711	0.197417	0.221202	0.283044	0.385320	0.506624	0.233095	0.176010	0.092762	0.088005	0.114169	0.159361	0.161739	0.290179	0.214067		3.527341
	6	0.285422	0.126061	0.099898	0.092762	0.190281	0.297315	0.520895	0.347264	0.178389	0.092762	0.092762	0.166496	0.225959	0.249744	0.430512	0.285422		3.681945
	7	0.221202	0.076113	0.042813	0.049949	0.137954	0.211688	0.230716	0.468568	0.142711	0.040435	0.085627	0.064220	0.206931	0.382941	0.556573	0.299693		3.218134
	8	0.142711	0.049949	0.016650	0.014271	0.040435	0.114169	0.107033	0.266394	0.111790	0.035678	0.052327	0.023785	0.130818	0.544680	0.520895	0.361535		2.533121
	9	0.107033	0.033299	0.009514	0.002379	0.030921	0.068977	0.076113	0.235473	0.054706	0.016650	0.011893	0.014271	0.152225	1.027519	1.003734	0.563709		3.408415
	10	0.016650	0.004757	0.000000	0.000000	0.007136	0.009514	0.014271	0.097519	0.002379	0.000000	0.000000	0.000000	0.014271	0.294936	0.616036	0.264015		1.341484
	11	0.007136	0.002379	0.000000	0.000000	0.000000	0.000000	0.002379	0.009514	0.000000	0.000000	0.000000	0.000000	0.002379	0.073734	0.254501	0.102276		0.454297
	Subtotal	1.324834	0.654092	0.682634	0.704041	1.082225	1.479438	1.928977	1.850486	0.801560	0.359156	0.430512	0.494732	1.008491	2.916062	3.955474	2.359489	0.002379	22.034584
5 (E)	1 (Calm)																	0.009514	0.009514
	2	0.154604	0.066598	0.068977	0.057084	0.085627	0.118926	0.164118	0.104655	0.064220	0.064220	0.064220	0.068977	0.076113	0.068977	0.114169	0.185524		1.527008
	3	0.095141	0.076113	0.038056	0.076113	0.066598	0.140333	0.204552	0.085627	0.023785	0.042813	0.080870	0.047570	0.078491	0.078491	0.080870	0.197417		1.412839
	4	0.090384	0.059463	0.071356	0.083248	0.080870	0.161739	0.302072	0.107033	0.114169	0.071356	0.083248	0.059463	0.107033	0.083248	0.133197	0.140333		1.748210
	5	0.206931	0.064220	0.083248	0.118926	0.111790	0.214067	0.406726	0.302072	0.206931	0.038056	0.102276	0.126061	0.173632	0.192660	0.352021	0.168875		2.868492
	6	0.230716	0.049949	0.042813	0.052327	0.085627	0.190281	0.340128	0.380563	0.171253	0.054706	0.054706	0.071356	0.149847	0.311586	0.390077	0.166496		2.742430
	7	0.168875	0.059463	0.028542	0.019028	0.045192	0.116547	0.199795	0.375806	0.095141	0.009514	0.042813	0.014271	0.052327	0.318721	0.456675	0.214067		2.216778
	8	0.092762	0.016650	0.009514	0.002379	0.021407	0.030921	0.038056	0.214067	0.030921	0.004757	0.007136	0.002379	0.026164	0.285422	0.325857	0.176010		1.284399
	9	0.068977	0.002379	0.000000	0.004757	0.033299	0.047570	0.042813	0.161739	0.021407	0.002379	0.002379	0.002379	0.004757	0.206931	0.356778	0.166496		1.125039
	10	0.004757	0.000000	0.000000	0.000000	0.016650	0.000000	0.000000	0.059463	0.014271	0.000000	0.000000	0.000000	0.000000	0.023785	0.104655	0.047570		0.271151
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.004757	0.002379	0.002379	0.000000	0.000000	0.000000	0.000000	0.000000	0.023785	0.014271	0.007136		0.054706
	Subtotal	1.113146	0.394834	0.342506	0.413862	0.547059	1.025141	1.700640	1.793402	0.742097	0.287801	0.437647	0.392455	0.668363	1.593607	2.328568	1.469924	0.009514	15.260567
6 (F)	1 (Calm)																	0.009514	0.009514
	2	0.152225	0.088005	0.071356	0.045192	0.085627	0.149847	0.209310	0.168875	0.126061	0.049949	0.078491	0.066598	0.145090	0.128440	0.244987	0.242609		2.052660
	3	0.064220	0.035678	0.042813	0.054706	0.057084	0.078491	0.190281	0.114169	0.109412	0.071356	0.099898	0.142711	0.142711	0.107033	0.166496	0.176010		1.653069
	4	0.068977	0.033299	0.035678	0.014271	0.052327	0.088005	0.221202	0.173632	0.104655	0.049949	0.066598	0.097519	0.154604	0.107033	0.159361	0.137954		1.565064
	5	0.126061	0.033299	0.040435	0.026164	0.040435	0.123683	0.264015	0.321100	0.173632	0.040435	0.049949	0.078491	0.126061	0.249744	0.283044	0.164118		2.140666
	6	0.066598	0.009514	0.026164	0.019028	0.009514	0.071356	0.166496	0.302072	0.104655	0.035678	0.019028	0.035678	0.059463	0.192660	0.304450	0.142711		1.565064
	7	0.033299	0.002379	0.002379	0.002379	0.009514	0.026164	0.047570	0.202174	0.061841	0.011893	0.000000	0.009514	0.011893	0.176010	0.247366	0.109412		0.953785
	8	0.004757	0.000000	0.000000	0.002379	0.002379	0.000000	0.002379	0.045192	0.021407	0.000000	0.000000	0.000000	0.004757	0.066598	0.107033	0.045192		0.302072
	9	0.000000	0.000000	0.000000	0.002379	0.023785	0.000000	0.000000	0.023785	0.007136	0.000000	0.000000	0.000000	0.000000	0.011893	0.016650	0.021407		0.107033
	10	0.000000	0.000000	0.000000	0.000000	0.007136	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002379	0.000000	0.000000	0.004757		0.014271
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004757	0.000000		0.004757
	Subtotal	0.516138	0.202174	0.218824	0.166496	0.287801	0.537545	1.101253	1.350998	0.708798	0.259258	0.313964	0.430512	0.646957	1.039412	1.534144	1.044169	0.009514	10.367957

ATTACHMENT B

7 (G)	1 (Calm)																	0.009514	0.009514
	2	0.235473	0.097519	0.090384	0.085627	0.109412	0.176010	0.287801	0.349642	0.425755	0.302072	0.525652	0.689770	0.958542	0.834860	1.006113	0.630307		6.804938
	3	0.225959	0.088005	0.059463	0.107033	0.102276	0.140333	0.349642	0.397212	0.423376	0.347264	0.530409	0.723069	1.236829	1.065576	1.167852	0.773018		7.737317
	4	0.135575	0.049949	0.064220	0.016650	0.064220	0.123683	0.359156	0.325857	0.287801	0.195038	0.290179	0.518517	1.053683	0.680256	0.720691	0.518517		5.403991
	5	0.149847	0.052327	0.021407	0.009514	0.047570	0.128440	0.349642	0.380563	0.242609	0.126061	0.185524	0.297315	0.749233	0.627929	0.822967	0.497110		4.688057
	6	0.116547	0.014271	0.009514	0.004757	0.002379	0.066598	0.076113	0.149847	0.068977	0.023785	0.014271	0.038056	0.214067	0.337749	0.454297	0.185524		1.776752
	7	0.023785	0.002379	0.002379	0.000000	0.000000	0.009514	0.011893	0.028542	0.028542	0.007136	0.000000	0.002379	0.014271	0.192660	0.214067	0.040435		0.577980
	8	0.002379	0.002379	0.004757	0.000000	0.000000	0.000000	0.000000	0.014271	0.009514	0.000000	0.000000	0.004757	0.000000	0.038056	0.049949	0.023785		0.149847
	9	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.016650	0.007136	0.000000	0.000000	0.000000	0.000000	0.007136	0.014271	0.009514		0.054706
	10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002379	0.004757	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.007136
	11	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002379	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.002379
	Subtotal	0.889565	0.306829	0.252123	0.223581	0.325857	0.644578	1.434246	1.667341	1.498466	1.001356	1.546036	2.273862	4.226625	3.784221	4.450206	2.678210	0.009514	27.212816
	Total	5.95	2.40	2.26	2.32	3.63	5.61	8.94	8.83	4.85	2.28	3.08	3.93	7.19	10.76	16.27	11.68	0.03	100.00

Notes:

1) Wind Speed Categories defined as follows

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <2.35
3	=2.35 to <3.47
4	=3.47 to <4.59
5	=4.59 to <6.82
6	=6.82 to <9.06
7	=9.06 to <11.3
8	=11.3 to <13.53
9	13.53 to <18.01
10	18.01 to <22.37
11	>=22.37

ATTACHMENT C

PAVAN Input and Output Files

(For convenience of review, PAVAN output was shortened to include only the printout of input cards and summary of X/Q results)

Off-Gas Stack to the EAB and LPZ (Tower 2 Meteorology, RG 1.23, Revision 1 Wind Speed Categories)........ 2
Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch to EAB and LPZ (Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 10
Off-Gas Stack to Control Room Intake (209 and 280 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 16
Off-Gas Stack to Control Room Intake (300 and 500 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 23
Off-Gas Stack to Control Room Intake (750 and 1000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 30
Off-Gas Stack to Control Room Intake (1500 and 2000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 37
Off-Gas Stack to Control Room Intake (3000 and 4000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 44
Off-Gas Stack to Control Room Intake (5000 and 6000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 51
Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch to EAB (River Tower/Tower 1A Meteorology; RG 1.23, Revision 1 Wind Speed Categories)........ 58

ATTACHMENT C

Off-Gas Stack to the EAB and LPZ (Tower 2 Meteorology, RG 1.23, Revision 1 Wind Speed Categories)

```
  1  1111
Peach Bottom                                 Stack Release
97.5 meters          10.1-96.3 meters

PB, Tower 2 84-88 met data, RG 1.23 R1 wind cats, 320 ft wind, 33-316 ft Delta T
  11    2
2584. 54.3152.4 97.5
   0     0     0     2     6     5     0
```

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	2.	10.	10.	15.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.	6.	10.	23.	59.	25.	2.	0.	0.	1.	2.	0.	0.	0.	0.	1.
1.	3.	11.	18.	43.	40.	10.	4.	2.	2.	2.	0.	1.	3.	0.	0.
0.	6.	10.	11.	13.	17.	9.	0.	7.	4.	3.	3.	2.	3.	0.	5.
0.	1.	2.	13.	8.	3.	9.	0.	4.	3.	0.	6.	13.	7.	3.	4.
2.	4.	9.	11.	2.	3.	7.	0.	6.	2.	2.	1.	14.	5.	2.	14.
1.	2.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	10.	2.	0.	1.
1.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	6.	5.	1.	1.
0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	9.	5.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	7.	5.	8.	21.	5.	1.	0.	0.	0.	0.	0.	1.	0.	1.	0.
12.	15.	9.	11.	34.	19.	6.	1.	1.	4.	3.	1.	3.	1.	2.	3.
1.	11.	11.	18.	6.	21.	11.	4.	4.	4.	4.	2.	3.	5.	1.	7.
2.	5.	4.	2.	5.	9.	13.	5.	17.	9.	6.	5.	13.	2.	1.	12.
3.	0.	3.	1.	3.	0.	9.	6.	14.	5.	6.	7.	10.	8.	3.	15.
8.	2.	1.	1.	0.	2.	5.	3.	22.	5.	3.	13.	21.	15.	6.	20.
1.	3.	0.	0.	0.	1.	1.	1.	6.	1.	1.	2.	11.	12.	5.	6.
0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.	7.	10.	0.	0.
0.	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	3.	10.	14.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4.	7.	11.	16.	31.	17.	2.	0.	1.	0.	0.	0.	0.	0.	0.	1.
18.	14.	15.	17.	17.	40.	6.	4.	11.	4.	7.	3.	2.	2.	3.	16.
26.	12.	8.	11.	10.	21.	26.	13.	20.	13.	9.	4.	16.	6.	8.	35.
21.	6.	3.	8.	5.	11.	31.	10.	40.	14.	15.	14.	23.	13.	9.	45.
8.	8.	0.	3.	2.	3.	15.	12.	37.	17.	11.	15.	11.	21.	18.	43.
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18.	18.	28.	26.	28.	20.	14.	13.	12.	6.	9.	6.	8.	19.	8.	10.
41.	40.	80.	93.	87.	66.	31.	22.	29.	17.	23.	9.	18.	19.	28.	40.
67.	53.	78.	99.	130.	77.	54.	50.	39.	31.	28.	24.	30.	19.	40.	50.
209.	119.	120.	174.	227.	179.	192.	134.	171.	110.	98.	90.	89.	59.	118.	231.
216.	175.	125.	187.	215.	168.	282.	234.	320.	203.	128.	80.	109.	115.	186.	390.
237.	151.	118.	123.	134.	129.	212.	204.	330.	193.	142.	89.	134.	160.	235.	438.
233.	99.	80.	54.	103.	102.	129.	147.	274.	132.	80.	103.	142.	196.	332.	406.
278.	113.	52.	44.	87.	94.	107.	58.	345.	108.	91.	139.	311.	543.	821.	694.
69.	28.	13.	11.	24.	24.	15.	10.	96.	21.	15.	20.	211.	392.	489.	230.
25.	10.	10.	2.	18.	7.	8.	1.	40.	6.	5.	12.	124.	227.	256.	94.
21.	15.	15.	20.	24.	17.	26.	16.	26.	16.	17.	19.	30.	17.	23.	11.
39.	29.	21.	41.	36.	43.	35.	43.	44.	40.	42.	35.	24.	19.	16.	23.

ATTACHMENT C

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 137.  92.  91. 138. 168. 113. 186. 176. 263. 196. 164. 111. 102.  82. 112. 115.
 177. 131.  95.  87. 123. 134. 205. 234. 432. 273. 191. 116. 120. 116. 154. 200.
 180.  79.  69.  40.  68. 116. 152. 195. 423. 257. 165. 149. 193. 161. 255. 213.
 102.  30.  25.   9.  37.  61.  88. 142. 284. 182.  99. 157. 213. 232. 277. 276.
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  24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
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  16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
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  53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
  62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
  29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
  12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
   2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
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   7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
   4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
   4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
  35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
  17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
   7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
   0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
   1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
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   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.
7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
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0055.0061.0128.0104.0073.0098.0104.0085.0110.0085.0085.0067.0048.0067.0043.0043.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 04/21/08

PRINTOUT OF INPUT CARDS

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   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000    2      Peach Bottom
Stack Release
   3     97.5 meters          10.1-96.3 meters
   4
   5     PB, Tower 2 84-88 met data, RG 1.23 R1 wind cats, 320 ft wind, 33-316 ft Delta T   6         11 42771      2
   7          0.500  2584.000     54.300    152.400     97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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  9      21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
  9      39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
  9      50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
  9     137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
  9     177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
  9     180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
  9     102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
  9     110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
  9      24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
  9       8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
  9      16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
  9      10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
  9      26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
  9      53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
  9      62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
  9      29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
  9      12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
  9       2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
  9       1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
  9       7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
  9       4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
  9       4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
  9      35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
  9      17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
  9       7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
  9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000 11        823.   823.   823.   823.   823.   823.
823.   823.   823.   823.   823.   823.   823.   823.   823.   823.  11        7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.
7300.  7300.  7300.  7300.  7300.  7300.  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0
 12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0 13        823.   823.
823.   823.   823.   823.   823.   823.   823.   823.   823.   823.   823.   823.   823.   823.
 14        31.    18.    12.    24.    31.    31.    24.     0.     0.     0.     0.     0.     0.     0.     0.    31. 13        7300.  7300.
7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.
 14        55.    61.   128.   104.    73.    98.   104.    85.   110.    85.    85.    67.    48.    67.    43.    43.
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/21/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: PB, Tower 2 84-88 met data, RG 1.23 R1 wind cats, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	823.	2.47E-06	8.45E-07	4.94E-07	1.54E-07	2.90E-08	3.74E-09	4.0	S
SSW	823.	2.43E-06	8.70E-07	5.20E-07	1.70E-07	3.43E-08	4.82E-09	4.1	SSW
SW	823.	6.02E-06	1.88E-06	1.05E-06	2.98E-07	4.87E-08	5.31E-09	43.7	SW
WSW	823.	5.10E-06	1.81E-06	1.08E-06	3.53E-07	7.05E-08	9.84E-09	27.3	WSW
W	823.	3.75E-06	1.54E-06	9.83E-07	3.73E-07	9.29E-08	1.69E-08	13.4	W
WNW	823.	4.51E-06	1.66E-06	1.01E-06	3.40E-07	7.14E-08	1.06E-08	19.2	WNW
NW	823.	4.90E-06	1.56E-06	8.79E-07	2.54E-07	4.26E-08	4.81E-09	26.5	NW
NNW	823.	3.49E-06	8.84E-07	4.44E-07	1.00E-07	1.17E-08	8.55E-10	12.8	NNW
N	823.	5.56E-06	1.55E-06	8.22E-07	2.06E-07	2.83E-08	2.50E-09	36.1	N
NNE	823.	3.33E-06	9.22E-07	4.85E-07	1.21E-07	1.64E-08	1.42E-09	11.6	NNE
NE	823.	3.38E-06	9.08E-07	4.71E-07	1.13E-07	1.46E-08	1.19E-09	12.4	NE
ENE	823.	1.99E-06	5.82E-07	3.15E-07	8.33E-08	1.23E-08	1.19E-09	3.4	ENE
E	823.	1.50E-06	5.31E-07	3.16E-07	1.03E-07	2.04E-08	2.82E-09	1.8	E
ESE	823.	1.89E-06	6.03E-07	3.40E-07	9.82E-08	1.65E-08	1.86E-09	3.5	ESE
SE	823.	1.41E-06	4.13E-07	2.23E-07	5.85E-08	8.58E-09	8.20E-10	1.2	SE
SSE	823.	1.98E-06	7.65E-07	4.76E-07	1.69E-07	3.85E-08	6.28E-09	1.6	SSE
MAX X/Q		6.02E-06				TOTAL HOURS AROUND SITE:		222.9	
SRP 2.3.4	823.	9.17E-06	3.24E-06	1.92E-06	6.22E-07	1.23E-07	1.69E-08		
SITE LIMIT		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-08		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	823.	5.30E-05
SSW	823.	4.79E-05
SW	823.	4.58E-05
WSW	823.	5.01E-05
W	823.	5.30E-05
WNW	823.	5.30E-05
NW	823.	5.01E-05
NNW	823.	4.22E-05
N	823.	4.22E-05
NNE	823.	4.22E-05
NE	823.	4.22E-05
ENE	823.	4.22E-05
E	823.	4.22E-05
ESE	823.	4.22E-05

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  SE      823.    4.22E-05
 SSE      823.    5.30E-05

**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 04/21/08

PLANT NAME: Peach Bottom   METEOROLOGICAL INSTRUMENTATION
DATA PERIOD: WIND SENSORS HEIGHT: 97.5 meters
TYPE OF RELEASE: Stack Release   DELTA-T HEIGHTS: 10.1-96.3 meters
SOURCE OF DATA:
COMMENTS: PB, Tower 2 84-88 met data, RG 1.23 R1 wind cats, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	7300.	2.02E-06	9.61E-07	6.62E-07	2.95E-07	9.24E-08	2.23E-08	3.4	S
SSW	7300.	1.94E-06	8.75E-07	5.88E-07	2.48E-07	7.20E-08	1.58E-08	3.2	SSW
SW	7300.	5.02E-06	2.20E-06	1.45E-06	5.93E-07	1.64E-07	3.39E-08	36.9	SW
WSW	7300.	4.33E-06	1.92E-06	1.28E-06	5.27E-07	1.48E-07	3.13E-08	25.8	WSW
W	7300.	3.09E-06	1.41E-06	9.56E-07	4.09E-07	1.21E-07	2.73E-08	10.0	W
WNW	7300.	3.84E-06	1.73E-06	1.16E-06	4.86E-07	1.40E-07	3.04E-08	19.5	WNW
NW	7300.	4.96E-06	2.24E-06	1.50E-06	6.32E-07	1.83E-07	4.00E-08	32.1	NW
NNW	7300.	3.42E-06	1.56E-06	1.06E-06	4.51E-07	1.33E-07	2.99E-08	14.3	NNW
N	7300.	5.67E-06	2.71E-06	1.88E-06	8.44E-07	2.67E-07	6.56E-08	43.7	N
NNE	7300.	3.30E-06	1.53E-06	1.04E-06	4.51E-07	1.36E-07	3.12E-08	13.2	NNE
NE	7300.	3.31E-06	1.49E-06	1.00E-06	4.24E-07	1.23E-07	2.70E-08	13.6	NE
ENE	7300.	2.01E-06	9.11E-07	6.13E-07	2.60E-07	7.57E-08	1.68E-08	4.0	ENE
E	7300.	1.52E-06	7.20E-07	4.96E-07	2.21E-07	6.90E-08	1.66E-08	2.2	E
ESE	7300.	1.85E-06	9.04E-07	6.31E-07	2.89E-07	9.44E-08	2.40E-08	3.6	ESE
SE	7300.	1.30E-06	6.65E-07	4.75E-07	2.29E-07	8.06E-08	2.24E-08	1.4	SE
SSE	7300.	1.53E-06	7.79E-07	5.56E-07	2.68E-07	9.40E-08	2.61E-08	1.3	SSE
MAX X/Q		5.67E-06				TOTAL HOURS AROUND SITE:		228.2	
SRP 2.3.4	7300.	9.05E-06	4.01E-06	2.67E-06	1.10E-06	3.10E-07	6.56E-08		
SITE LIMIT		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.56E-08		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	7300.	9.20E-06
SSW	7300.	9.80E-06
SW	7300.	1.75E-05
WSW	7300.	1.75E-05
W	7300.	1.13E-05
WNW	7300.	1.65E-05
NW	7300.	1.75E-05
NNW	7300.	1.33E-05
N	7300.	1.75E-05
NNE	7300.	1.33E-05
NE	7300.	1.33E-05
ENE	7300.	1.05E-05
E	7300.	8.58E-06
ESE	7300.	1.05E-05

ATTACHMENT C

SE	7300.	8.19E-06
SSE	7300.	8.19E-06

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch to EAB and LPZ (Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

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   1  1111
Peach Bottom                                 Ground Release
10.1 meters          10.1-45.7 meters

Peach Bottom, Tower 2 84-88 met data, 33 ft wind, 33-150 ft Delta T
  11    0
2584. 54.3 10.0 10.1
   0    0    0   10   54   26   15
  37.  63.  66.  49.  22.  20.  12.  12.   4.   0.   0.   4.   5.  10.  19.  17.
  51.  71.  76.  94.  83.  59.  38.  21.   4.   3.   4.   3.  11.   6.   7.  26.
  67.  41.  27.  27.  37.  56.  43.  26.  12.   6.  14.   8.  25.  24.  17.  46.
  95.  35.   4.   1.   7.  35.  62.  48.  42.  28.  29.  23.  57.  65.  51. 125.
  26.   7.   1.   0.   0.  14.   9.  20.  59.  22.  33.  26.  45.  34.  18.  88.
  12.   0.   0.   0.   0.   1.   2.  13.  46.  14.  16.   9.  21.  12.  12.  32.
   2.   0.   0.   0.   0.   0.   0.   4.  16.   4.   2.   1.   4.   8.   6.   6.
   0.   0.   0.   0.   0.   0.   0.   4.   8.   1.   2.   1.   3.   5.   1.   2.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  25.  32.  31.  18.  16.   8.  10.   3.   5.   1.   2.   1.   7.   3.   6.  15.
  35.  24.  33.  49.  45.  36.  13.  10.   7.   1.   4.   5.   8.   9.   3.  23.
  37.  27.   8.  13.   8.  19.  18.  14.  14.  12.  13.   4.  16.  15.  11.  35.
  97.  13.   3.   2.   4.  10.  34.  47.  59.  25.  42.  31.  40.  45.  42.  98.
  42.   2.   0.   0.   1.   3.  12.  25.  85.  25.  24.  17.  24.  37.  51. 117.
   7.   0.   0.   0.   0.   1.   1.  17.  66.  24.  12.  14.  30.  40.  43.  71.
   4.   0.   0.   0.   0.   4.   0.   8.  27.   7.   2.   0.   7.  12.  19.  18.
   1.   0.   0.   0.   0.   0.   0.   3.  10.   0.   2.   0.   0.  10.  13.   4.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  18.  24.  10.  16.  10.   7.   7.   1.   3.   0.   2.   2.   3.   4.   4.  11.
  14.  23.  17.  32.  25.  20.   4.   4.   3.   0.   3.   2.   3.   3.   5.  22.
  23.   6.   1.   7.   7.   8.  14.  14.  13.   4.   3.   7.  14.   9.  11.  22.
  33.   4.   2.   1.   2.   2.  16.  34.  48.  17.  14.  10.  19.  25.  25.  75.
  11.   0.   0.   0.   0.   1.   8.  13.  40.  19.  17.  13.  25.  22.  40.  95.
   6.   1.   0.   0.   0.   0.   0.   8.  33.  15.  13.  13.  18.  30.  44.  48.
   3.   0.   0.   0.   1.   0.   0.   3.  10.   1.   0.   0.   6.  12.  11.  19.
   1.   0.   0.   0.   0.   1.   0.   2.   6.   0.   0.   0.   0.   8.  15.   8.
   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 179. 185. 272. 182. 128.  91.  79. 101.  65.  41.  40.  49.  67.  69.  99. 117.
 216. 158. 169. 138. 170.  86.  78. 132. 116.  51.  39.  57.  56.  62.  93. 125.
 186.  98.  51.  21.  35.  75. 115. 185. 130.  62.  45.  53.  79.  84. 145. 198.
 314.  59.  15.  14.  28.  66. 242. 328. 323. 148. 111. 103. 164. 266. 446. 568.
 191.  10.   0.   0.   4.   9.  78. 175. 256.  81.  84.  54. 133. 325. 538. 556.
  85.   2.   0.   0.   0.   4.  23.  44. 138.  42.  25.  34. 110. 273. 421. 324.
  25.   0.   0.   0.   0.   0.   5.  15.  40.  14.   4.   7.  49.  96. 217. 135.
  17.   0.   0.   0.   0.   0.   2.   8.  28.   4.   2.   2.  21.  28.  88.  70.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   0.   0.   0.   1.   2.   7.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.
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ATTACHMENT C

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296. 270. 315. 300. 374. 310. 315. 294. 286. 192. 167. 234. 248. 267. 332. 260.
231. 152. 102.  86. 147. 162. 236. 309. 353. 185. 162. 163. 202. 235. 279. 171.
201.  54.  51.  35.  77. 103. 164. 285. 310. 172. 126. 154. 235. 315. 276. 235.
216.  35.  26.  34.  26.  63. 211. 355. 388. 210. 181. 250. 381. 601. 558. 432.
 84.   5.   1.   5.   9.  23.  54.  83. 196.  49.  46.  65. 139. 228. 274. 228.
 21.   2.   0.   0.   0.   5.  20.  18.  63.  15.  16.  15.  41.  55.  88.  71.
  7.   0.   0.   0.   0.   0.   2.  10.  28.   5.   3.   3.   8.  10.  20.  16.
  2.   0.   0.   0.   0.   0.   0.   3.  16.   1.   0.   0.   2.   5.   3.   6.
  0.   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.   0.   1.   0.   0.   1.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
115.  72.  69.  85. 151. 161.  97.  71.  90. 128. 169. 228. 294. 257. 215. 114.
 22.   9.   7.   7.  30.  64.  32.  29.  31.  70. 126. 225. 208. 160. 116.  50.
  6.   0.   1.   1.   2.  12.  20.  10.  24.  29.  49. 116. 135.  89.  66.  26.
  1.   0.   4.   1.   1.   2.   4.   8.  24.  17.  46. 127.  79.  47.  23.  10.
  0.   0.   0.   0.   0.   0.   0.   0.   2.   0.   3.  12.   3.   2.   2.   4.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   1.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 29.  25.  29.  50.  84.  42.  27.  24.  20.  28.  79. 184. 213. 150.  98.  50.
  7.   5.   0.   0.   7.  14.   5.   3.   3.   5.  87. 312. 216.  85.  27.   8.
  1.   4.   0.   0.   3.   4.   2.   0.   0.   6.  48. 224.  56.  13.   6.   3.
  0.   0.   0.   0.   0.   1.   0.   0.   0.   1.  11.  30.  15.   2.   1.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   1.   1.   0.   1.   0.   1.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.
7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.
  1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
  1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
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ATTACHMENT C

Copyright (c) 1990 Ergo Computing, Inc. for Lahey

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 04/20/08

PRINTOUT OF INPUT CARDS

```
  1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000   2     Peach Bottom
Ground Release
  3     10.1 meters         10.1-45.7 meters
  4
  5     Peach Bottom, Tower 2 84-88 met data, 33 ft wind, 33-150 ft Delta T                 6          11 43088     0
  7          0.500  2584.000    54.300    10.000    10.100
  8       0.000  0.000  0.000 10.000 54.000 26.000 15.000
  9      37.000 63.000 66.000 49.000 22.000 20.000 12.000 12.000  4.000  0.000  0.000  4.000  5.000 10.000 19.000 17.000
  9      51.000 71.000 76.000 94.000 83.000 59.000 38.000 21.000  4.000  3.000  4.000  3.000 11.000  6.000  7.000 26.000
  9      67.000 41.000 27.000 27.000 37.000 56.000 43.000 26.000 12.000  6.000 14.000  8.000 25.000 24.000 17.000 46.000
  9      95.000 35.000  4.000  1.000  7.000 35.000 62.000 48.000 42.000 28.000 29.000 23.000 57.000 65.000 51.000125.000
  9      26.000  7.000  1.000  0.000  0.000 14.000  9.000 20.000 59.000 22.000 33.000 26.000 45.000 34.000 18.000 88.000
  9      12.000  0.000  0.000  0.000  0.000  1.000  2.000 13.000 46.000 14.000 16.000  9.000 21.000 12.000 12.000 32.000
  9       2.000  0.000  0.000  0.000  0.000  0.000  0.000  4.000 16.000  4.000  2.000  1.000  4.000  8.000  6.000  6.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  4.000  8.000  1.000  2.000  1.000  3.000  5.000  1.000  2.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9      25.000 32.000 31.000 18.000 16.000  8.000 10.000  3.000  5.000  1.000  2.000  1.000  7.000  3.000  6.000 15.000
  9      35.000 24.000 33.000 49.000 45.000 36.000 13.000 10.000  7.000  1.000  4.000  5.000  8.000  9.000  3.000 23.000
  9      37.000 27.000  8.000 13.000  8.000 19.000 18.000 14.000 14.000 12.000 13.000  4.000 16.000 15.000 11.000 35.000
  9      97.000 13.000  3.000  2.000  4.000 10.000 34.000 47.000 59.000 25.000 42.000 31.000 40.000 45.000 42.000 98.000
  9      42.000  2.000  0.000  0.000  1.000  3.000 12.000 25.000 85.000 25.000 24.000 17.000 24.000 37.000 51.000117.000
  9       7.000  0.000  0.000  0.000  0.000  1.000  1.000 17.000 66.000 24.000 12.000 14.000 30.000 40.000 43.000 71.000
  9       4.000  0.000  0.000  0.000  0.000  4.000  0.000  8.000 27.000  7.000  2.000  0.000  7.000 12.000 19.000 18.000
  9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  3.000 10.000  0.000  2.000  0.000  0.000 10.000 13.000  4.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9      18.000 24.000 10.000 16.000 10.000  7.000  7.000  1.000  3.000  0.000  2.000  2.000  3.000  4.000  4.000 11.000
  9      14.000 23.000 17.000 32.000 25.000 20.000  4.000  4.000  3.000  0.000  3.000  2.000  3.000  3.000  5.000 22.000
  9      23.000  6.000  1.000  7.000  7.000  8.000 14.000 14.000 13.000  4.000  3.000  7.000 14.000  9.000 11.000 22.000
  9      33.000  4.000  2.000  1.000  2.000  2.000 16.000 34.000 48.000 17.000 14.000 10.000 19.000 25.000 25.000 75.000
  9      11.000  0.000  0.000  0.000  0.000  1.000  8.000 13.000 40.000 19.000 17.000 13.000 25.000 22.000 40.000 95.000
  9       6.000  1.000  0.000  0.000  0.000  0.000  0.000  8.000 33.000 15.000 13.000 13.000 18.000 30.000 44.000 48.000
  9       3.000  0.000  0.000  0.000  1.000  0.000  0.000  3.000 10.000  1.000  0.000  0.000  6.000 12.000 11.000 19.000
  9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  6.000  0.000  0.000  0.000  0.000  8.000 15.000  8.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9     179.000185.000272.000182.000128.000 91.000 79.000101.000 65.000 41.000 40.000 49.000 67.000 69.000 99.000117.000
  9     216.000158.000169.000138.000170.000 86.000 78.000132.000116.000 51.000 39.000 57.000 56.000 62.000 93.000125.000
  9     186.000 98.000 51.000 21.000 35.000 75.000115.000185.000130.000 62.000 45.000 53.000 79.000 84.000145.000198.000
  9     314.000 59.000 15.000 14.000 28.000 66.000242.000328.000323.000148.000111.000103.000164.000266.000446.000568.000
  9     191.000 10.000  0.000  0.000  4.000  9.000 78.000175.000256.000 81.000 84.000 54.000133.000325.000538.000556.000
  9      85.000  2.000  0.000  0.000  0.000  4.000 23.000 44.000138.000 42.000 25.000 34.000110.000273.000421.000324.000
  9      25.000  0.000  0.000  0.000  0.000  0.000  5.000 15.000 40.000 14.000  4.000  7.000 49.000 96.000217.000135.000
  9      17.000  0.000  0.000  0.000  0.000  0.000  2.000  8.000 28.000  4.000  2.000  2.000 21.000 28.000 88.000 70.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  0.000  0.000  0.000  1.000  2.000  7.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000
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ATTACHMENT C

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9      296.000270.000315.000300.000374.000310.000315.000294.000286.000192.000167.000234.000248.000267.000332.000260.000
9      231.000152.000102.000 86.000147.000162.000236.000309.000353.000185.000162.000163.000202.000235.000279.000171.000
9      201.000 54.000 51.000 35.000 77.000103.000164.000285.000310.000172.000126.000154.000235.000315.000276.000235.000
9      216.000 35.000 26.000 34.000 26.000 63.000211.000355.000388.000210.000181.000250.000381.000601.000558.000432.000
9       84.000  5.000  1.000  5.000  9.000 23.000 54.000 83.000196.000 49.000 46.000 65.000139.000228.000274.000228.000
9       21.000  2.000  0.000  0.000  0.000  5.000 20.000 18.000 63.000 15.000 16.000 15.000 41.000 55.000 88.000 71.000
9        7.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000 28.000  5.000  3.000  3.000  8.000 10.000 20.000 16.000
9        2.000  0.000  0.000  0.000  0.000  0.000  0.000  3.000 16.000  1.000  0.000  0.000  2.000  5.000  3.000  6.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  1.000  0.000  0.000  1.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9      115.000 72.000 69.000 85.000151.000161.000 97.000 71.000 90.000128.000169.000228.000294.000257.000215.000114.000
9       22.000  9.000  7.000  7.000 30.000 64.000 32.000 29.000 31.000 70.000126.000225.000208.000160.000116.000 50.000
9        6.000  0.000  1.000  1.000  2.000 12.000 20.000 10.000 24.000 29.000 49.000116.000135.000 89.000 66.000 26.000
9        1.000  0.000  4.000  1.000  1.000  2.000  4.000  8.000 24.000 17.000 46.000127.000 79.000 47.000 23.000 10.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  0.000  3.000 12.000  3.000  2.000  2.000  4.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9       29.000 25.000 29.000 50.000 84.000 42.000 27.000 24.000 20.000 28.000 79.000184.000213.000150.000 98.000 50.000
9        7.000  5.000  0.000  0.000  7.000 14.000  5.000  3.000  3.000  5.000 87.000312.000216.000 85.000 27.000  8.000
9        1.000  4.000  0.000  0.000  3.000  4.000  2.000  0.000  0.000  6.000 48.000224.000 56.000 13.000  6.000  3.000
9        0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  1.000 11.000 30.000 15.000  2.000  1.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  0.000  1.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000 11        823.   823.   823.   823.   823.   823.
823.   823.   823.   823.   823.   823.   823.   823.   823.   823.  11       7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.
7300.  7300.  7300.  7300.  7300.  7300.  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0
 12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Ground Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 10.1 meters
DELTA-T HEIGHTS: 10.1-45.7 meters

COMMENTS: Peach Bottom, Tower 2 84-88 met data, 33 ft wind, 33-150 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	823.	1.81E-04	9.66E-05	7.06E-05	3.58E-05	1.35E-05	4.09E-06	8.0	S
SSW	823.	1.61E-04	8.23E-05	5.89E-05	2.84E-05	1.00E-05	2.78E-06	285.0	SSW
SW	823.	1.68E-04	8.61E-05	6.17E-05	2.99E-05	1.06E-05	2.97E-06	6.8	SW
WSW	823.	1.75E-04	8.86E-05	6.29E-05	3.00E-05	1.03E-05	2.81E-06	8.5	WSW
W	823.	2.23E-04	1.13E-04	8.08E-05	3.88E-05	1.35E-05	3.73E-06	14.5	W
WNW	823.	2.12E-04	1.07E-04	7.56E-05	3.58E-05	1.23E-05	3.30E-06	11.5	WNW
NW	823.	1.76E-04	9.13E-05	6.57E-05	3.22E-05	1.15E-05	3.29E-06	7.3	NW
NNW	823.	1.67E-04	8.90E-05	6.50E-05	3.29E-05	1.24E-05	3.73E-06	6.4	NNW
N	823.	1.69E-04	9.09E-05	6.67E-05	3.41E-05	1.30E-05	3.98E-06	6.4	N
NNE	823.	1.82E-04	9.13E-05	6.47E-05	3.06E-05	1.04E-05	2.80E-06	8.5	NNE
NE	823.	2.56E-04	1.27E-04	8.94E-05	4.18E-05	1.40E-05	3.68E-06	19.0	NE
ENE	823.	3.53E-04	1.83E-04	1.32E-04	6.47E-05	2.33E-05	6.68E-06	43.2	ENE
E	823.	3.54E-04	1.85E-04	1.34E-04	6.61E-05	2.40E-05	6.97E-06	43.7	E
ESE	823.	3.01E-04	1.59E-04	1.15E-04	5.75E-05	2.12E-05	6.27E-06	29.2	ESE
SE	823.	2.57E-04	1.38E-04	1.02E-04	5.19E-05	1.98E-05	6.09E-06	19.8	SE
SSE	823.	1.90E-04	1.03E-04	7.58E-05	3.91E-05	1.51E-05	4.70E-06	9.8	SSE
MAX X/Q		3.54E-04				TOTAL HOURS AROUND SITE:		527.7	
SRP 2.3.4	823.	5.79E-04	2.79E-04	1.93E-04	8.76E-05	2.81E-05	6.97E-06		
SITE LIMIT		2.95E-04	1.59E-04	1.16E-04	5.95E-05	2.27E-05	6.97E-06		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Ground Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 84-88 met data, 33 ft wind, 33-150 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 10.1 meters
DELTA-T HEIGHTS: 10.1-45.7 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	7300.	1.94E-05	8.86E-06	5.99E-06	2.56E-06	7.56E-07	1.70E-07	6.7	S
SSW	7300.	1.61E-05	7.10E-06	4.72E-06	1.95E-06	5.46E-07	1.15E-07	244.4	SSW
SW	7300.	1.70E-05	7.52E-06	5.01E-06	2.07E-06	5.81E-07	1.23E-07	6.7	SW
WSW	7300.	1.91E-05	8.25E-06	5.42E-06	2.18E-06	5.90E-07	1.19E-07	10.9	WSW
W	7300.	2.66E-05	1.15E-05	7.54E-06	3.03E-06	8.16E-07	1.64E-07	18.0	W
WNW	7300.	2.44E-05	1.05E-05	6.87E-06	2.75E-06	7.38E-07	1.48E-07	9.5	WNW
NW	7300.	1.84E-05	8.25E-06	5.52E-06	2.31E-06	6.63E-07	1.44E-07	6.3	NW
NNW	7300.	1.67E-05	7.76E-06	5.28E-06	2.29E-06	6.92E-07	1.60E-07	5.6	NNW
N	7300.	1.71E-05	8.01E-06	5.47E-06	2.39E-06	7.31E-07	1.71E-07	4.9	N
NNE	7300.	2.01E-05	8.68E-06	5.71E-06	2.30E-06	6.23E-07	1.26E-07	6.6	NNE
NE	7300.	3.15E-05	1.33E-05	8.60E-06	3.37E-06	8.76E-07	1.69E-07	16.5	NE
ENE	7300.	4.71E-05	2.05E-05	1.36E-05	5.50E-06	1.51E-06	3.09E-07	41.5	ENE
E	7300.	4.82E-05	2.10E-05	1.39E-05	5.66E-06	1.55E-06	3.20E-07	43.7	E
ESE	7300.	4.00E-05	1.76E-05	1.17E-05	4.82E-06	1.35E-06	2.83E-07	31.1	ESE
SE	7300.	3.20E-05	1.45E-05	9.76E-06	4.14E-06	1.21E-06	2.67E-07	20.8	SE
SSE	7300.	2.10E-05	9.70E-06	6.59E-06	2.84E-06	8.51E-07	1.95E-07	10.8	SSE
MAX X/Q		4.82E-05				TOTAL HOURS AROUND SITE:		484.1	
SRP 2.3.4	7300.	5.20E-05	2.24E-05	1.47E-05	5.91E-06	1.59E-06	3.20E-07		
SITE LIMIT		3.65E-05	1.67E-05	1.13E-05	4.82E-06	1.42E-06	3.20E-07		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

Off-Gas Stack to Control Room Intake (209 and 280 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

```
   1  1111
Peach Bottom                                  Stack Release
97.5 meters          10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
   11    1
2584. 54.3131.4 97.5
    0    0    0    2    6    5    0
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   2.  10.  10.  15.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   5.   6.  10.  23.  59.  25.   2.   0.   0.   1.   2.   0.   0.   0.   0.   1.
   1.   3.  11.  18.  43.  40.  10.   4.   2.   2.   2.   0.   1.   3.   0.   0.
   0.   6.  10.  11.  13.  17.   9.   0.   7.   4.   3.   3.   2.   3.   0.   5.
   0.   1.   2.  13.   8.   3.   9.   0.   4.   3.   0.   6.  13.   7.   3.   4.
   2.   4.   9.  11.   2.   3.   7.   0.   6.   2.   2.   1.  14.   5.   2.  14.
   1.   2.   0.   1.   0.   1.   0.   0.   0.   0.   0.   2.  10.   2.   0.   1.
   1.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   1.   6.   5.   1.   1.
   0.   1.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   1.   1.   9.   5.   0.   2.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   1.   7.   5.   8.  21.   5.   1.   0.   0.   0.   0.   0.   1.   0.   1.   0.
  12.  15.   9.  11.  34.  19.   6.   1.   1.   4.   3.   1.   3.   1.   2.   3.
   1.  11.  11.  18.   6.  21.  11.   4.   4.   4.   4.   2.   3.   5.   1.   7.
   2.   5.   4.   2.   5.   9.  13.   5.  17.   9.   6.   5.  13.   2.   1.  12.
   3.   0.   3.   1.   3.   0.   9.   6.  14.   5.   6.   7.  10.   8.   3.  15.
   8.   2.   1.   1.   0.   2.   5.   3.  22.   5.   3.  13.  21.  15.   6.  20.
   1.   3.   0.   0.   0.   1.   1.   1.   6.   1.   1.   2.  11.  12.   5.   6.
   0.   0.   1.   0.   0.   0.   0.   0.   1.   1.   0.   1.   7.  10.   0.   0.
   0.   2.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   3.  10.  14.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   4.   7.  11.  16.  31.  17.   2.   0.   1.   0.   0.   0.   0.   0.   0.   1.
  18.  14.  15.  17.  17.  40.   6.   4.  11.   4.   7.   3.   2.   2.   3.  16.
  26.  12.   8.  11.  10.  21.  26.  13.  20.  13.   9.   4.  16.   6.   8.  35.
  21.   6.   3.   8.   5.  11.  31.  10.  40.  14.  15.  14.  23.  13.   9.  45.
   8.   8.   0.   3.   2.   3.  15.  12.  37.  17.  11.  15.  11.  21.  18.  43.
  14.   2.   4.   2.   2.   3.   7.   5.  48.  18.  16.  24.  48.  45.  26.  74.
   4.   1.   0.   0.   1.   2.   0.   1.  10.   0.   3.   3.  29.  27.  22.  14.
   1.   3.   0.   0.   0.   0.   0.   0.   1.   0.   2.   2.  16.  33.  12.   4.
  18.  18.  28.  26.  28.  20.  14.  13.  12.   6.   9.   6.   8.  19.   8.  10.
  41.  40.  80.  93.  87.  66.  31.  22.  29.  17.  23.   9.  18.  19.  28.  40.
  67.  53.  78.  99. 130.  77.  54.  50.  39.  31.  28.  24.  30.  19.  40.  50.
 209. 119. 120. 174. 227. 179. 192. 134. 171. 110.  98.  90.  89.  59. 118. 231.
 216. 175. 125. 187. 215. 168. 282. 234. 320. 203. 128.  80. 109. 115. 186. 390.
 237. 151. 118. 123. 134. 129. 212. 204. 330. 193. 142.  89. 134. 160. 235. 438.
 233.  99.  80.  54. 103. 102. 129. 147. 274. 132.  80. 103. 142. 196. 332. 406.
 278. 113.  52.  44.  87.  94. 107.  58. 345. 108.  91. 139. 311. 543. 821. 694.
  69.  28.  13.  11.  24.  24.  15.  10.  96.  21.  15.  20. 211. 392. 489. 230.
  25.  10.  10.   2.  18.   7.   8.   1.  40.   6.   5.  12. 124. 227. 256.  94.
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ATTACHMENT C

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  21.  15.  15.  20.  24.  17.  26.  16.  26.  16.  17.  19.  30.  17.  23.  11.
  39.  29.  21.  41.  36.  43.  35.  43.  44.  40.  42.  35.  24.  19.  16.  23.
  50.  43.  35.  51.  65.  48.  90.  69.  60.  65.  63.  36.  42.  23.  30.  36.
 137.  92.  91. 138. 168. 113. 186. 176. 263. 196. 164. 111. 102.  82. 112. 115.
 177. 131.  95.  87. 123. 134. 205. 234. 432. 273. 191. 116. 120. 116. 154. 200.
 180.  79.  69.  40.  68. 116. 152. 195. 423. 257. 165. 149. 193. 161. 255. 213.
 102.  30.  25.   9.  37.  61.  88. 142. 284. 182.  99. 157. 213. 232. 277. 276.
 110.  26.  17.   6.  39.  46.  69. 103. 367. 150. 159. 177. 417. 441. 493. 336.
  24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
   8.   1.   6.   1.  21.   3.   9.   1.   9.   2.   2.   2.  10.  12.  10.  14.
  16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
  10.  12.   9.  16.  20.  11.  18.  20.  11.  20.  17.  18.  16.  15.  13.  15.
  26.  13.  14.  10.  13.  18.  27.  34.  33.  29.  27.  36.  22.  18.  18.  20.
  53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
  62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
  29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
  12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
   2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   1.  21.  23.  23.   0.   5.
   1.   0.   0.   0.   4.   0.   0.   0.   0.   0.   0.   1.   1.   0.   0.   0.
   7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
   4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
   4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
  35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
  17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
   7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
   0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
   1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   1.   2.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.0209.
0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.0280.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 04/20/08

PRINTOUT OF INPUT CARDS

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   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000    2     Peach Bottom
Stack Release
   3     97.5 meters          10.1-96.3 meters
   4
   5     Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T          6          11 42771     1
   7         0.500  2584.000     54.300    131.400     97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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9      21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
9      39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
9      50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
9     137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
9     177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
9     180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
9     102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
9     110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
9      24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
9       8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
9      16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
9      10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
9      26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
9      53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
9      62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
9      29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
9      12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
9       2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
9       1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
9       7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
9       4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
9       4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
9      35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
9      17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
9       7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
9       0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10         101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000  11         209.   209.   209.   209.   209.   209.
209.   209.   209.   209.   209.   209.   209.   209.   209.   209.  11         280.   280.   280.   280.   280.   280.   280.   280.   280.   280.
280.   280.   280.   280.   280.   280.  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0
 12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0  13         500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
 14          0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	209.	1.67E-06	1.68E-07	5.33E-08	4.41E-09	1.23E-10	1.55E-12	7.4	S
SSW	209.	1.71E-06	1.98E-07	6.77E-08	6.55E-09	2.29E-10	3.80E-12	154.3	SSW
SW	209.	2.21E-06	2.86E-07	1.03E-07	1.12E-08	4.64E-10	9.45E-12	17.7	SW
WSW	209.	2.54E-06	3.47E-07	1.28E-07	1.48E-08	6.67E-10	1.50E-11	24.9	WSW
W	209.	3.31E-06	4.83E-07	1.84E-07	2.28E-08	1.14E-09	2.91E-11	43.7	W
WNW	209.	2.49E-06	3.44E-07	1.28E-07	1.50E-08	6.89E-10	1.59E-11	22.4	WNW
NW	209.	1.70E-06	2.05E-07	7.11E-08	7.16E-09	2.66E-10	4.72E-12	6.6	NW
NNW	209.	1.37E-06	1.23E-07	3.69E-08	2.71E-09	6.38E-11	6.49E-13	3.6	NNW
N	209.	1.55E-06	1.66E-07	5.44E-08	4.83E-09	1.49E-10	2.12E-12	3.9	N
NNE	209.	1.30E-06	1.36E-07	4.39E-08	3.80E-09	1.13E-10	1.53E-12	2.5	NNE
NE	209.	1.28E-06	1.31E-07	4.20E-08	3.54E-09	1.02E-10	1.32E-12	3.2	NE
ENE	209.	1.20E-06	1.23E-07	3.94E-08	3.32E-09	9.56E-11	1.25E-12	2.0	ENE
E	209.	1.42E-06	1.70E-07	5.86E-08	5.86E-09	2.14E-10	3.75E-12	3.4	E
ESE	209.	1.19E-06	1.35E-07	4.54E-08	4.29E-09	1.45E-10	2.30E-12	4.7	ESE
SE	209.	1.28E-06	1.12E-07	3.31E-08	2.35E-09	5.28E-11	5.08E-13	3.0	SE
SSE	209.	1.64E-06	1.79E-07	5.92E-08	5.37E-09	1.71E-10	2.51E-12	4.4	SSE
MAX X/Q		3.31E-06				TOTAL HOURS AROUND SITE:		307.8	
SRP 2.3.4	209.	2.12E-06	3.33E-07	1.32E-07	1.77E-08	9.91E-10	2.91E-11		
SITE LIMIT		2.12E-06	3.33E-07	1.32E-07	1.77E-08	9.91E-10	2.91E-11		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	209.	1.69E-04
SSW	209.	1.69E-04
SW	209.	1.69E-04
WSW	209.	1.69E-04
W	209.	1.69E-04
WNW	209.	1.69E-04
NW	209.	1.69E-04
NNW	209.	1.69E-04
N	209.	1.69E-04
NNE	209.	1.69E-04
NE	209.	1.69E-04
ENE	209.	1.69E-04
E	209.	1.69E-04
ESE	209.	1.69E-04

SE	209.	1.69E-04
SSE	209.	1.69E-04

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**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	280.	1.67E-06	3.64E-07	1.70E-07	3.25E-08	3.03E-09	1.66E-10	7.4	S
SSW	280.	1.71E-06	4.30E-07	2.16E-07	4.83E-08	5.63E-09	4.06E-10	154.3	SSW
SW	280.	2.21E-06	6.19E-07	3.28E-07	8.25E-08	1.14E-08	1.01E-09	17.7	SW
WSW	280.	2.54E-06	7.52E-07	4.09E-07	1.09E-07	1.63E-08	1.60E-09	24.9	WSW
W	280.	3.31E-06	1.04E-06	5.87E-07	1.68E-07	2.79E-08	3.10E-09	43.7	W
WNW	280.	2.49E-06	7.45E-07	4.08E-07	1.10E-07	1.69E-08	1.70E-09	22.4	WNW
NW	280.	1.70E-06	4.43E-07	2.26E-07	5.27E-08	6.51E-09	5.04E-10	6.6	NW
NNW	280.	1.37E-06	2.66E-07	1.18E-07	2.00E-08	1.57E-09	6.96E-11	3.6	NNW
N	280.	1.55E-06	3.60E-07	1.73E-07	3.56E-08	3.66E-09	2.27E-10	3.9	N
NNE	280.	1.30E-06	2.94E-07	1.40E-07	2.80E-08	2.77E-09	1.64E-10	2.5	NNE
NE	280.	1.28E-06	2.84E-07	1.34E-07	2.61E-08	2.49E-09	1.41E-10	3.2	NE
ENE	280.	1.20E-06	2.66E-07	1.25E-07	2.45E-08	2.35E-09	1.33E-10	2.0	ENE
E	280.	1.42E-06	3.67E-07	1.87E-07	4.31E-08	5.26E-09	4.00E-10	3.4	E
ESE	280.	1.19E-06	2.92E-07	1.45E-07	3.16E-08	3.55E-09	2.45E-10	4.7	ESE
SE	280.	1.28E-06	2.42E-07	1.05E-07	1.73E-08	1.30E-09	5.45E-11	3.0	SE
SSE	280.	1.64E-06	3.88E-07	1.89E-07	3.95E-08	4.19E-09	2.69E-10	4.4	SSE
MAX X/Q		3.31E-06				TOTAL HOURS AROUND SITE:		307.8	
SRP 2.3.4	280.	2.12E-06	7.22E-07	4.21E-07	1.30E-07	2.43E-08	3.10E-09		
SITE LIMIT		2.12E-06	7.22E-07	4.21E-07	1.30E-07	2.43E-08	3.10E-09		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	280.	1.30E-04
SSW	280.	1.30E-04
SW	280.	1.30E-04
WSW	280.	1.30E-04
W	280.	1.30E-04
WNW	280.	1.30E-04
NW	280.	1.30E-04
NNW	280.	1.30E-04
N	280.	1.30E-04
NNE	280.	1.30E-04
NE	280.	1.30E-04
ENE	280.	1.30E-04
E	280.	1.30E-04
ESE	280.	1.30E-04

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   SE       280.     1.30E-04
  SSE       280.     1.30E-04

**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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Off-Gas Stack to Control Room Intake (300 and 500 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

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   1  1111
Peach Bottom                                    Stack Release
97.5 meters           10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
   11     1
2584. 54.3131.4 97.5
    0     0     0     2     6     5     0
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0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	2.	10.	10.	15.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.	6.	10.	23.	59.	25.	2.	0.	0.	1.	2.	0.	0.	0.	0.	1.
1.	3.	11.	18.	43.	40.	10.	4.	2.	2.	2.	0.	1.	3.	0.	0.
0.	6.	10.	11.	13.	17.	9.	0.	7.	4.	3.	3.	2.	3.	0.	5.
0.	1.	2.	13.	8.	3.	9.	0.	4.	3.	0.	6.	13.	7.	3.	4.
2.	4.	9.	11.	2.	3.	7.	0.	6.	2.	2.	1.	14.	5.	2.	14.
1.	2.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	10.	2.	0.	1.
1.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	6.	5.	1.	1.
0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	9.	5.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	7.	5.	8.	21.	5.	1.	0.	0.	0.	0.	0.	1.	0.	1.	0.
12.	15.	9.	11.	34.	19.	6.	1.	1.	4.	3.	1.	3.	1.	2.	3.
1.	11.	11.	18.	6.	21.	11.	4.	4.	4.	4.	2.	3.	5.	1.	7.
2.	5.	4.	2.	5.	9.	13.	5.	17.	9.	6.	5.	13.	2.	1.	12.
3.	0.	3.	1.	3.	0.	9.	6.	14.	5.	6.	7.	10.	8.	3.	15.
8.	2.	1.	1.	0.	2.	5.	3.	22.	5.	3.	13.	21.	15.	6.	20.
1.	3.	0.	0.	0.	1.	1.	1.	6.	1.	1.	2.	11.	12.	5.	6.
0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.	7.	10.	0.	0.
0.	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	3.	10.	14.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4.	7.	11.	16.	31.	17.	2.	0.	1.	0.	0.	0.	0.	0.	0.	1.
18.	14.	15.	17.	17.	40.	6.	4.	11.	4.	7.	3.	2.	2.	3.	16.
26.	12.	8.	11.	10.	21.	26.	13.	20.	13.	9.	4.	16.	6.	8.	35.
21.	6.	3.	8.	5.	11.	31.	10.	40.	14.	15.	14.	23.	13.	9.	45.
8.	8.	0.	3.	2.	3.	15.	12.	37.	17.	11.	15.	11.	21.	18.	43.
14.	2.	4.	2.	2.	3.	7.	5.	48.	18.	16.	24.	48.	45.	26.	74.
4.	1.	0.	0.	1.	2.	0.	1.	10.	0.	3.	3.	29.	27.	22.	14.
1.	3.	0.	0.	0.	0.	0.	0.	1.	0.	2.	2.	16.	33.	12.	4.
18.	18.	28.	26.	28.	20.	14.	13.	12.	6.	9.	6.	8.	19.	8.	10.

ATTACHMENT C

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  67.  53.  78.  99. 130.  77.  54.  50.  39.  31.  28.  24.  30.  19.  40.  50.
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 216. 175. 125. 187. 215. 168. 282. 234. 320. 203. 128.  80. 109. 115. 186. 390.
 237. 151. 118. 123. 134. 129. 212. 204. 330. 193. 142.  89. 134. 160. 235. 438.
 233.  99.  80.  54. 103. 102. 129. 147. 274. 132.  80. 103. 142. 196. 332. 406.
 278. 113.  52.  44.  87.  94. 107.  58. 345. 108.  91. 139. 311. 543. 821. 694.
  69.  28.  13.  11.  24.  24.  15.  10.  96.  21.  15.  20. 211. 392. 489. 230.
  25.  10.  10.   2.  18.   7.   8.   1.  40.   6.   5.  12. 124. 227. 256.  94.
  21.  15.  15.  20.  24.  17.  26.  16.  26.  16.  17.  19.  30.  17.  23.  11.
  39.  29.  21.  41.  36.  43.  35.  43.  44.  40.  42.  35.  24.  19.  16.  23.
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  24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
   8.   1.   6.   1.  21.   3.   9.   1.   9.   2.   2.   2.  10.  12.  10.  14.
  16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
  10.  12.   9.  16.  20.  11.  18.  20.  11.  20.  17.  18.  16.  15.  13.  15.
  26.  13.  14.  10.  13.  18.  27.  34.  33.  29.  27.  36.  22.  18.  18.  20.
  53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
  62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
  29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
  12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
   2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   1.  21.  23.  23.   0.   5.
   1.   0.   0.   0.   4.   0.   0.   0.   0.   0.   0.   1.   1.   0.   0.   0.
   7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
   4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
   4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
  35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
  17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
   7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
   0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
   1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   1.   2.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.0300.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.
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ATTACHMENT C


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USNRC COMPUTER CODE-PAVAN, VERSION 2.0          RUN DATE: 04/20/08


PRINTOUT OF INPUT CARDS

   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000   2     Peach Bottom
Stack Release
   3     97.5 meters         10.1-96.3 meters
   4
   5     Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T          6          11 42771     1
   7          0.500  2584.000    54.300   131.400    97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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9     21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
9     39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
9     50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
9    137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
9    177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
9    180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
9    102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
9    110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
9     24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
9      8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
9     16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
9     10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
9     26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
9     53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
9     62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
9     29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
9     12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
9      2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
9      0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
9      1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
9      7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
9      4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
9      4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
9     35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
9     17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
9      7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
9      0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
9      1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
9      0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
9      0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10         101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000 11         300.   300.   300.   300.   300.   300.
300.   300.   300.   300.   300.   300.   300.   300.   300.   300.  11         500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
500.   500.   500.   500.   500.   500.  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0
 12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0  13         500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
 14         0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	300.	1.67E-06	4.03E-07	1.98E-07	4.22E-08	4.60E-09	3.06E-10	7.4	S
SSW	300.	1.71E-06	4.75E-07	2.51E-07	6.26E-08	8.55E-09	7.48E-10	154.3	SSW
SW	300.	2.21E-06	6.84E-07	3.81E-07	1.07E-07	1.72E-08	1.85E-09	17.7	SW
WSW	300.	2.54E-06	8.31E-07	4.75E-07	1.41E-07	2.48E-08	2.94E-09	24.9	WSW
W	300.	3.31E-06	1.15E-06	6.82E-07	2.18E-07	4.23E-08	5.69E-09	43.7	W
WNW	300.	2.49E-06	8.24E-07	4.74E-07	1.43E-07	2.56E-08	3.11E-09	22.4	WNW
NW	300.	1.70E-06	4.90E-07	2.63E-07	6.84E-08	9.88E-09	9.26E-10	6.6	NW
NNW	300.	1.37E-06	2.95E-07	1.37E-07	2.59E-08	2.38E-09	1.28E-10	3.6	NNW
N	300.	1.55E-06	3.98E-07	2.02E-07	4.62E-08	5.56E-09	4.17E-10	3.9	N
NNE	300.	1.30E-06	3.25E-07	1.63E-07	3.63E-08	4.21E-09	3.01E-10	2.5	NNE
NE	300.	1.28E-06	3.14E-07	1.55E-07	3.38E-08	3.78E-09	2.59E-10	3.2	NE
ENE	300.	1.20E-06	2.94E-07	1.46E-07	3.18E-08	3.56E-09	2.45E-10	2.0	ENE
E	300.	1.42E-06	4.06E-07	2.17E-07	5.59E-08	7.97E-09	7.36E-10	3.4	E
ESE	300.	1.19E-06	3.23E-07	1.68E-07	4.10E-08	5.39E-09	4.51E-10	4.7	ESE
SE	300.	1.28E-06	2.68E-07	1.23E-07	2.25E-08	1.97E-09	1.01E-10	3.0	SE
SSE	300.	1.64E-06	4.29E-07	2.20E-07	5.13E-08	6.36E-09	4.95E-10	4.4	SSE
MAX X/Q		3.31E-06				TOTAL HOURS AROUND SITE:		307.8	
SRP 2.3.4	300.	2.12E-06	7.98E-07	4.89E-07	1.69E-07	3.68E-08	5.69E-09		
SITE LIMIT		2.12E-06	7.98E-07	4.89E-07	1.69E-07	3.68E-08	5.69E-09		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	300.	1.22E-04
SSW	300.	1.22E-04
SW	300.	1.22E-04
WSW	300.	1.22E-04
W	300.	1.22E-04
WNW	300.	1.22E-04
NW	300.	1.22E-04
NNW	300.	1.22E-04
N	300.	1.22E-04
NNE	300.	1.22E-04
NE	300.	1.22E-04
ENE	300.	1.22E-04
E	300.	1.22E-04
ESE	300.	1.22E-04

SE	300.	1.22E-04
SSE	300.	1.22E-04

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	500.	1.67E-06	5.31E-07	2.99E-07	8.62E-08	1.45E-08	1.63E-09	7.4	S
SSW	500.	1.71E-06	6.22E-07	3.76E-07	1.26E-07	2.61E-08	3.81E-09	154.3	SSW
SW	500.	2.21E-06	8.63E-07	5.40E-07	1.95E-07	4.52E-08	7.56E-09	17.7	SW
WSW	500.	2.54E-06	1.05E-06	6.74E-07	2.58E-07	6.50E-08	1.20E-08	24.9	WSW
W	500.	3.31E-06	1.45E-06	9.61E-07	3.93E-07	1.09E-07	2.26E-08	43.7	W
WNW	500.	2.49E-06	1.04E-06	6.69E-07	2.58E-07	6.61E-08	1.24E-08	22.4	WNW
NW	500.	1.70E-06	6.28E-07	3.83E-07	1.30E-07	2.78E-08	4.19E-09	6.6	NW
NNW	500.	1.37E-06	3.94E-07	2.12E-07	5.50E-08	7.95E-09	7.45E-10	3.6	NNW
N	500.	1.55E-06	5.27E-07	3.08E-07	9.55E-08	1.78E-08	2.28E-09	3.9	N
NNE	500.	1.30E-06	4.25E-07	2.43E-07	7.24E-08	1.27E-08	1.52E-09	2.5	NNE
NE	500.	1.28E-06	4.09E-07	2.31E-07	6.70E-08	1.13E-08	1.29E-09	3.2	NE
ENE	500.	1.20E-06	3.85E-07	2.18E-07	6.37E-08	1.09E-08	1.25E-09	2.0	ENE
E	500.	1.42E-06	5.24E-07	3.18E-07	1.08E-07	2.29E-08	3.44E-09	3.4	E
ESE	500.	1.19E-06	4.18E-07	2.48E-07	7.98E-08	1.57E-08	2.14E-09	4.7	ESE
SE	500.	1.28E-06	3.62E-07	1.93E-07	4.90E-08	6.87E-09	6.20E-10	3.0	SE
SSE	500.	1.64E-06	5.64E-07	3.31E-07	1.04E-07	1.98E-08	2.60E-09	4.4	SSE
MAX X/Q		3.31E-06				TOTAL HOURS AROUND SITE:		307.8	
SRP 2.3.4	500.	2.12E-06	1.00E-06	6.88E-07	3.05E-07	9.46E-08	2.26E-08		
SITE LIMIT		2.12E-06	1.00E-06	6.88E-07	3.05E-07	9.46E-08	2.26E-08		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	500.	7.68E-05
SSW	500.	7.68E-05
SW	500.	7.68E-05
WSW	500.	7.68E-05
W	500.	7.68E-05
WNW	500.	7.68E-05
NW	500.	7.68E-05
NNW	500.	7.68E-05
N	500.	7.68E-05
NNE	500.	7.68E-05
NE	500.	7.68E-05
ENE	500.	7.68E-05
E	500.	7.68E-05
ESE	500.	7.68E-05

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    SE       500.    7.68E-05
   SSE       500.    7.68E-05

**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
```

Off-Gas Stack to Control Room Intake (750 and 1000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

```
   1  1111
Peach Bottom                                Stack Release
97.5 meters           10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
   11    1
2584. 54.3131.4 97.5
    0    0    0    2    6    5    0
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   2.  10.  10.  15.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   5.   6.  10.  23.  59.  25.   2.   0.   0.   1.   2.   0.   0.   0.   0.   1.
   1.   3.  11.  18.  43.  40.  10.   4.   2.   2.   2.   0.   1.   3.   0.   0.
   0.   6.  10.  11.  13.  17.   9.   0.   7.   4.   3.   3.   2.   3.   0.   5.
   0.   1.   2.  13.   8.   3.   9.   0.   4.   3.   0.   6.  13.   7.   3.   4.
   2.   4.   9.  11.   2.   3.   7.   0.   6.   2.   2.   1.  14.   5.   2.  14.
   1.   2.   0.   1.   0.   1.   0.   0.   0.   0.   0.   2.  10.   2.   0.   1.
   1.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   1.   6.   5.   1.   1.
   0.   1.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   1.   1.   9.   5.   0.   2.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   1.   7.   5.   8.  21.   5.   1.   0.   0.   0.   0.   0.   1.   0.   1.   0.
  12.  15.   9.  11.  34.  19.   6.   1.   1.   4.   3.   1.   3.   1.   2.   3.
   1.  11.  11.  18.   6.  21.  11.   4.   4.   4.   4.   2.   3.   5.   1.   7.
   2.   5.   4.   2.   5.   9.  13.   5.  17.   9.   6.   5.  13.   2.   1.  12.
   3.   0.   3.   1.   3.   0.   9.   6.  14.   5.   6.   7.  10.   8.   3.  15.
   8.   2.   1.   1.   0.   2.   5.   3.  22.   5.   3.  13.  21.  15.   6.  20.
   1.   3.   0.   0.   0.   1.   1.   1.   6.   1.   1.   2.  11.  12.   5.   6.
   0.   0.   1.   0.   0.   0.   0.   0.   1.   1.   0.   1.   7.  10.   0.   0.
   0.   2.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   3.  10.  14.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   4.   7.  11.  16.  31.  17.   2.   0.   1.   0.   0.   0.   0.   0.   0.   1.
  18.  14.  15.  17.  17.  40.   6.   4.  11.   4.   7.   3.   2.   2.   3.  16.
  26.  12.   8.  11.  10.  21.  26.  13.  20.  13.   9.   4.  16.   6.   8.  35.
  21.   6.   3.   8.   5.  11.  31.  10.  40.  14.  15.  14.  23.  13.   9.  45.
   8.   8.   0.   3.   2.   3.  15.  12.  37.  17.  11.  15.  11.  21.  18.  43.
  14.   2.   4.   2.   2.   3.   7.   5.  48.  18.  16.  24.  48.  45.  26.  74.
   4.   1.   0.   0.   1.   2.   0.   1.  10.   0.   3.   3.  29.  27.  22.  14.
   1.   3.   0.   0.   0.   0.   0.   0.   1.   0.   2.   2.  16.  33.  12.   4.
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ATTACHMENT C

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 18.  18.  28.  26.  28.  20.  14.  13.  12.   6.   9.   6.   8.  19.   8.  10.
 41.  40.  80.  93.  87.  66.  31.  22.  29.  17.  23.   9.  18.  19.  28.  40.
 67.  53.  78.  99. 130.  77.  54.  50.  39.  31.  28.  24.  30.  19.  40.  50.
209. 119. 120. 174. 227. 179. 192. 134. 171. 110.  98.  90.  89.  59. 118. 231.
216. 175. 125. 187. 215. 168. 282. 234. 320. 203. 128.  80. 109. 115. 186. 390.
237. 151. 118. 123. 134. 129. 212. 204. 330. 193. 142.  89. 134. 160. 235. 438.
233.  99.  80.  54. 103. 102. 129. 147. 274. 132.  80. 103. 142. 196. 332. 406.
278. 113.  52.  44.  87.  94. 107.  58. 345. 108.  91. 139. 311. 543. 821. 694.
 69.  28.  13.  11.  24.  24.  15.  10.  96.  21.  15.  20. 211. 392. 489. 230.
 25.  10.  10.   2.  18.   7.   8.   1.  40.   6.   5.  12. 124. 227. 256.  94.
 21.  15.  15.  20.  24.  17.  26.  16.  26.  16.  17.  19.  30.  17.  23.  11.
 39.  29.  21.  41.  36.  43.  35.  43.  44.  40.  42.  35.  24.  19.  16.  23.
 50.  43.  35.  51.  65.  48.  90.  69.  60.  65.  63.  36.  42.  23.  30.  36.
137.  92.  91. 138. 168. 113. 186. 176. 263. 196. 164. 111. 102.  82: 112. 115.
177. 131.  95.  87. 123. 134. 205. 234. 432. 273. 191. 116. 120. 116. 154. 200.
180.  79.  69.  40.  68. 116. 152. 195. 423. 257. 165. 149. 193. 161. 255. 213.
102.  30.  25.   9.  37.  61.  88. 142. 284. 182.  99. 157. 213. 232. 277. 276.
110.  26.  17.   6.  39.  46.  69. 103. 367. 150. 159. 177. 417. 441. 493. 336.
 24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
  8.   1.   6.   1.  21.   3.   9.   1.   9.   2.   2.   2.  10.  12.  10.  14.
 16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
 10.  12.   9.  16.  20.  11.  18.  20.  11.  20.  17.  18.  16.  15.  13.  15.
 26.  13.  14.  10.  13.  18.  27.  34.  33.  29.  27.  36.  22.  18.  18.  20.
 53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
 62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
 29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
 12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
  2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
  0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   1.  21.  23.  23.   0.   5.
  1.   0.   0.   0.   4.   0.   0.   0.   0.   0.   0.   1.   1.   0.   0.   0.
  7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
  4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
  4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
 35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
 17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
  7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
  0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
  1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   1.   2.   0.   0.
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.0750.
1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.1000.
  1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
  1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.
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ATTACHMENT C


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USNRC COMPUTER CODE-PAVAN, VERSION 2.0          RUN DATE: 04/20/08


PRINTOUT OF INPUT CARDS

   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000   2      Peach Bottom
Stack Release
   3     97.5 meters          10.1-96.3 meters
   4
   5     Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T           6          11 42771      1
   7          0.500  2584.000     54.300    131.400     97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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  9      21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
  9      39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
  9      50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
  9     137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
  9     177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
  9     180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
  9     102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
  9     110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
  9      24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
  9       8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
  9      16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
  9      10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
  9      26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
  9      53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
  9      62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
  9      29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
  9      12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
  9       2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
  9       1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
  9       7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
  9       4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
  9       4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
  9      35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
  9      17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
  9       7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
  9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000  11        750.   750.   750.   750.   750.   750.
750.   750.   750.   750.   750.   750.   750.   750.   750.   750.  11        1000.  1000.  1000.  1000.  1000.  1000.  1000.  1000.  1000.  1000.
1000.  1000.  1000.  1000.  1000.  1000.  12          1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0
  12          1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0  13          500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
  14          0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	750.	1.66E-06	5.73E-07	3.37E-07	1.06E-07	2.02E-08	2.66E-09	13.0	S
SSW	750.	1.66E-06	6.37E-07	3.95E-07	1.40E-07	3.15E-08	5.09E-09	220.3	SSW
SW	750.	2.07E-06	7.99E-07	4.96E-07	1.76E-07	3.99E-08	6.48E-09	26.1	SW
WSW	750.	2.32E-06	9.45E-07	6.03E-07	2.28E-07	5.62E-08	1.01E-08	32.8	WSW
W	750.	2.60E-06	1.13E-06	7.45E-07	3.02E-07	8.26E-08	1.69E-08	43.7	W
WNW	750.	2.20E-06	9.01E-07	5.76E-07	2.19E-07	5.44E-08	9.90E-09	25.6	WNW
NW	750.	1.62E-06	6.16E-07	3.79E-07	1.33E-07	2.93E-08	4.62E-09	10.2	NW
NNW	750.	1.37E-06	4.32E-07	2.43E-07	6.98E-08	1.16E-08	1.30E-09	5.9	NNW
N	750.	1.51E-06	5.60E-07	3.42E-07	1.17E-07	2.51E-08	3.81E-09	7.6	N
NNE	750.	1.28E-06	4.44E-07	2.62E-07	8.29E-08	1.59E-08	2.11E-09	4.7	NNE
NE	750.	1.27E-06	4.30E-07	2.50E-07	7.69E-08	1.42E-08	1.79E-09	6.3	NE
ENE	750.	1.19E-06	4.05E-07	2.37E-07	7.36E-08	1.38E-08	1.77E-09	4.5	ENE
E	750.	1.33E-06	5.13E-07	3.18E-07	1.13E-07	2.55E-08	4.14E-09	6.7	E
ESE	750.	1.16E-06	4.28E-07	2.60E-07	8.81E-08	1.86E-08	2.78E-09	7.1	ESE
SE	750.	1.27E-06	4.06E-07	2.30E-07	6.67E-08	1.13E-08	1.29E-09	5.6	SE
SSE	750.	1.58E-06	5.95E-07	3.65E-07	1.27E-07	2.78E-08	4.34E-09	9.9	SSE
MAX X/Q		2.60E-06				TOTAL HOURS AROUND SITE:		430.1	
SRP 2.3.4	750.	2.00E-06	9.08E-07	6.12E-07	2.60E-07	7.61E-08	1.69E-08		
SITE LIMIT		2.00E-06	9.08E-07	6.12E-07	2.60E-07	7.61E-08	1.69E-08		

0.5 PERCENT X/Q TO AN INDIVIDUAL IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	750.	5.32E-05
SSW	750.	5.32E-05
SW	750.	5.32E-05
WSW	750.	5.32E-05
W	750.	5.32E-05
WNW	750.	5.32E-05
NW	750.	5.32E-05
NNW	750.	5.32E-05
N	750.	5.32E-05
NNE	750.	5.32E-05
NE	750.	5.32E-05
ENE	750.	5.32E-05
E	750.	5.32E-05
ESE	750.	5.32E-05

ATTACHMENT C

SE	750.	5.32E-05
SSE	750.	5.32E-05

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**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	1000.	1.64E-06	5.99E-07	3.62E-07	1.21E-07	2.51E-08	3.67E-09	16.8	S
SSW	1000.	1.61E-06	6.29E-07	3.94E-07	1.42E-07	3.31E-08	5.54E-09	263.5	SSW
SW	1000.	1.95E-06	7.52E-07	4.67E-07	1.66E-07	3.76E-08	6.11E-09	30.5	SW
WSW	1000.	2.19E-06	8.86E-07	5.63E-07	2.11E-07	5.14E-08	9.15E-09	37.7	WSW
W	1000.	2.32E-06	9.89E-07	6.45E-07	2.55E-07	6.75E-08	1.33E-08	43.7	W
WNW	1000.	2.05E-06	8.31E-07	5.30E-07	1.99E-07	4.89E-08	8.78E-09	32.8	WNW
NW	1000.	1.58E-06	6.09E-07	3.78E-07	1.34E-07	3.02E-08	4.89E-09	12.6	NW
NNW	1000.	1.35E-06	4.51E-07	2.60E-07	7.88E-08	1.42E-08	1.74E-09	7.9	NNW
N	1000.	1.50E-06	5.86E-07	3.67E-07	1.33E-07	3.08E-08	5.15E-09	10.3	N
NNE	1000.	1.27E-06	4.54E-07	2.72E-07	8.94E-08	1.81E-08	2.57E-09	6.6	NNE
NE	1000.	1.26E-06	4.41E-07	2.62E-07	8.40E-08	1.64E-08	2.24E-09	8.2	NE
ENE	1000.	1.18E-06	4.15E-07	2.46E-07	7.96E-08	1.57E-08	2.16E-09	6.1	ENE
E	1000.	1.31E-06	5.16E-07	3.24E-07	1.18E-07	2.75E-08	4.66E-09	8.8	E
ESE	1000.	1.13E-06	4.34E-07	2.69E-07	9.49E-08	2.13E-08	3.42E-09	9.0	ESE
SE	1000.	1.26E-06	4.37E-07	2.57E-07	8.10E-08	1.55E-08	2.04E-09	7.7	SE
SSE	1000.	1.57E-06	6.31E-07	3.99E-07	1.48E-07	3.56E-08	6.23E-09	13.4	SSE
MAX X/Q		2.32E-06				TOTAL HOURS AROUND SITE:		515.8	
SRP 2.3.4	1000.	1.91E-06	8.41E-07	5.57E-07	2.28E-07	6.35E-08	1.33E-08		
SITE LIMIT		1.91E-06	8.41E-07	5.57E-07	2.28E-07	6.35E-08	1.33E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	1000.	4.11E-05
SSW	1000.	4.11E-05
SW	1000.	4.11E-05
WSW	1000.	4.11E-05
W	1000.	4.11E-05
WNW	1000.	4.11E-05
NW	1000.	4.11E-05
NNW	1000.	4.11E-05
N	1000.	4.11E-05
NNE	1000.	4.11E-05
NE	1000.	4.11E-05
ENE	1000.	4.11E-05
E	1000.	4.11E-05
ESE	1000.	4.11E-05

SE 1000. 4.11E-05
SSE 1000. 4.11E-05

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

Off-Gas Stack to Control Room Intake (1500 and 2000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

1 1111
Peach Bottom Stack Release
97.5 meters 10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
11 1
2584. 54.3131.4 97.5
0 0 0 2 6 5 0

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	2.	10.	10.	15.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.	6.	10.	23.	59.	25.	2.	0.	0.	1.	2.	0.	0.	0.	0.	1.
1.	3.	11.	18.	43.	40.	10.	4.	2.	2.	2.	0.	1.	3.	0.	0.
0.	6.	10.	11.	13.	17.	9.	0.	7.	4.	3.	3.	2.	3.	0.	5.
0.	1.	2.	13.	8.	3.	9.	0.	4.	3.	0.	6.	13.	7.	3.	4.
2.	4.	9.	11.	2.	3.	7.	0.	6.	2.	2.	1.	14.	5.	2.	14.
1.	2.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	10.	2.	0.	1.
1.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	6.	5.	1.	1.
0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	9.	5.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	7.	5.	8.	21.	5.	1.	0.	0.	0.	0.	0.	1.	0.	1.	0.
12.	15.	9.	11.	34.	19.	6.	1.	1.	4.	3.	1.	3.	1.	2.	3.
1.	11.	11.	18.	6.	21.	11.	4.	4.	4.	4.	2.	3.	5.	1.	7.
2.	5.	4.	2.	5.	9.	13.	5.	17.	9.	6.	5.	13.	2.	1.	12.
3.	0.	3.	1.	3.	0.	9.	6.	14.	5.	6.	7.	10.	8.	3.	15.
8.	2.	1.	1.	0.	2.	5.	3.	22.	5.	3.	13.	21.	15.	6.	20.
1.	3.	0.	0.	0.	1.	1.	1.	6.	1.	1.	2.	11.	12.	5.	6.
0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.	7.	10.	0.	0.
0.	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	3.	10.	14.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4.	7.	11.	16.	31.	17.	2.	0.	1.	0.	0.	0.	0.	0.	0.	1.
18.	14.	15.	17.	17.	40.	6.	4.	11.	4.	7.	3.	2.	2.	3.	16.
26.	12.	8.	11.	10.	21.	26.	13.	20.	13.	9.	4.	16.	6.	8.	35.
21.	6.	3.	8.	5.	11.	31.	10.	40.	14.	15.	14.	23.	13.	9.	45.
8.	8.	0.	3.	2.	3.	15.	12.	37.	17.	11.	15.	11.	21.	18.	43.
14.	2.	4.	2.	2.	3.	7.	5.	48.	18.	16.	24.	48.	45.	26.	74.
4.	1.	0.	0.	1.	2.	0.	1.	10.	0.	3.	3.	29.	27.	22.	14.
1.	3.	0.	0.	0.	0.	0.	0.	1.	0.	2.	2.	16.	33.	12.	4.
18.	18.	28.	26.	28.	20.	14.	13.	12.	6.	9.	6.	8.	19.	8.	10.

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  41.  40.  80.  93.  87.  66.  31.  22.  29.  17.  23.   9.  18.  19.  28.  40.
  67.  53.  78.  99. 130.  77.  54.  50.  39.  31.  28.  24.  30.  19.  40.  50.
 209. 119. 120. 174. 227. 179. 192. 134. 171. 110.  98.  90.  89.  59. 118. 231.
 216. 175. 125. 187. 215. 168. 282. 234. 320. 203. 128.  80. 109. 115. 186. 390.
 237. 151. 118. 123. 134. 129. 212. 204. 330. 193. 142.  89. 134. 160. 235. 438.
 233.  99.  80.  54. 103. 102. 129. 147. 274. 132.  80. 103. 142. 196. 332. 406.
 278. 113.  52.  44.  87.  94. 107.  58. 345. 108.  91. 139. 311. 543. 821. 694.
  69.  28.  13.  11.  24.  24.  15.  10.  96.  21.  15.  20. 211. 392. 489. 230.
  25.  10.  10.   2.  18.   7.   8.   1.  40.   6.   5.  12. 124. 227. 256.  94.
  21.  15.  15.  20.  24.  17.  26.  16.  26.  16.  17.  19.  30.  17.  23.  11.
  39.  29.  21.  41.  36.  43.  35.  43.  44.  40.  42.  35.  24.  19.  16.  23.
  50.  43.  35.  51.  65.  48.  90.  69.  60.  65.  63.  36.  42.  23.  30.  36.
 137.  92.  91. 138. 168. 113. 186. 176. 263. 196. 164. 111. 102.  82. 112. 115.
 177. 131.  95.  87. 123. 134. 205. 234. 432. 273. 191. 116. 120. 116. 154. 200.
 180.  79.  69.  40.  68. 116. 152. 195. 423. 257. 165. 149. 193. 161. 255. 213.
 102.  30.  25.   9.  37.  61.  88. 142. 284. 182.  99. 157. 213. 232. 277. 276.
 110.  26.  17.   6.  39.  46.  69. 103. 367. 150. 159. 177. 417. 441. 493. 336.
  24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
   8.   1.   6.   1.  21.   3.   9.   1.   9.   2.   2.   2.  10.  12.  10.  14.
  16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
  10.  12.   9.  16.  20.  11.  18.  20.  11.  20.  17.  18.  16.  15.  13.  15.
  26.  13.  14.  10.  13.  18.  27.  34.  33.  29.  27.  36.  22.  18.  18.  20.
  53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
  62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
  29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
  12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
   2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   1.  21.  23.  23.   0.   5.
   1.   0.   0.   0.   4.   0.   0.   0.   0.   0.   0.   1.   1.   0.   0.   0.
   7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
   4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
   4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
  35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
  17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
   7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
   0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
   1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   1.   2.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.1500.
2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.2000.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.
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ATTACHMENT C

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USNRC COMPUTER CODE-PAVAN, VERSION 2.0          RUN DATE: 04/20/08


PRINTOUT OF INPUT CARDS

   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000   2     Peach Bottom
Stack Release
   3     97.5 meters          10.1-96.3 meters
   4
   5     Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T          6          11 42771     1
   7          0.500  2584.000    54.300   131.400    97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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9      21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
9      39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
9      50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
9     137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
9     177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
9     180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
9     102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
9     110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
9      24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
9       8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
9      16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
9      10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
9      26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
9      53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
9      62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
9      29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
9      12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
9       2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
9       1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
9       7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
9       4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
9       4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
9      35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
9      17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
9       7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
9       0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000 11       1500.  1500.  1500.  1500.  1500.  1500.
1500.  1500.  1500.  1500.  1500.  1500.  1500.  1500.  1500.  1500.  11        2000.  2000.  2000.  2000.  2000.  2000.  2000.  2000.  2000.
2000.  2000.  2000.  2000.  2000.  2000.  2000.  12          1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0    1.0
 12          1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0 13        500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
 14          0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	1500.	1.68E-06	6.58E-07	4.12E-07	1.49E-07	3.46E-08	5.80E-09	18.8	S
SSW	1500.	1.58E-06	6.28E-07	3.97E-07	1.46E-07	3.49E-08	6.04E-09	298.3	SSW
SW	1500.	1.89E-06	7.42E-07	4.64E-07	1.68E-07	3.90E-08	6.53E-09	33.3	SW
WSW	1500.	2.09E-06	8.48E-07	5.40E-07	2.03E-07	4.98E-08	8.92E-09	40.2	WSW
W	1500.	2.18E-06	9.07E-07	5.85E-07	2.26E-07	5.77E-08	1.09E-08	43.7	W
WNW	1500.	1.92E-06	7.84E-07	5.01E-07	1.90E-07	4.71E-08	8.56E-09	32.6	WNW
NW	1500.	1.55E-06	6.17E-07	3.89E-07	1.43E-07	3.40E-08	5.86E-09	13.1	NW
NNW	1500.	1.36E-06	4.96E-07	3.00E-07	1.01E-07	2.10E-08	3.08E-09	12.9	NNW
N	1500.	1.48E-06	6.16E-07	3.98E-07	1.54E-07	3.93E-08	7.41E-09	12.1	N
NNE	1500.	1.27E-06	4.81E-07	2.96E-07	1.03E-07	2.28E-08	3.59E-09	9.4	NNE
NE	1500.	1.26E-06	4.67E-07	2.84E-07	9.71E-08	2.07E-08	3.14E-09	10.3	NE
ENE	1500.	1.17E-06	4.31E-07	2.62E-07	8.90E-08	1.89E-08	2.84E-09	7.0	ENE
E	1500.	1.27E-06	5.17E-07	3.29E-07	1.24E-07	3.05E-08	5.49E-09	11.5	E
ESE	1500.	1.12E-06	4.56E-07	2.92E-07	1.10E-07	2.74E-08	4.97E-09	10.2	ESE
SE	1500.	1.29E-06	5.05E-07	3.17E-07	1.15E-07	2.68E-08	4.53E-09	9.1	SE
SSE	1500.	1.56E-06	6.75E-07	4.43E-07	1.78E-07	4.82E-08	9.73E-09	15.2	SSE
MAX X/Q		2.18E-06				TOTAL HOURS AROUND SITE:		577.7	
SRP 2.3.4	1500.	1.89E-06	8.05E-07	5.26E-07	2.08E-07	5.52E-08	1.09E-08		
SITE LIMIT		1.89E-06	8.05E-07	5.26E-07	2.08E-07	5.52E-08	1.09E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	1500.	2.85E-05
SSW	1500.	2.85E-05
SW	1500.	2.85E-05
WSW	1500.	2.85E-05
W	1500.	2.85E-05
WNW	1500.	2.85E-05
NW	1500.	2.85E-05
NNW	1500.	2.85E-05
N	1500.	2.85E-05
NNE	1500.	2.85E-05
NE	1500.	2.85E-05
ENE	1500.	2.85E-05
E	1500.	2.85E-05
ESE	1500.	2.85E-05

ATTACHMENT C

SE	1500.	2.85E-05
SSE	1500.	2.85E-05

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	2000.	1.60E-06	6.79E-07	4.43E-07	1.75E-07	4.62E-08	9.06E-09	21.5	S
SSW	2000.	1.49E-06	6.21E-07	4.01E-07	1.56E-07	4.00E-08	7.58E-09	302.4	SSW
SW	2000.	1.83E-06	7.50E-07	4.80E-07	1.83E-07	4.57E-08	8.36E-09	34.7	SW
WSW	2000.	2.01E-06	8.45E-07	5.49E-07	2.15E-07	5.58E-08	1.07E-08	41.6	WSW
W	2000.	2.05E-06	8.86E-07	5.82E-07	2.34E-07	6.31E-08	1.27E-08	43.7	W
WNW	2000.	1.82E-06	7.75E-07	5.05E-07	1.99E-07	5.24E-08	1.02E-08	33.9	WNW
NW	2000.	1.49E-06	6.32E-07	4.11E-07	1.62E-07	4.24E-08	8.25E-09	13.5	NW
NNW	2000.	1.33E-06	5.38E-07	3.42E-07	1.28E-07	3.11E-08	5.51E-09	14.0	NNW
N	2000.	1.43E-06	6.35E-07	4.24E-07	1.76E-07	5.00E-08	1.07E-08	16.2	N
NNE	2000.	1.22E-06	5.01E-07	3.20E-07	1.21E-07	3.01E-08	5.48E-09	10.0	NNE
NE	2000.	1.22E-06	4.85E-07	3.06E-07	1.13E-07	2.69E-08	4.66E-09	10.9	NE
ENE	2000.	1.12E-06	4.42E-07	2.77E-07	1.01E-07	2.36E-08	4.01E-09	7.7	ENE
E	2000.	1.21E-06	5.19E-07	3.40E-07	1.35E-07	3.60E-08	7.13E-09	12.3	E
ESE	2000.	1.07E-06	4.71E-07	3.13E-07	1.29E-07	3.61E-08	7.60E-09	11.3	ESE
SE	2000.	1.26E-06	5.56E-07	3.69E-07	1.51E-07	4.21E-08	8.80E-09	12.8	SE
SSE	2000.	1.51E-06	6.99E-07	4.76E-07	2.07E-07	6.25E-08	1.45E-08	18.7	SSE
MAX X/Q		2.05E-06				TOTAL HOURS AROUND SITE:		605.2	
SRP 2.3.4	2000.	1.80E-06	8.11E-07	5.44E-07	2.29E-07	6.61E-08	1.45E-08		
SITE LIMIT		1.80E-06	8.11E-07	5.44E-07	2.29E-07	6.61E-08	1.45E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	2000.	2.20E-05
SSW	2000.	2.20E-05
SW	2000.	2.20E-05
WSW	2000.	2.20E-05
W	2000.	2.20E-05
WNW	2000.	2.20E-05
NW	2000.	2.20E-05
NNW	2000.	2.20E-05
N	2000.	2.20E-05
NNE	2000.	2.20E-05
NE	2000.	2.20E-05
ENE	2000.	2.20E-05
E	2000.	2.20E-05
ESE	2000.	2.20E-05

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   SE      2000.     2.20E-05
  SSE      2000.     2.20E-05

**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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Off-Gas Stack to Control Room Intake (3000 and 4000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

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   1  1111
Peach Bottom                                 Stack Release
97.5 meters          10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
   11    1
2584. 54.3131.4 97.5
    0    0    0    2    6    5    0
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   2.  10.  10.  15.   3.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   5.   6.  10.  23.  59.  25.   2.   0.   0.   1.   2.   0.   0.   0.   0.   1.
   1.   3.  11.  18.  43.  40.  10.   4.   2.   2.   2.   0.   1.   3.   0.   0.
   0.   6.  10.  11.  13.  17.   9.   0.   7.   4.   3.   3.   2.   3.   0.   5.
   0.   1.   2.  13.   8.   3.   9.   0.   4.   3.   0.   6.  13.   7.   3.   4.
   2.   4.   9.  11.   2.   3.   7.   0.   6.   2.   2.   1.  14.   5.   2.  14.
   1.   2.   0.   1.   0.   1.   0.   0.   0.   0.   0.   2.  10.   2.   0.   1.
   1.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   1.   6.   5.   1.   1.
   0.   1.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   1.   1.   9.   5.   0.   2.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   1.   7.   5.   8.  21.   5.   1.   0.   0.   0.   0.   0.   1.   0.   1.   0.
  12.  15.   9.  11.  34.  19.   6.   1.   1.   4.   3.   1.   3.   1.   2.   3.
   1.  11.  11.  18.   6.  21.  11.   4.   4.   4.   4.   2.   3.   5.   1.   7.
   2.   5.   4.   2.   5.   9.  13.   5.  17.   9.   6.   5.  13.   2.   1.  12.
   3.   0.   3.   1.   3.   0.   9.   6.  14.   5.   6.   7.  10.   8.   3.  15.
   8.   2.   1.   1.   0.   2.   5.   3.  22.   5.   3.  13.  21.  15.   6.  20.
   1.   3.   0.   0.   0.   1.   1.   1.   6.   1.   1.   2.  11.  12.   5.   6.
   0.   0.   1.   0.   0.   0.   0.   0.   1.   1.   0.   1.   7.  10.   0.   0.
   0.   2.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   0.   3.  10.  14.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
   4.   7.  11.  16.  31.  17.   2.   0.   1.   0.   0.   0.   0.   0.   0.   1.
  18.  14.  15.  17.  17.  40.   6.   4.  11.   4.   7.   3.   2.   2.   3.  16.
  26.  12.   8.  11.  10.  21.  26.  13.  20.  13.   9.   4.  16.   6.   8.  35.
  21.   6.   3.   8.   5.  11.  31.  10.  40.  14.  15.  14.  23.  13.   9.  45.
   8.   8.   0.   3.   2.   3.  15.  12.  37.  17.  11.  15.  11.  21.  18.  43.
  14.   2.   4.   2.   2.   3.   7.   5.  48.  18.  16.  24.  48.  45.  26.  74.
   4.   1.   0.   0.   1.   2.   0.   1.  10.   0.   3.   3.  29.  27.  22.  14.
   1.   3.   0.   0.   0.   0.   0.   0.   1.   0.   2.   2.  16.  33.  12.   4.
  18.  18.  28.  26.  28.  20.  14.  13.  12.   6.   9.   6.   8.  19.   8.  10.
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ATTACHMENT C

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  41.  40.  80.  93.  87.  66.  31.  22.  29.  17.  23.   9.  18.  19.  28.  40.
  67.  53.  78.  99. 130.  77.  54.  50.  39.  31.  28.  24.  30.  19.  40.  50.
 209. 119. 120. 174. 227. 179. 192. 134. 171. 110.  98.  90.  89.  59. 118. 231.
 216. 175. 125. 187. 215. 168. 282. 234. 320. 203. 128.  80. 109. 115. 186. 390.
 237. 151. 118. 123. 134. 129. 212. 204. 330. 193. 142.  89. 134. 160. 235. 438.
 233.  99.  80.  54. 103. 102. 129. 147. 274. 132.  80. 103. 142. 196. 332. 406.
 278. 113.  52.  44.  87.  94. 107.  58. 345. 108.  91. 139. 311. 543. 821. 694.
  69.  28.  13.  11.  24.  24.  15.  10.  96.  21.  15.  20. 211. 392. 489. 230.
  25.  10.  10.   2.  18.   7.   8.   1.  40.   6.   5.  12. 124. 227. 256.  94.
  21.  15.  15.  20.  24.  17.  26.  16.  26.  16.  17.  19.  30.  17.  23.  11.
  39.  29.  21.  41.  36.  43.  35.  43.  44.  40.  42.  35.  24.  19.  16.  23.
  50.  43.  35.  51.  65.  48.  90.  69.  60.  65.  63.  36.  42.  23.  30.  36.
 137.  92.  91. 138. 168. 113. 186. 176. 263. 196. 164. 111. 102.  82. 112. 115.
 177. 131.  95.  87. 123. 134. 205. 234. 432. 273. 191. 116. 120. 116. 154. 200.
 180.  79.  69.  40.  68. 116. 152. 195. 423. 257. 165. 149. 193. 161. 255. 213.
 102.  30.  25.   9.  37.  61.  88. 142. 284. 182.  99. 157. 213. 232. 277. 276.
 110.  26.  17.   6.  39.  46.  69. 103. 367. 150. 159. 177. 417. 441. 493. 336.
  24.  10.   3.   4.  11.  20.  16.  11.  72.  19.  27.  38.  88. 124. 101.  48.
   8.   1.   6.   1.  21.   3.   9.   1.   9.   2.   2.   2.  10.  12.  10.  14.
  16.   7.  13.  10.  11.  12.  10.  12.  12.  12.  15.  15.  14.  13.  13.   7.
  10.  12.   9.  16.  20.  11.  18.  20.  11.  20.  17.  18.  16.  15.  13.  15.
  26.  13.  14.  10.  13.  18.  27.  34.  33.  29.  27.  36.  22.  18.  18.  20.
  53.  19.  18.  17.  15.  28.  43.  44.  75.  89.  99.  64.  43.  39.  60.  59.
  62.  19.   7.  10.  14.  18.  37.  32.  89.  72. 105.  77.  88.  49.  69.  53.
  29.   9.   6.   0.   5.  11.  18.  46.  46.  46.  66.  85.  85.  74.  87.  57.
  12.   4.   3.   0.   0.   2.   7.  15.  40.  19.  31.  57.  85.  55.  67.  47.
   2.   0.   0.   0.   0.   1.   4.   6.  24.  20.  23.  80. 128. 104.  61.  19.
   0.   0.   0.   0.   0.   0.   0.   0.   1.   3.   1.  21.  23.  23.   0.   5.
   1.   0.   0.   0.   4.   0.   0.   0.   0.   0.   0.   1.   1.   0.   0.   0.
   7.   9.   6.   6.   8.   2.   1.   7.   8.   8.   1.  10.   8.   8.   7.  10.
   4.   5.   5.   4.   5.   3.   3.   2.   9.   1.   5.   8.   5.   6.   6.   9.
   4.   9.   5.   4.   5.   1.  11.   4.   8.   9.   6.   8.   7.   8.  11.  12.
  35.   8.  15.  13.   7.   5.  12.   5.  22.  19.  22.  19.  25.  22.  44.  34.
  17.   3.   5.   4.   3.   1.   8.   3.   6.  16.  36.  25.  28.  26.  53.  62.
   7.   4.   1.   0.   0.   1.   4.   3.   8.   4.  16.  40.  27.  20.  41.  29.
   0.   0.   0.   0.   0.   0.   2.   1.   1.   5.  10.  23.  37.  10.  17.   8.
   1.   0.   0.   0.   0.   0.   0.   1.   1.   0.   5.  14.  24.  32.   5.   4.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   1.   2.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.3000.
4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.4000.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.0500.
0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.0000.
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ATTACHMENT C


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USNRC COMPUTER CODE-PAVAN, VERSION 2.0          RUN DATE: 04/20/08


PRINTOUT OF INPUT CARDS

   1     00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000   2     Peach Bottom
Stack Release
   3     97.5 meters         10.1-96.3 meters
   4
   5     Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T          6          11 42771     1
   7          0.500  2584.000     54.300   131.400     97.500
   8       0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9       1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9       0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9       0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9       2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9       1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9       1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9       0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9      12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9       1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9       2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9       3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9       8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9       1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9       0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9       0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9      18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9      26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9      21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9       8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9      14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9       4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9       1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9      18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9      41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9      67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9     209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9     216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9     237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9     233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9     278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9      69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9      25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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9        21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
9        39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
9        50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
9       137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
9       177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
9       180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
9       102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
9       110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
9        24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
9         8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
9        16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
9        10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
9        26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
9        53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
9        62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
9        29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
9        12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
9         2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
9         0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
9         1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
9         7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
9         4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
9         4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
9        35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
9        17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
9         7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
9         0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
9         1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
9         0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
9         0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000 10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000 11        3000.  3000.  3000.  3000.  3000.  3000.
3000.  3000.  3000.  3000.  3000.  3000.  3000.  3000.  3000.  3000.  11        4000.  4000.  4000.  4000.  4000.  4000.  4000.  4000.  4000.
4000.  4000.  4000.  4000.  4000.  4000.  4000.  12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0    1.0
 12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0 13        500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
 14          0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	3000.	1.49E-06	6.92E-07	4.71E-07	2.05E-07	6.19E-08	1.43E-08	22.0	S
SSW	3000.	1.37E-06	6.10E-07	4.08E-07	1.70E-07	4.83E-08	1.04E-08	303.1	SSW
SW	3000.	1.74E-06	7.58E-07	5.00E-07	2.03E-07	5.55E-08	1.14E-08	34.8	SW
WSW	3000.	1.88E-06	8.37E-07	5.58E-07	2.32E-07	6.55E-08	1.40E-08	40.6	WSW
W	3000.	1.95E-06	8.85E-07	5.97E-07	2.54E-07	7.43E-08	1.65E-08	43.7	W
WNW	3000.	1.64E-06	7.38E-07	4.96E-07	2.09E-07	6.04E-08	1.32E-08	28.8	WNW
NW	3000.	1.40E-06	6.44E-07	4.36E-07	1.87E-07	5.54E-08	1.25E-08	18.5	NW
NNW	3000.	1.29E-06	5.76E-07	3.85E-07	1.60E-07	4.56E-08	9.80E-09	16.1	NNW
N	3000.	1.36E-06	6.58E-07	4.57E-07	2.07E-07	6.64E-08	1.65E-08	15.6	N
NNE	3000.	1.16E-06	5.22E-07	3.49E-07	1.46E-07	4.18E-08	9.06E-09	11.7	NNE
NE	3000.	1.17E-06	5.06E-07	3.34E-07	1.35E-07	3.68E-08	7.51E-09	12.4	NE
ENE	3000.	1.07E-06	4.57E-07	2.99E-07	1.19E-07	3.16E-08	6.25E-09	9.9	ENE
E	3000.	1.16E-06	5.29E-07	3.58E-07	1.53E-07	4.53E-08	1.02E-08	12.5	E
ESE	3000.	1.01E-06	4.86E-07	3.37E-07	1.52E-07	4.85E-08	1.20E-08	11.8	ESE
SE	3000.	1.24E-06	6.02E-07	4.20E-07	1.92E-07	6.24E-08	1.58E-08	14.2	SE
SSE	3000.	1.40E-06	7.02E-07	4.97E-07	2.36E-07	8.06E-08	2.17E-08	16.1	SSE
MAX X/Q		1.95E-06				TOTAL HOURS AROUND SITE:		611.9	
SRP 2.3.4	3000.	1.71E-06	8.33E-07	5.80E-07	2.65E-07	8.60E-08	2.17E-08		
SITE LIMIT		1.71E-06	8.33E-07	5.80E-07	2.65E-07	8.60E-08	2.17E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	3000.	1.52E-05
SSW	3000.	1.52E-05
SW	3000.	1.52E-05
WSW	3000.	1.52E-05
W	3000.	1.52E-05
WNW	3000.	1.52E-05
NW	3000.	1.52E-05
NNW	3000.	1.52E-05
N	3000.	1.52E-05
NNE	3000.	1.52E-05
NE	3000.	1.52E-05
ENE	3000.	1.52E-05
E	3000.	1.52E-05
ESE	3000.	1.52E-05

SE	3000.	1.52E-05
SSE	3000.	1.52E-05

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	4000.	1.50E-06	7.10E-07	4.88E-07	2.17E-07	6.77E-08	1.63E-08	25.6	S
SSW	4000.	1.35E-06	6.13E-07	4.13E-07	1.75E-07	5.10E-08	1.13E-08	351.8	SSW
SW	4000.	1.70E-06	7.50E-07	4.99E-07	2.06E-07	5.79E-08	1.23E-08	35.1	SW
WSW	4000.	1.82E-06	8.21E-07	5.52E-07	2.33E-07	6.76E-08	1.49E-08	40.9	WSW
W	4000.	1.87E-06	8.65E-07	5.88E-07	2.55E-07	7.69E-08	1.77E-08	43.7	W
WNW	4000.	1.57E-06	7.21E-07	4.89E-07	2.10E-07	6.24E-08	1.41E-08	29.1	WNW
NW	4000.	1.42E-06	6.64E-07	4.54E-07	1.99E-07	6.09E-08	1.43E-08	22.3	NW
NNW	4000.	1.28E-06	5.91E-07	4.01E-07	1.73E-07	5.17E-08	1.18E-08	17.7	NNW
N	4000.	1.36E-06	6.74E-07	4.74E-07	2.21E-07	7.37E-08	1.93E-08	20.0	N
NNE	4000.	1.16E-06	5.35E-07	3.64E-07	1.58E-07	4.74E-08	1.09E-08	13.0	NNE
NE	4000.	1.15E-06	5.16E-07	3.45E-07	1.45E-07	4.14E-08	8.98E-09	13.5	NE
ENE	4000.	1.06E-06	4.66E-07	3.09E-07	1.27E-07	3.54E-08	7.42E-09	11.0	ENE
E	4000.	1.12E-06	5.28E-07	3.62E-07	1.59E-07	4.92E-08	1.17E-08	14.0	E
ESE	4000.	1.05E-06	5.11E-07	3.58E-07	1.64E-07	5.39E-08	1.38E-08	14.1	ESE
SE	4000.	1.23E-06	6.14E-07	4.35E-07	2.05E-07	6.96E-08	1.86E-08	15.9	SE
SSE	4000.	1.43E-06	7.27E-07	5.19E-07	2.49E-07	8.70E-08	2.40E-08	22.0	SSE
MAX X/Q		1.87E-06				TOTAL HOURS AROUND SITE:		689.6	
SRP 2.3.4	4000.	1.69E-06	8.36E-07	5.88E-07	2.74E-07	9.17E-08	2.40E-08		
SITE LIMIT		1.69E-06	8.36E-07	5.88E-07	2.74E-07	9.17E-08	2.40E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	4000.	1.17E-05
SSW	4000.	1.17E-05
SW	4000.	1.17E-05
WSW	4000.	1.17E-05
W	4000.	1.17E-05
WNW	4000.	1.17E-05
NW	4000.	1.17E-05
NNW	4000.	1.17E-05
N	4000.	1.17E-05
NNE	4000.	1.17E-05
NE	4000.	1.17E-05
ENE	4000.	1.17E-05
E	4000.	1.17E-05
ESE	4000.	1.17E-05

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   SE      4000.     1.17E-05
  SSE      4000.     1.17E-05

**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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Off-Gas Stack to Control Room Intake (5000 and 6000 m; Tower 2 Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

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   1  1111
Peach Bottom                                    Stack Release
97.5 meters          10.1-96.3 meters

Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
   11    1
2584. 54.3131.4 97.5
    0    0    0    2    6    5    0
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0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	2.	10.	10.	15.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.	6.	10.	23.	59.	25.	2.	0.	0.	1.	2.	0.	0.	0.	0.	1.
1.	3.	11.	18.	43.	40.	10.	4.	2.	2.	2.	0.	1.	3.	0.	0.
0.	6.	10.	11.	13.	17.	9.	0.	7.	4.	3.	3.	2.	3.	0.	5.
0.	1.	2.	13.	8.	3.	9.	0.	4.	3.	0.	6.	13.	7.	3.	4.
2.	4.	9.	11.	2.	3.	7.	0.	6.	2.	2.	1.	14.	5.	2.	14.
1.	2.	0.	1.	0.	1.	0.	0.	0.	0.	0.	2.	10.	2.	0.	1.
1.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	6.	5.	1.	1.
0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	9.	5.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	7.	5.	8.	21.	5.	1.	0.	0.	0.	0.	0.	1.	0.	1.	0.
12.	15.	9.	11.	34.	19.	6.	1.	1.	4.	3.	1.	3.	1.	2.	3.
1.	11.	11.	18.	6.	21.	11.	4.	4.	4.	4.	2.	3.	5.	1.	7.
2.	5.	4.	2.	5.	9.	13.	5.	17.	9.	6.	5.	13.	2.	1.	12.
3.	0.	3.	1.	3.	0.	9.	6.	14.	5.	6.	7.	10.	8.	3.	15.
8.	2.	1.	1.	0.	2.	5.	3.	22.	5.	3.	13.	21.	15.	6.	20.
1.	3.	0.	0.	0.	1.	1.	1.	6.	1.	1.	2.	11.	12.	5.	6.
0.	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.	7.	10.	0.	0.
0.	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	3.	10.	14.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4.	7.	11.	16.	31.	17.	2.	0.	1.	0.	0.	0.	0.	0.	0.	1.
18.	14.	15.	17.	17.	40.	6.	4.	11.	4.	7.	3.	2.	2.	3.	16.
26.	12.	8.	11.	10.	21.	26.	13.	20.	13.	9.	4.	16.	6.	8.	35.
21.	6.	3.	8.	5.	11.	31.	10.	40.	14.	15.	14.	23.	13.	9.	45.
8.	8.	0.	3.	2.	3.	15.	12.	37.	17.	11.	15.	11.	21.	18.	43.
14.	2.	4.	2.	2.	3.	7.	5.	48.	18.	16.	24.	48.	45.	26.	74.
4.	1.	0.	0.	1.	2.	0.	1.	10.	0.	3.	3.	29.	27.	22.	14.
1.	3.	0.	0.	0.	0.	0.	0.	1.	0.	2.	2.	16.	33.	12.	4.
18.	18.	28.	26.	28.	20.	14.	13.	12.	6.	9.	6.	8.	19.	8.	10.

ATTACHMENT C

41.	40.	80.	93.	87.	66.	31.	22.	29.	17.	23.	9.	18.	19.	28.	40.
67.	53.	78.	99.	130.	77.	54.	50.	39.	31.	28.	24.	30.	19.	40.	50.
209.	119.	120.	174.	227.	179.	192.	134.	171.	110.	98.	90.	89.	59.	118.	231.
216.	175.	125.	187.	215.	168.	282.	234.	320.	203.	128.	80.	109.	115.	186.	390.
237.	151.	118.	123.	134.	129.	212.	204.	330.	193.	142.	89.	134.	160.	235.	438.
233.	99.	80.	54.	103.	102.	129.	147.	274.	132.	80.	103.	142.	196.	332.	406.
278.	113.	52.	44.	87.	94.	107.	58.	345.	108.	91.	139.	311.	543.	821.	694.
69.	28.	13.	11.	24.	24.	15.	10.	96.	21.	15.	20.	211.	392.	489.	230.
25.	10.	10.	2.	18.	7.	8.	1.	40.	6.	5.	12.	124.	227.	256.	94.
21.	15.	15.	20.	24.	17.	26.	16.	26.	16.	17.	19.	30.	17.	23.	11.
39.	29.	21.	41.	36.	43.	35.	43.	44.	40.	42.	35.	24.	19.	16.	23.
50.	43.	35.	51.	65.	48.	90.	69.	60.	65.	63.	36.	42.	23.	30.	36.
137.	92.	91.	138.	168.	113.	186.	176.	263.	196.	164.	111.	102.	82.	112.	115.
177.	131.	95.	87.	123.	134.	205.	234.	432.	273.	191.	116.	120.	116.	154.	200.
180.	79.	69.	40.	68.	116.	152.	195.	423.	257.	165.	149.	193.	161.	255.	213.
102.	30.	25.	9.	37.	61.	88.	142.	284.	182.	99.	157.	213.	232.	277.	276.
110.	26.	17.	6.	39.	46.	69.	103.	367.	150.	159.	177.	417.	441.	493.	336.
24.	10.	3.	4.	11.	20.	16.	11.	72.	19.	27.	38.	88.	124.	101.	48.
8.	1.	6.	1.	21.	3.	9.	1.	9.	2.	2.	2.	10.	12.	10.	14.
16.	7.	13.	10.	11.	12.	10.	12.	12.	12.	15.	15.	14.	13.	13.	7.
10.	12.	9.	16.	20.	11.	18.	20.	11.	20.	17.	18.	16.	15.	13.	15.
26.	13.	14.	10.	13.	18.	27.	34.	33.	29.	27.	36.	22.	18.	18.	20.
53.	19.	18.	17.	15.	28.	43.	44.	75.	89.	99.	64.	43.	39.	60.	59.
62.	19.	7.	10.	14.	18.	37.	32.	89.	72.	105.	77.	88.	49.	69.	53.
29.	9.	6.	0.	5.	11.	18.	46.	46.	46.	66.	85.	85.	74.	87.	57.
12.	4.	3.	0.	0.	2.	7.	15.	40.	19.	31.	57.	85.	55.	67.	47.
2.	0.	0.	0.	0.	1.	4.	6.	24.	20.	23.	80.	128.	104.	61.	19.
0.	0.	0.	0.	0.	0.	0.	0.	1.	3.	1.	21.	23.	23.	0.	5.
1.	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
7.	9.	6.	6.	8.	2.	1.	7.	8.	8.	1.	10.	8.	8.	7.	10.
4.	5.	5.	4.	5.	3.	3.	2.	9.	1.	5.	8.	5.	6.	6.	9.
4.	9.	5.	4.	5.	1.	11.	4.	8.	9.	6.	8.	7.	8.	11.	12.
35.	8.	15.	13.	7.	5.	12.	5.	22.	19.	22.	19.	25.	22.	44.	34.
17.	3.	5.	4.	3.	1.	8.	3.	6.	16.	36.	25.	28.	26.	53.	62.
7.	4.	1.	0.	0.	1.	4.	3.	8.	4.	16.	40.	27.	20.	41.	29.
0.	0.	0.	0.	0.	0.	2.	1.	1.	5.	10.	23.	37.	10.	17.	8.
1.	0.	0.	0.	0.	0.	0.	1.	1.	0.	5.	14.	24.	32.	5.	4.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101.	0.50	2.35	3.47	4.59	6.82	9.06	11.31	3.53	18.01	22.37	55.0				
5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.	5000.
6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.	6000.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.	0500.
0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.	0000.

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 04/20/08

PRINTOUT OF INPUT CARDS

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   1      00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000    2      Peach Bottom
Stack Release
   3      97.5 meters         10.1-96.3 meters
   4
   5      Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T           6          11 42771      1
   7          0.500  2584.000     54.300    131.400     97.500
   8        0.000  0.000  0.000  2.000  6.000  5.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  2.000 10.000 10.000 15.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        5.000  6.000 10.000 23.000 59.000 25.000  2.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  1.000
   9        1.000  3.000 11.000 18.000 43.000 40.000 10.000  4.000  2.000  2.000  2.000  0.000  1.000  3.000  0.000  0.000
   9        0.000  6.000 10.000 11.000 13.000 17.000  9.000  0.000  7.000  4.000  3.000  3.000  2.000  3.000  0.000  5.000
   9        0.000  1.000  2.000 13.000  8.000  3.000  9.000  0.000  4.000  3.000  0.000  6.000 13.000  7.000  3.000  4.000
   9        2.000  4.000  9.000 11.000  2.000  3.000  7.000  0.000  6.000  2.000  2.000  1.000 14.000  5.000  2.000 14.000
   9        1.000  2.000  0.000  1.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  2.000 10.000  2.000  0.000  1.000
   9        1.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  6.000  5.000  1.000  1.000
   9        0.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  1.000  1.000  9.000  5.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        1.000  7.000  5.000  8.000 21.000  5.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  1.000  0.000
   9       12.000 15.000  9.000 11.000 34.000 19.000  6.000  1.000  1.000  4.000  3.000  1.000  3.000  1.000  2.000  3.000
   9        1.000 11.000 11.000 18.000  6.000 21.000 11.000  4.000  4.000  4.000  4.000  2.000  3.000  5.000  1.000  7.000
   9        2.000  5.000  4.000  2.000  5.000  9.000 13.000  5.000 17.000  9.000  6.000  5.000 13.000  2.000  1.000 12.000
   9        3.000  0.000  3.000  1.000  3.000  0.000  9.000  6.000 14.000  5.000  6.000  7.000 10.000  8.000  3.000 15.000
   9        8.000  2.000  1.000  1.000  0.000  2.000  5.000  3.000 22.000  5.000  3.000 13.000 21.000 15.000  6.000 20.000
   9        1.000  3.000  0.000  0.000  0.000  1.000  1.000  1.000  6.000  1.000  1.000  2.000 11.000 12.000  5.000  6.000
   9        0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  1.000  7.000 10.000  0.000  0.000
   9        0.000  2.000  2.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  3.000 10.000 14.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        4.000  7.000 11.000 16.000 31.000 17.000  2.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000
   9       18.000 14.000 15.000 17.000 17.000 40.000  6.000  4.000 11.000  4.000  7.000  3.000  2.000  2.000  3.000 16.000
   9       26.000 12.000  8.000 11.000 10.000 21.000 26.000 13.000 20.000 13.000  9.000  4.000 16.000  6.000  8.000 35.000
   9       21.000  6.000  3.000  8.000  5.000 11.000 31.000 10.000 40.000 14.000 15.000 14.000 23.000 13.000  9.000 45.000
   9        8.000  8.000  0.000  3.000  2.000  3.000 15.000 12.000 37.000 17.000 11.000 15.000 11.000 21.000 18.000 43.000
   9       14.000  2.000  4.000  2.000  2.000  3.000  7.000  5.000 48.000 18.000 16.000 24.000 48.000 45.000 26.000 74.000
   9        4.000  1.000  0.000  0.000  1.000  2.000  0.000  1.000 10.000  0.000  3.000  3.000 29.000 27.000 22.000 14.000
   9        1.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  2.000  2.000 16.000 33.000 12.000  4.000
   9       18.000 18.000 28.000 26.000 28.000 20.000 14.000 13.000 12.000  6.000  9.000  6.000  8.000 19.000  8.000 10.000
   9       41.000 40.000 80.000 93.000 87.000 66.000 31.000 22.000 29.000 17.000 23.000  9.000 18.000 19.000 28.000 40.000
   9       67.000 53.000 78.000 99.000130.000 77.000 54.000 50.000 39.000 31.000 28.000 24.000 30.000 19.000 40.000 50.000
   9      209.000119.000120.000174.000227.000179.000192.000134.000171.000110.000 98.000 90.000 89.000 59.000118.000231.000
   9      216.000175.000125.000187.000215.000168.000282.000234.000320.000203.000128.000 80.000109.000115.000186.000390.000
   9      237.000151.000118.000123.000134.000129.000212.000204.000330.000193.000142.000 89.000134.000160.000235.000438.000
   9      233.000 99.000 80.000 54.000103.000102.000129.000147.000274.000132.000 80.000103.000142.000196.000332.000406.000
   9      278.000113.000 52.000 44.000 87.000 94.000107.000 58.000345.000108.000 91.000139.000311.000543.000821.000694.000
   9       69.000 28.000 13.000 11.000 24.000 24.000 15.000 10.000 96.000 21.000 15.000 20.000211.000392.000489.000230.000
   9       25.000 10.000 10.000  2.000 18.000  7.000  8.000  1.000 40.000  6.000  5.000 12.000124.000227.000256.000 94.000
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ATTACHMENT C

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   9      21.000 15.000 15.000 20.000 24.000 17.000 26.000 16.000 26.000 16.000 17.000 19.000 30.000 17.000 23.000 11.000
   9      39.000 29.000 21.000 41.000 36.000 43.000 35.000 43.000 44.000 40.000 42.000 35.000 24.000 19.000 16.000 23.000
   9      50.000 43.000 35.000 51.000 65.000 48.000 90.000 69.000 60.000 65.000 63.000 36.000 42.000 23.000 30.000 36.000
   9     137.000 92.000 91.000138.000168.000113.000186.000176.000263.000196.000164.000111.000102.000 82.000112.000115.000
   9     177.000131.000 95.000 87.000123.000134.000205.000234.000432.000273.000191.000116.000120.000116.000154.000200.000
   9     180.000 79.000 69.000 40.000 68.000116.000152.000195.000423.000257.000165.000149.000193.000161.000255.000213.000
   9     102.000 30.000 25.000  9.000 37.000 61.000 88.000142.000284.000182.000 99.000157.000213.000232.000277.000276.000
   9     110.000 26.000 17.000  6.000 39.000 46.000 69.000103.000367.000150.000159.000177.000417.000441.000493.000336.000
   9      24.000 10.000  3.000  4.000 11.000 20.000 16.000 11.000 72.000 19.000 27.000 38.000 88.000124.000101.000 48.000
   9       8.000  1.000  6.000  1.000 21.000  3.000  9.000  1.000  9.000  2.000  2.000  2.000 10.000 12.000 10.000 14.000
   9      16.000  7.000 13.000 10.000 11.000 12.000 10.000 12.000 12.000 12.000 15.000 15.000 14.000 13.000 13.000  7.000
   9      10.000 12.000  9.000 16.000 20.000 11.000 18.000 20.000 11.000 20.000 17.000 18.000 16.000 15.000 13.000 15.000
   9      26.000 13.000 14.000 10.000 13.000 18.000 27.000 34.000 33.000 29.000 27.000 36.000 22.000 18.000 18.000 20.000
   9      53.000 19.000 18.000 17.000 15.000 28.000 43.000 44.000 75.000 89.000 99.000 64.000 43.000 39.000 60.000 59.000
   9      62.000 19.000  7.000 10.000 14.000 18.000 37.000 32.000 89.000 72.000105.000 77.000 88.000 49.000 69.000 53.000
   9      29.000  9.000  6.000  0.000  5.000 11.000 18.000 46.000 46.000 46.000 66.000 85.000 85.000 74.000 87.000 57.000
   9      12.000  4.000  3.000  0.000  0.000  2.000  7.000 15.000 40.000 19.000 31.000 57.000 85.000 55.000 67.000 47.000
   9       2.000  0.000  0.000  0.000  0.000  1.000  4.000  6.000 24.000 20.000 23.000 80.000128.000104.000 61.000 19.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  3.000  1.000 21.000 23.000 23.000  0.000  5.000
   9       1.000  0.000  0.000  0.000  4.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  0.000  0.000
   9       7.000  9.000  6.000  6.000  8.000  2.000  1.000  7.000  8.000  8.000  1.000 10.000  8.000  8.000  7.000 10.000
   9       4.000  5.000  5.000  4.000  5.000  3.000  3.000  2.000  9.000  1.000  5.000  8.000  5.000  6.000  6.000  9.000
   9       4.000  9.000  5.000  4.000  5.000  1.000 11.000  4.000  8.000  9.000  6.000  8.000  7.000  8.000 11.000 12.000
   9      35.000  8.000 15.000 13.000  7.000  5.000 12.000  5.000 22.000 19.000 22.000 19.000 25.000 22.000 44.000 34.000
   9      17.000  3.000  5.000  4.000  3.000  1.000  8.000  3.000  6.000 16.000 36.000 25.000 28.000 26.000 53.000 62.000
   9       7.000  4.000  1.000  0.000  0.000  1.000  4.000  3.000  8.000  4.000 16.000 40.000 27.000 20.000 41.000 29.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  5.000 10.000 23.000 37.000 10.000 17.000  8.000
   9       1.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  1.000  0.000  5.000 14.000 24.000 32.000  5.000  4.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  1.000  2.000  0.000  0.000
   9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  10        101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000  11        5000.  5000.  5000.  5000.  5000.  5000.
5000.  5000.  5000.  5000.  5000.  5000.  5000.  5000.  5000.  5000.  11        6000.  6000.  6000.  6000.  6000.  6000.  6000.  6000.  6000.
6000.  6000.  6000.  6000.  6000.  6000.  6000.  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0    1.0
  12         1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0  13        500.   500.
500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.   500.
  14         0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	5000.	1.49E-06	7.06E-07	4.86E-07	2.16E-07	6.77E-08	1.63E-08	25.5	S
SSW	5000.	1.33E-06	6.04E-07	4.07E-07	1.73E-07	5.03E-08	1.11E-08	348.2	SSW
SW	5000.	1.64E-06	7.26E-07	4.83E-07	2.00E-07	5.63E-08	1.20E-08	33.9	SW
WSW	5000.	1.77E-06	8.01E-07	5.38E-07	2.27E-07	6.58E-08	1.45E-08	39.0	WSW
W	5000.	1.86E-06	8.58E-07	5.83E-07	2.52E-07	7.56E-08	1.73E-08	43.7	W
WNW	5000.	1.56E-06	7.15E-07	4.84E-07	2.07E-07	6.14E-08	1.39E-08	29.2	WNW
NW	5000.	1.41E-06	6.63E-07	4.54E-07	2.00E-07	6.15E-08	1.45E-08	22.2	NW
NNW	5000.	1.28E-06	5.93E-07	4.04E-07	1.76E-07	5.32E-08	1.23E-08	17.7	NNW
N	5000.	1.36E-06	6.75E-07	4.76E-07	2.23E-07	7.53E-08	1.99E-08	20.0	N
NNE	5000.	1.15E-06	5.38E-07	3.68E-07	1.61E-07	4.92E-08	1.15E-08	13.0	NNE
NE	5000.	1.15E-06	5.19E-07	3.49E-07	1.48E-07	4.29E-08	9.45E-09	13.5	NE
ENE	5000.	1.05E-06	4.69E-07	3.12E-07	1.30E-07	3.66E-08	7.81E-09	11.0	ENE
E	5000.	1.12E-06	5.28E-07	3.63E-07	1.61E-07	5.00E-08	1.20E-08	14.0	E
ESE	5000.	1.04E-06	5.10E-07	3.57E-07	1.65E-07	5.43E-08	1.40E-08	14.1	ESE
SE	5000.	1.23E-06	6.16E-07	4.37E-07	2.07E-07	7.05E-08	1.89E-08	15.9	SE
SSE	5000.	1.42E-06	7.23E-07	5.15E-07	2.47E-07	8.62E-08	2.37E-08	22.0	SSE
MAX X/Q		1.86E-06				TOTAL HOURS AROUND SITE:		683.2	
SRP 2.3.4	5000.	1.67E-06	8.28E-07	5.83E-07	2.72E-07	9.07E-08	2.37E-08		
SITE LIMIT		1.67E-06	8.28E-07	5.83E-07	2.72E-07	9.07E-08	2.37E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	5000.	9.60E-06
SSW	5000.	9.60E-06
SW	5000.	9.60E-06
WSW	5000.	9.60E-06
W	5000.	9.60E-06
WNW	5000.	9.60E-06
NW	5000.	9.60E-06
NNW	5000.	9.60E-06
N	5000.	9.60E-06
NNE	5000.	9.60E-06
NE	5000.	9.60E-06
ENE	5000.	9.60E-06
E	5000.	9.60E-06
ESE	5000.	9.60E-06

SE	5000.	9.60E-06
SSE	5000.	9.60E-06

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**NOTE**: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
          CHECK THE REASONABLENESS OF THE ENVELOPES
          COMPUTED FOR THE 0-2 HOUR VALUES.  FOR ANY
          FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0 RUN DATE: 04/20/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Stack Release
SOURCE OF DATA:
COMMENTS: Peach Bottom, Tower 2 1984-1988 met data, 320 ft wind, 33-316 ft Delta T
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 97.5 meters
DELTA-T HEIGHTS: 10.1-96.3 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	6000.	1.40E-06	6.66E-07	4.59E-07	2.05E-07	6.44E-08	1.56E-08	25.5	S
SSW	6000.	1.24E-06	5.65E-07	3.81E-07	1.62E-07	4.74E-08	1.06E-08	384.5	SSW
SW	6000.	1.53E-06	6.78E-07	4.52E-07	1.87E-07	5.28E-08	1.12E-08	33.6	SW
WSW	6000.	1.66E-06	7.51E-07	5.05E-07	2.13E-07	6.17E-08	1.35E-08	38.9	WSW
W	6000.	1.75E-06	8.06E-07	5.48E-07	2.37E-07	7.10E-08	1.63E-08	43.7	W
WNW	6000.	1.47E-06	6.72E-07	4.55E-07	1.95E-07	5.78E-08	1.31E-08	29.2	WNW
NW	6000.	1.33E-06	6.26E-07	4.30E-07	1.90E-07	5.89E-08	1.41E-08	22.2	NW
NNW	6000.	1.20E-06	5.62E-07	3.84E-07	1.68E-07	5.15E-08	1.21E-08	17.7	NNW
N	6000.	1.27E-06	6.39E-07	4.52E-07	2.14E-07	7.29E-08	1.95E-08	20.0	N
NNE	6000.	1.11E-06	5.20E-07	3.56E-07	1.57E-07	4.84E-08	1.15E-08	13.6	NNE
NE	6000.	1.08E-06	4.92E-07	3.33E-07	1.42E-07	4.19E-08	9.40E-09	13.5	NE
ENE	6000.	1.00E-06	4.49E-07	3.01E-07	1.26E-07	3.59E-08	7.77E-09	11.5	ENE
E	6000.	1.08E-06	5.10E-07	3.51E-07	1.56E-07	4.86E-08	1.17E-08	14.1	E
ESE	6000.	9.78E-07	4.81E-07	3.38E-07	1.57E-07	5.19E-08	1.35E-08	14.1	ESE
SE	6000.	1.18E-06	5.91E-07	4.19E-07	1.98E-07	6.79E-08	1.83E-08	16.0	SE
SSE	6000.	1.34E-06	6.80E-07	4.85E-07	2.33E-07	8.12E-08	2.24E-08	22.0	SSE
MAX X/Q		1.75E-06				TOTAL HOURS AROUND SITE:		720.4	
SRP 2.3.4	6000.	1.65E-06	8.09E-07	5.67E-07	2.62E-07	8.67E-08	2.24E-08		
SITE LIMIT		1.65E-06	8.09E-07	5.67E-07	2.62E-07	8.67E-08	2.24E-08		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

X/Q VALUES (SEC/CUBIC METER) FOR FUMIGATION AT THE BOUNDARY:

DOWNWIND SECTOR	DISTANCE (METERS)	FUMIGATION X/Q
S	6000.	8.14E-06
SSW	6000.	8.14E-06
SW	6000.	8.14E-06
WSW	6000.	8.14E-06
W	6000.	8.14E-06
WNW	6000.	8.14E-06
NW	6000.	8.14E-06
NNW	6000.	8.14E-06
N	6000.	8.14E-06
NNE	6000.	8.14E-06
NE	6000.	8.14E-06
ENE	6000.	8.14E-06
E	6000.	8.14E-06
ESE	6000.	8.14E-06

SE	6000.	8.14E-06
SSE	6000.	8.14E-06

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY. CHECK THE REASONABLENESS OF THE ENVELOPES COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

Units 2 and 3 Reactor Building Stacks, Reactor Building Personnel Access Doors, Railway Bay Doors, Roof Scuttle, and Ground-Level Hatch to EAB (River Tower/Tower 1A Meteorology; RG 1.23, Revision 1 Wind Speed Categories)

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  1  1111
Peach Bottom                              Ground Release
13.7 meters          10.4-21.1 meters

PB, 84-88, RG 1.23 R1 wnd cats, 1A met (w/ RT 45' wnd), RB Stack to EAB
  11    0
2584. 54.3 10.0 13.7
    0    0    1    1    4    4    4
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48.	50.	50.	45.	40.	42.	35.	23.	28.	17.	14.	25.	18.	22.	18.	33.
41.	33.	31.	44.	82.	90.	88.	27.	30.	14.	15.	8.	19.	20.	14.	38.
42.	26.	26.	32.	88.	99.	88.	58.	18.	8.	4.	0.	9.	17.	24.	36.
78.	51.	47.	63.	92.	184.	249.	79.	39.	15.	9.	9.	14.	12.	105.	89.
112.	45.	26.	31.	58.	83.	240.	112.	64.	22.	13.	12.	19.	18.	146.	153.
103.	19.	17.	7.	22.	26.	121.	131.	77.	19.	23.	20.	27.	39.	151.	189.
90.	11.	2.	8.	3.	10.	27.	135.	50.	9.	1.	4.	21.	29.	160.	217.
78.	11.	4.	1.	1.	9.	10.	103.	44.	7.	0.	1.	22.	76.	267.	348.
24.	1.	1.	0.	0.	2.	0.	11.	0.	1.	0.	0.	0.	26.	131.	105.
5.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	11.	72.	43.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16.	17.	18.	7.	14.	17.	19.	8.	7.	3.	3.	6.	7.	6.	11.	10.
19.	16.	15.	22.	22.	27.	29.	11.	6.	1.	2.	4.	3.	7.	13.	21.
15.	10.	10.	30.	44.	30.	26.	8.	5.	1.	3.	4.	2.	8.	13.	22.
40.	18.	25.	29.	62.	73.	86.	39.	16.	14.	10.	9.	13.	12.	60.	42.
47.	28.	30.	14.	28.	51.	70.	41.	22.	9.	19.	12.	26.	21.	54.	48.
45.	10.	9.	5.	20.	41.	48.	41.	31.	10.	23.	17.	32.	51.	71.	73.
42.	9.	5.	1.	6.	13.	20.	48.	18.	2.	6.	5.	20.	44.	81.	66.
34.	0.	3.	1.	0.	10.	8.	26.	7.	3.	3.	4.	16.	112.	172.	128.
5.	0.	1.	0.	0.	2.	3.	7.	0.	1.	0.	1.	1.	55.	68.	47.
0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	15.	51.	26.
58.	32.	23.	45.	46.	55.	42.	25.	16.	9.	15.	13.	17.	15.	30.	42.
34.	30.	47.	36.	46.	39.	62.	24.	18.	8.	10.	15.	16.	25.	31.	28.

ATTACHMENT C

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  27.  30.  63.  55.  73.  71.  94.  32.  23.  17.  17.  19.  16.  36.  58.  43.
 110.  60.  83.  93. 119. 162. 213.  98.  74.  39.  37.  48.  67.  68. 122.  90.
 120.  53.  42.  39.  80. 125. 219. 146.  75.  39.  39.  70.  95. 105. 181. 120.
  93.  32.  18.  21.  58.  89.  97. 197.  60.  17.  36.  27.  87. 161. 234. 126.
  60.  21.   7.   6.  17.  48.  45. 112.  47.  15.  22.  10.  55. 229. 219. 152.
  45.  14.   4.   1.  13.  29.  32.  99.  23.   7.   5.   6.  64. 432. 422. 237.
   7.   2.   0.   0.   3.   4.   6.  41.   1.   0.   0.   0.   6. 124. 259. 111.
   3.   1.   0.   0.   0.   0.   1.   4.   0.   0.   0.   0.   1.  31. 107.  43.
  65.  28.  29.  24.  36.  50.  69.  44.  27.  27.  27.  29.  32.  29.  48.  78.
  40.  32.  16.  32.  28.  59.  86.  36.  10.  18.  34.  20.  33.  33.  34.  83.
  38.  25.  30.  35.  34.  68. 127.  45.  48.  30.  35.  25.  45.  35.  56.  59.
  87.  27.  35.  50.  47.  90. 171. 127.  87.  16.  43.  53.  73.  81. 148.  71.
  97.  21.  18.  22.  36.  80. 143. 160.  72.  23.  23.  30.  63. 131. 164.  70.
  71.  25.  12.   8.  19.  49.  84. 158.  40.   4.  18.   6.  22. 134. 192.  90.
  39.   7.   4.   1.   9.  13.  16.  90.  13.   2.   3.   1.  11. 120. 137.  74.
  29.   1.   0.   2.  14.  20.  18.  68.   9.   1.   1.   1.   2.  87. 150.  70.
   2.   0.   0.   0.   7.   0.   0.  25.   6.   0.   0.   0.   0.  10.  44.  20.
   0.   0.   0.   0.   0.   2.   1.   1.   0.   0.   0.   0.   0.  10.   6.   3.
  64.  37.  30.  19.  36.  63.  88.  71.  53.  21.  33.  28.  61.  54. 103. 102.
  27.  15.  18.  23.  24.  33.  80.  48.  46.  30.  42.  60.  60.  45.  70.  74.
  29.  14.  15.   6.  22.  37.  93.  73.  44.  21.  28.  41.  65.  45.  67.  58.
  53.  14.  17.  11.  17.  52. 111. 135.  73.  17.  21.  33.  53. 105. 119.  69.
  28.   4.  11.   8.   4.  30.  70. 127.  44.  15.   8.  15.  25.  81. 128.  60.
  14.   1.   1.   1.   4.  11.  20.  85.  26.   5.   0.   4.   5.  74. 104.  46.
   2.   0.   0.   1.   1.   0.   1.  19.   9.   0.   0.   0.   2.  28.  45.  19.
   0.   0.   0.   1.  10.   0.   0.  10.   3.   0.   0.   0.   0.   5.   7.   9.
   0.   0.   0.   0.   3.   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.   2.
   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   2.   0.
  99.  41.  38.  36.  46.  74. 121. 147. 179. 127. 221. 290. 403. 351. 423. 265.
  95.  37.  25.  45.  43.  59. 147. 167. 178. 146. 223. 304. 520. 448. 491. 325.
  57.  21.  27.   7.  27.  52. 151. 137. 121.  82. 122. 218. 443. 286. 303. 218.
  63.  22.   9.   4.  20.  54. 147. 160. 102.  53.  78. 125. 315. 264. 346. 209.
  49.   6.   4.   2.   1.  28.  32.  63.  29.  10.   6.  16.  90. 142. 191.  78.
  10.   1.   1.   0.   0.   4.   5.  12.  12.   3.   0.   1.   6.  81.  90.  17.
   1.   1.   2.   0.   0.   0.   0.   6.   4.   0.   0.   2.   0.  16.  21.  10.
   0.   0.   0.   0.   0.   0.   0.   7.   3.   0.   0.   0.   0.   3.   6.   4.
   0.   0.   0.   0.   0.   0.   0.   1.   2.   0.   0.   0.   0.   0.   0.   0.
   0.   0.   0.   0.   0.   0.   0.   1.   0.   0.   0.   0.   0.   0.   0.   0.
 101. 0.50 2.35 3.47 4.59 6.82 9.06 11.313.5318.0122.37 55.0
0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.0823.
-100.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.7300.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
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ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 05/09/08

PRINTOUT OF INPUT CARDS

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   1      00010 01111 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000    2      Peach Bottom
Ground Release
   3      13.7 meters          10.4-21.1 meters
   4
   5      PB, 84-88, RG 1.23 R1 wnd cats, 1A met (w/ RT 45' wnd), RB Stack to EAB              6          11 42043     0
   7          0.500  2584.000     54.300    10.000    13.700
   8        0.000  0.000  1.000  1.000  4.000  4.000  4.000
   9       48.000 50.000 50.000 45.000 40.000 42.000 35.000 23.000 28.000 17.000 14.000 25.000 18.000 22.000 18.000 33.000
   9       41.000 33.000 31.000 44.000 82.000 90.000 88.000 27.000 30.000 14.000 15.000  8.000 19.000 20.000 14.000 38.000
   9       42.000 26.000 26.000 32.000 88.000 99.000 88.000 58.000 18.000  8.000  4.000  0.000  9.000 17.000 24.000 36.000
   9       78.000 51.000 47.000 63.000 92.000184.000249.000 79.000 39.000 15.000  9.000  9.000 14.000 12.000105.000 89.000
   9      112.000 45.000 26.000 31.000 58.000 83.000240.000112.000 64.000 22.000 13.000 12.000 19.000 18.000146.000153.000
   9      103.000 19.000 17.000  7.000 22.000 26.000121.000131.000 77.000 19.000 23.000 20.000 27.000 39.000151.000189.000
   9       90.000 11.000  2.000  8.000  3.000 10.000 27.000135.000 50.000  9.000  1.000  4.000 21.000 29.000160.000217.000
   9       78.000 11.000  4.000  1.000  1.000  9.000 10.000103.000 44.000  7.000  0.000  1.000 22.000 76.000267.000348.000
   9       24.000  1.000  1.000  0.000  0.000  2.000  0.000 11.000  0.000  1.000  0.000  0.000  0.000 26.000131.000105.000
   9        5.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000 11.000 72.000 43.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
   9       16.000 17.000 18.000  7.000 14.000 17.000 19.000  8.000  7.000  3.000  3.000  6.000  7.000  6.000 11.000 10.000
   9       19.000 16.000 15.000 22.000 22.000 27.000 29.000 11.000  6.000  1.000  2.000  4.000  3.000  7.000 13.000 21.000
   9       15.000 10.000 10.000 30.000 44.000 30.000 26.000  8.000  5.000  1.000  3.000  4.000  2.000  8.000 13.000 22.000
   9       40.000 18.000 25.000 29.000 62.000 73.000 86.000 39.000 16.000 14.000 10.000  9.000 13.000 12.000 60.000 42.000
   9       47.000 28.000 30.000 14.000 28.000 51.000 70.000 41.000 22.000  9.000 19.000 12.000 26.000 21.000 54.000 48.000
   9       45.000 10.000  9.000  5.000 20.000 41.000 48.000 41.000 31.000 10.000 23.000 17.000 32.000 51.000 71.000 73.000
   9       42.000  9.000  5.000  1.000  6.000 13.000 20.000 48.000 18.000  2.000  6.000  5.000 20.000 44.000 81.000 66.000
   9       34.000  0.000  3.000  1.000  0.000 10.000  8.000 26.000  7.000  3.000  3.000  4.000 16.000112.000172.000128.000
   9        5.000  0.000  1.000  0.000  0.000  2.000  3.000  7.000  0.000  1.000  0.000  1.000  1.000 55.000 68.000 47.000
   9        0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  0.000  0.000  0.000  0.000  0.000 15.000 51.000 26.000
   9       58.000 32.000 23.000 45.000 46.000 55.000 42.000 25.000 16.000  9.000 15.000 13.000 17.000 15.000 30.000 42.000
   9       34.000 30.000 47.000 36.000 46.000 39.000 62.000 24.000 18.000  8.000 10.000 15.000 16.000 25.000 31.000 28.000
   9       27.000 30.000 63.000 55.000 73.000 71.000 94.000 32.000 23.000 17.000 17.000 19.000 16.000 36.000 58.000 43.000
   9      110.000 60.000 83.000 93.000119.000162.000213.000 98.000 74.000 39.000 37.000 48.000 67.000 68.000122.000 90.000
   9      120.000 53.000 42.000 39.000 80.000125.000219.000146.000 75.000 39.000 39.000 70.000 95.000105.000181.000120.000
   9       93.000 32.000 18.000 21.000 58.000 89.000 97.000197.000 60.000 17.000 36.000 27.000 87.000161.000234.000126.000
   9       60.000 21.000  7.000  6.000 17.000 48.000 45.000112.000 47.000 15.000 22.000 10.000 55.000229.000219.000152.000
   9       45.000 14.000  4.000  1.000 13.000 29.000 32.000 99.000 23.000  7.000  5.000  6.000 64.000432.000422.000237.000
   9        7.000  2.000  0.000  0.000  3.000  4.000  6.000 41.000  1.000  0.000  0.000  0.000  6.000124.000259.000111.000
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ATTACHMENT C

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  9       3.000  1.000  0.000  0.000  0.000  0.000  1.000  4.000  0.000  0.000  0.000  0.000  1.000 31.000107.000 43.000
  9      65.000 28.000 29.000 24.000 36.000 50.000 69.000 44.000 27.000 27.000 27.000 29.000 32.000 29.000 48.000 78.000
  9      40.000 32.000 16.000 32.000 28.000 59.000 86.000 36.000 10.000 18.000 34.000 20.000 33.000 33.000 34.000 83.000
  9      38.000 25.000 30.000 35.000 34.000 68.000127.000 45.000 48.000 30.000 35.000 25.000 45.000 35.000 56.000 59.000
  9      87.000 27.000 35.000 50.000 47.000 90.000171.000127.000 87.000 16.000 43.000 53.000 73.000 81.000148.000 71.000
  9      97.000 21.000 18.000 22.000 36.000 80.000143.000160.000 72.000 23.000 23.000 30.000 63.000131.000164.000 70.000
  9      71.000 25.000 12.000  8.000 19.000 49.000 84.000158.000 40.000  4.000 18.000  6.000 22.000134.000192.000 90.000
  9      39.000  7.000  4.000  1.000  9.000 13.000 16.000 90.000 13.000  2.000  3.000  1.000 11.000120.000137.000 74.000
  9      29.000  1.000  0.000  2.000 14.000 20.000 18.000 68.000  9.000  1.000  1.000  1.000  2.000 87.000150.000 70.000
  9       2.000  0.000  0.000  0.000  7.000  0.000  0.000 25.000  6.000  0.000  0.000  0.000  0.000 10.000 44.000 20.000
  9       0.000  0.000  0.000  0.000  0.000  2.000  1.000  1.000  0.000  0.000  0.000  0.000  0.000 10.000  6.000  3.000
  9      64.000 37.000 30.000 19.000 36.000 63.000 88.000 71.000 53.000 21.000 33.000 28.000 61.000 54.000103.000102.000
  9      27.000 15.000 18.000 23.000 24.000 33.000 80.000 48.000 46.000 30.000 42.000 60.000 60.000 45.000 70.000 74.000
  9      29.000 14.000 15.000  6.000 22.000 37.000 93.000 73.000 44.000 21.000 28.000 41.000 65.000 45.000 67.000 58.000
  9      53.000 14.000 17.000 11.000 17.000 52.000111.000135.000 73.000 17.000 21.000 33.000 53.000105.000119.000 69.000
  9      28.000  4.000 11.000  8.000  4.000 30.000 70.000127.000 44.000 15.000  8.000 15.000 25.000 81.000128.000 60.000
  9      14.000  1.000  1.000  1.000  4.000 11.000 20.000 85.000 26.000  5.000  0.000  4.000  5.000 74.000104.000 46.000
  9       2.000  0.000  0.000  1.000  1.000  0.000  1.000 19.000  9.000  0.000  0.000  0.000  2.000 28.000 45.000 19.000
  9       0.000  0.000  0.000  1.000 10.000  0.000  0.000 10.000  3.000  0.000  0.000  0.000  0.000  5.000  7.000  9.000
  9       0.000  0.000  0.000  0.000  3.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  2.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  2.000  0.000
  9      99.000 41.000 38.000 36.000 46.000 74.000121.000147.000179.000127.000221.000290.000403.000351.000423.000265.000
  9      95.000 37.000 25.000 45.000 43.000 59.000147.000167.000178.000146.000223.000304.000520.000448.000491.000325.000
  9      57.000 21.000 27.000  7.000 27.000 52.000151.000137.000121.000 82.000122.000218.000443.000286.000303.000218.000
  9      63.000 22.000  9.000  4.000 20.000 54.000147.000160.000102.000 53.000 78.000125.000315.000264.000346.000209.000
  9      49.000  6.000  4.000  2.000  1.000 28.000 32.000 63.000 29.000 10.000  6.000 16.000 90.000142.000191.000 78.000
  9      10.000  1.000  1.000  0.000  0.000  4.000  5.000 12.000 12.000  3.000  0.000  1.000  6.000 81.000 90.000 17.000
  9       1.000  1.000  2.000  0.000  0.000  0.000  0.000  6.000  4.000  0.000  0.000  2.000  0.000 16.000 21.000 10.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  7.000  3.000  0.000  0.000  0.000  0.000  3.000  6.000  4.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  2.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000
  9       0.000  0.000  0.000  0.000  0.000  0.000  0.000  1.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  10         101.  0.500
2.350  3.470  4.590  6.820  9.060 11.300 13.530 18.010 22.370 55.000  0.000  0.000  0.000  11         823.   823.   823.   823.   823.   823.
823.   823.   823.   823.   823.   823.   823.   823.   823.   823.  11         -100.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.  7300.
7300.  7300.  7300.  7300.  7300.  7300.  12          1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
1.0    1.0    1.0
 12        1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0    1.0
```

ATTACHMENT C

USNRC COMPUTER CODE-PAVAN, VERSION 2.0   RUN DATE: 05/09/08

PLANT NAME: Peach Bottom
DATA PERIOD:
TYPE OF RELEASE: Ground Release
SOURCE OF DATA:
COMMENTS: PB, 84-88, RG 1.23 R1 wnd cats, 1A met (w/ RT 45' wnd), RB Stack to EAB
PROGRAM: PAVAN, 10/76, 8/79 REVISION, IMPLEMENTATION OF REGULATORY GUIDE 1.145

METEOROLOGICAL INSTRUMENTATION
WIND SENSORS HEIGHT: 13.7 meters
DELTA-T HEIGHTS: 10.4-21.1 meters

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

DOWNWIND SECTOR	DISTANCE (METERS)	0-2 HOURS	0-8 HOURS	8-24 HOURS	1-4 DAYS	4-30 DAYS	ANNUAL AVERAGE	HOURS PER YEAR MAX 0-2 HR X/Q IS EXCEEDED IN SECTOR	DOWNWIND SECTOR
S	823.	2.67E-04	1.29E-04	8.99E-05	4.10E-05	1.33E-05	3.34E-06	10.0	S
SSW	823.	1.44E-04	6.79E-05	4.65E-05	2.05E-05	6.33E-06	1.50E-06	319.8	SSW
SW	823.	1.25E-04	5.95E-05	4.11E-05	1.84E-05	5.79E-06	1.41E-06	3.8	SW
WSW	823.	1.16E-04	5.58E-05	3.87E-05	1.76E-05	5.63E-06	1.40E-06	3.6	WSW
W	823.	1.57E-04	7.59E-05	5.27E-05	2.39E-05	7.68E-06	1.91E-06	4.6	W
WNW	823.	2.35E-04	1.14E-04	7.98E-05	3.66E-05	1.19E-05	3.03E-06	7.4	WNW
NW	823.	3.00E-04	1.53E-04	1.10E-04	5.30E-05	1.86E-05	5.19E-06	12.2	NW
NNW	823.	3.19E-04	1.60E-04	1.14E-04	5.37E-05	1.84E-05	4.94E-06	14.9	NNW
N	823.	3.39E-04	1.63E-04	1.13E-04	5.13E-05	1.64E-05	4.08E-06	18.1	N
NNE	823.	2.88E-04	1.32E-04	8.95E-05	3.85E-05	1.14E-05	2.60E-06	12.8	NNE
NE	823.	3.72E-04	1.76E-04	1.21E-04	5.38E-05	1.68E-05	4.03E-06	22.5	NE
ENE	823.	4.03E-04	1.97E-04	1.38E-04	6.37E-05	2.09E-05	5.37E-06	29.7	ENE
E	823.	4.45E-04	2.32E-04	1.68E-04	8.30E-05	3.02E-05	8.76E-06	41.6	E
ESE	823.	4.27E-04	2.22E-04	1.60E-04	7.89E-05	2.85E-05	8.21E-06	36.1	ESE
SE	823.	4.51E-04	2.42E-04	1.77E-04	8.97E-05	3.39E-05	1.03E-05	43.7	SE
SSE	823.	3.93E-04	2.03E-04	1.46E-04	7.09E-05	2.53E-05	7.16E-06	27.1	SSE
MAX X/Q		4.51E-04				TOTAL HOURS AROUND SITE:		607.7	
SRP 2.3.4	823.	7.98E-04	3.89E-04	2.71E-04	1.24E-04	4.06E-05	1.03E-05		
SITE LIMIT		4.08E-04	2.22E-04	1.64E-04	8.47E-05	3.28E-05	1.03E-05		

THE FIVE-PERCENT-FOR-THE-ENTIRE-SITE X/Q IS LIMITING.

NOTE: VALUES ON THIS PAGE ARE APPROXIMATIONS ONLY.
CHECK THE REASONABLENESS OF THE ENVELOPES
COMPUTED FOR THE 0-2 HOUR VALUES. FOR ANY
FAULTY ENVELOPES, ADJUST THE ABOVE VALUES.

ATTACHMENT D

Peach Bottom

Joint Frequency Distribution
1984-1988
Tower 2
33' wind
150'-33' Delta T

	Wind Speed Category(1)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calm	Total
		Wind Direction																	
1 (A)	1 (Calm)																	0.00	0.00
	2	0.205732	0.313274	0.329640	0.334315	0.238463	0.184692	0.116893	0.074812	0.018703	0.007014	0.009351	0.016365	0.035068	0.037406	0.056109	0.093515		2.071352
	3	0.392762	0.189367	0.072474	0.065460	0.102866	0.226773	0.254828	0.184692	0.165989	0.100528	0.126245	0.091177	0.217422	0.243138	0.180016	0.472249		3.085987
	4	0.065460	0.002338	0.002338	0.000000	0.000000	0.018703	0.014027	0.067798	0.229111	0.072474	0.091177	0.065460	0.135596	0.084163	0.058447	0.210408		1.117501
	5	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.011689	0.030392	0.002338	0.007014	0.002338	0.009351	0.018703	0.007014	0.002338		0.093515
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	7	0.000000	0.002338	0.002338	0.000000	0.004676	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.009351
	Subtotal	0.666293	0.507318	0.406789	0.399776	0.346005	0.430168	0.385748	0.338991	0.444195	0.182354	0.233787	0.175340	0.397438	0.383410	0.301585	0.778510	0.000000	6.377706
2 (B)	1 (Calm)																	0.000000	0.000000
	2	0.140272	0.130921	0.149624	0.156637	0.142610	0.102866	0.053771	0.030392	0.028054	0.004676	0.014027	0.014027	0.035068	0.028054	0.021041	0.088839		1.140880
	3	0.336653	0.093515	0.025717	0.035068	0.028054	0.072474	0.130921	0.168327	0.212746	0.105204	0.149624	0.098190	0.149624	0.165989	0.158975	0.388086		2.319168
	4	0.088839	0.004676	0.000000	0.000000	0.002338	0.014027	0.021041	0.079488	0.338991	0.107542	0.065460	0.056109	0.119231	0.165989	0.208070	0.392762		1.664563
	5	0.004676	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.016365	0.051433	0.002338	0.007014	0.000000	0.004676	0.037406	0.049095	0.021041		0.194043
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000		0.002338
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.002338
	Subtotal	0.570440	0.229111	0.175340	0.191705	0.173002	0.189367	0.208070	0.294571	0.631225	0.219760	0.236125	0.168327	0.308599	0.399776	0.437181	0.890728	0.000000	5.323327
3 (C)	1 (Calm)																	0.000000	0.000000
	2	0.074812	0.107542	0.060785	0.112218	0.081825	0.063122	0.025717	0.011689	0.014027	0.000000	0.011689	0.009351	0.014027	0.016365	0.021041	0.077150		0.701361
	3	0.135596	0.023379	0.007014	0.018703	0.021041	0.023379	0.077150	0.123907	0.154299	0.056109	0.056109	0.049095	0.098190	0.086501	0.107542	0.292234		1.330247
	4	0.037406	0.002338	0.000000	0.000000	0.002338	0.002338	0.011689	0.039744	0.175340	0.072474	0.051433	0.051433	0.081825	0.123907	0.187030	0.292234		1.131528
	5	0.002338	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.007014	0.018703	0.000000	0.000000	0.000000	0.007014	0.028054	0.046757	0.037406		0.149624
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.002338
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.250152	0.133259	0.067798	0.130921	0.105204	0.091177	0.114556	0.184692	0.362370	0.128583	0.119231	0.109880	0.201057	0.254828	0.362370	0.699023	0.000000	3.315098
4 (D)	1 (Calm)																	0.018703	0.018703
	2	0.909431	0.790200	1.021649	0.743442	0.692009	0.409127	0.360032	0.535372	0.413803	0.215084	0.182354	0.245476	0.285220	0.299247	0.448871	0.556413		8.107729
	3	1.334923	0.374059	0.154299	0.081825	0.151961	0.338991	0.890728	1.384018	1.271801	0.544723	0.439519	0.409127	0.694347	1.009959	1.730023	2.155515		12.965820
	4	0.514331	0.018703	0.000000	0.000000	0.004676	0.018703	0.180016	0.350680	0.759807	0.252490	0.182354	0.173002	0.500304	1.344275	2.155515	1.851592		8.306448
	5	0.053771	0.000000	0.000000	0.000000	0.000000	0.000000	0.004676	0.028054	0.105204	0.023379	0.011689	0.009351	0.100528	0.133259	0.395100	0.308599		1.173610
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.004676	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000		0.007014
	7	0.004676	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007014		0.011689
	Subtotal	2.817132	1.182962	1.175948	0.825266	0.848646	0.766821	1.435451	2.298125	2.550615	1.040352	0.815916	0.836957	1.580399	2.789077	4.729509	4.879132	0.018703	30.591013
5 (E)	1 (Calm)																	0.126245	0.126245
	2	1.208678	0.972553	0.970216	0.895404	1.204002	1.098798	1.269463	1.402721	1.482209	0.876701	0.759807	0.923458	1.047365	1.164259	1.423762	0.998270		17.697667
	3	1.047365	0.215084	0.177678	0.173002	0.247814	0.413803	0.923458	1.582737	1.802497	0.914107	0.757469	1.014635	1.561696	2.347220	2.216300	1.779118		17.173984
	4	0.170664	0.009351	0.002338	0.000000	0.014027	0.039744	0.121569	0.165989	0.472249	0.126245	0.107542	0.119231	0.287558	0.451209	0.600832	0.493290		3.181839
	5	0.009351	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.014027	0.058447	0.009351	0.000000	0.000000	0.014027	0.018703	0.021041	0.023379		0.170684
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338		0.004676
	7	0.002338	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.014027		0.016365
	Subtotal	2.438397	1.196989	1.150231	1.068406	1.465844	1.552345	2.316828	3.165474	3.817740	1.926404	1.624819	2.057325	2.910647	3.981391	4.261935	3.310422	0.126245	38.371441
6 (F)	1 (Calm)																	0.060785	0.060785
	2	0.303923	0.189367	0.173002	0.215084	0.420816	0.523683	0.301585	0.231449	0.282882	0.458222	0.687333	1.054379	1.168934	0.972553	0.773835	0.378735		8.135783
	3	0.016365	0.000000	0.011689	0.004676	0.007014	0.032730	0.056109	0.042082	0.114556	0.107542	0.226773	0.589143	0.497966	0.317950	0.212746	0.088839		2.326179
	4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.007014	0.000000	0.002338	0.002338	0.004676		0.018703
	5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.320288	0.189367	0.184692	0.219760	0.427830	0.556413	0.357694	0.273531	0.397438	0.565764	0.916445	1.650535	1.666900	1.292841	0.988919	0.472249	0.060785	10.541450
7 (G)	1 (Calm)																	0.035068	0.035068
	2	0.081825	0.070136	0.067798	0.114556	0.205732	0.128583	0.074812	0.063122	0.053771	0.077150	0.388086	1.150231	0.993594	0.547061	0.278206	0.135596		4.430261
	3	0.002338	0.009351	0.000000	0.000000	0.007014	0.011689	0.004676	0.000000	0.000000	0.016365	0.137934	0.593819	0.165989	0.037406	0.016365	0.007014		1.009959
	4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002338	0.000000	0.000000	0.000000	0.002338		0.004676
	5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	6	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	7	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000		0.000000
	Subtotal	0.084163	0.079488	0.067798	0.114556	0.212746	0.140272	0.079488	0.063122	0.053771	0.093515	0.526020	1.746388	1.159583	0.584467	0.294571	0.144948	0.035068	5.479964
	Total	7.146865	3.518493	3.228597	2.950390	3.579277	3.726563	4.897835	6.618507	8.257353	4.156731	4.472343	6.744751	8.224622	9.685790	11.376070	11.175013	0.240800	100.000000

Category	Wind Speed (mph)
1 (Calm)	<0.5
2	>=0.5 to <3.5
3	>=3.5 to <7.5
4	>=7.5 to <12.5
5	>=12.5 to <18.5
6	>=18.5 to <24
7	>=24

Design Analysis Major Revision Cover Sheet

Design Analysis (Major Revision)		**Last Page No.** [6] B1	
Analysis No.: [1]	PM-1058	**Revision:** [2]	1
Title: [3]	Reanalysis of Main Steam Line Break (MSLB) Accident Using Alternate Source Terms		
EC/ECR No.: [4]	PB 07-00027	**Revision:** [5]	1

		Component(s): [14]	
Station(s): [7]	Peach Bottom Atomic Power Station		
Unit No.: [8]	2 and 3	N/A	
Discipline: [9]	SEAQ		
Descrip. Code/Keyword: [10]	MSLB		
Safety/QA Class: [11]	S		
System Code: [12]	912		
Structure: [13]	N/A		

CONTROLLED DOCUMENT REFERENCES [15]

Document No.:	From/To	Document No.:	From/To
Calc. PM-740, rev. 1A	From		
UFSAR; Section 14.6.5, rev 18	From / To		
Calc. PM-738, Rev A	From		

Is this Design Analysis Safeguards Information? [16] Yes ☐ No ☒ If yes, see SY-AA-101-106

Does this Design Analysis contain Unverified Assumptions? [17] Yes ☐ No ☒ If yes, ATI/AR#:

This Design Analysis SUPERCEDES: [18] **Analysis No. PM-1058, Revision 0** **in its entirety.**

Description of Revision (list affected pages for partials): [19]

Minor Correction in EAB Atmospheric Dispersion coefficient incorporated, resulting in a minor change to the resulting EAB dose results.

Preparer: [20] Harold Rothstein (Print Name) — Harold Rothstein (Sign Name) — 5/19/08 (Date)

Method of Review: [21] **Detailed Review** ☒ **Alternate Calculations (attached)** ☐ **Testing** ☐

Reviewer: [22] Paul Reichert (Print Name) — Paul Reichert (Sign Name) — 5/19/08 (Date)

Review Notes: [23] Independent review ☐ Peer review ☐

(For External Analyses Only)

External Approver: [24] Harold Rothstein (Print Name) — Harold Rothstein (Sign Name) — 5/19/08 (Date)

Exelon Reviewer: [25] T. J. Mscisz (Print Name) — [signature] (Sign Name) — 5/19/08 (Date)

Independent 3rd Party Review Reqd? [26] Yes ☐ No ☑ Previously had review. This is only a minor change.

Exelon Approver: [27] James Jordan (Print Name) — J Jordan (Sign Name) — 5/22/08 (Date)

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Attachments:

A. Spreadsheet performing MSLB Dose Assessment [pages A1-A6]
B. Computer Disclosure Sheet [pages B1-B1]

1.0 PURPOSE/OBJECTIVE

The purpose of this calculation is to determine the Control Room (CR), Exclusion Area Boundary (EAB), and Low Population Zone (LPZ) doses following a Main Steam Line Break (MSLB) Accident based on the assumptions on the break and resulting radiological releases to the Turbine Building as discussed in UFSAR [Reference 1] Sections 14.6.5 and 14.9.2.3, and the additional assumptions for use of Alternative Source Terms (AST) contained in Appendix D of Regulatory Guide (R. G.) 1.183 [Reference 6].

Inhalation Committed Effective Dose Equivalent (CEDE) Dose Conversion Factors (DCFs) from Federal Guidance Report No. 11 [Ref. 3] are used for calculation of normalized Iodine-131 Dose Equivalent activity in this calculation.

As per UFSAR Section 14.6.5, this event involves the postulation that one main steam line instantaneously and circumferentially breaks outside the secondary containment at a location downstream of the outermost isolation valve. Closure of the Main Steam Isolation Valves (MSIVs) terminates the mass loss when the full closure is reached. No operator actions are assumed to be taken during the accident, so the normal air intake into the Control Room continues unfiltered during the duration of the event.

The mass of coolant released during the MSLB was obtained from reference 1, which bases analysis on 10.5-second closure of main steam isolation valve. Specifically, as per UFSAR Section 14.9.1.5 and the Reference 2 MSLB Calculation for Power Rerate, a release of 165,120 pounds of reactor water and 25,800 pounds of steam is used.

2.0 METHODOLOGY AND ACCEPTANCE CRITERIA

2.1 *General Description*

The radiological consequences resulting from a design basis MSLB accident to a person at the EAB; to a person at the LPZ; and to an operator in the Control Room following an MSLB accident were performed using a Microsoft EXCEL spreadsheet, provided as Attachment A.

2.2 *Source Term Model*

No fuel damage is expected to result from a MSLB. Therefore, the activity available for release from the break is that present in the reactor coolant and steam lines prior to the break, with two cases analyzed, corresponding to the Reactor Coolant System Specific Activity limits in Technical Specification 3.4.6 and its Basis. Case 1 is for continued full power operation with a maximum equilibrium coolant concentration of 0.2 uCi/gm dose equivalent I-131. Case 2 is for a maximum coolant concentration of 4.0 uCi/gm dose equivalent I-131, based on a pre-accident iodine spike caused by power changes. In determining I-131 equivalence, inhalation CEDE DCFs from Ref. 3 are used. This accident source term basis meets the guidance in R.G. 1.183 for analysis of this event.

2.3 *Release Model*

The release model is identical to that historically used. The previously determined mass of reactor coolant release and mass of steam release, before the break is isolated by MSIV closure, are used. Reactor coolant radioactivity is based on the above reactor coolant concentrations.

Releases are assumed to be instantaneous and no credit is taken for dilution in turbine building air.

2.4 *Dispersion Model*

Offsite and Onsite X/Q determinations are handled differently, but conservatively in both cases.

2.4.1 EAB and LPZ

EAB and LPZ X/Q's are determined using the original methodology in R.G. 1.5 [Ref. 5]. Specifically:

$$\frac{\chi}{Q} = \frac{0.0133}{\sigma_y u}$$

where

σ_y = horizontal standard deviation of the plume (meters)

u = wind velocity (meters/second)

Horizontal standard deviations are taken from the PAVAN outputs for the EAB and LPZ included in Calculation PM-1055 [Ref. 9]. Per Regulatory Guide 1.5, F stability and a 1 meter/sec wind speed are used.

2.4.2 Control Room

For control room dose calculations, the plume was modeled as a hemispherical volume, the dimensions of which are determined based on the initial steam blowdown and that portion of the liquid reactor coolant release that flashed to steam.

Activity release is conservatively assumed to effectively occur at the Control Room intake elevation and, again conservatively, no credit is taken for plume buoyancy. A conservative translation time of the plume over the intake is assumed.

The activity of the cloud is based on the total mass of water released from the break, not just the portion that flashes to steam. This assumption is conservative because it considers the maximum release of fission products.

2.5 *Dose Model*

Dose models for both onsite and offsite are simplified and meet R.G. 1.183 [Ref. 6] requirements, providing results in units of Total Effective Dose Equivalent (TEDE). Dose conversion factors are based on Federal Guidance Reports 11 and 12 [Refs 3 & 4].

2.5.1 EAB and LPZ

Doses at the EAB and LPZ for the MSLB are based on the following formulas:

$$\text{Dose}_{\text{CEDE}}\ (\text{rem}) = \text{Release (Curies)} * \frac{\chi}{Q}(\text{sec/m}^3) * \text{Breathing Rate}\ (\text{m}^3/\text{sec}) * \text{Inhalation DCF}\ (\text{rem}_{\text{CEDE}}/\text{Ci inhaled})$$

and

$$\text{Dose}_{\text{EDE}}\ (\text{rem}) = \text{Release (Curies)} * \frac{\chi}{Q}(\text{sec/m}^3) * \text{Submersion DCF}\ (\text{rem}_{\text{EDE}} - \text{m}^3/\text{Ci - sec})$$

and finally,

$$\text{Dose}_{\text{TEDE}}\ (\text{rem}) = \text{Dose}_{\text{CEDE}}\ (\text{rem}) + \text{Dose}_{\text{EDE}}\ (\text{rem})$$

2.5.2 Control Room

CR operator doses are determined somewhat differently, because steam cloud concentrations are used, rather than X/Q times a curie release rate. No CR filter credit is taken and, therefore, for inhalation, a dose for a location outside of the CR can be and is used. For cloud submersion, a geometry factor is used to credit the reduced plume size seen in the control room. This is a conservative implementation of RG 1.183 guidance. The formulas used are:

$$\text{Dose}_{\text{CEDE}}\ (\text{rem}) = \text{Plume Concentration}\ (\text{Ci/m}^3) * \text{Transit Duration (sec)} * \text{Breathing Rate}\ (\text{m}^3/\text{sec}) * \text{Inhalation DCF}\ (\text{rem}_{\text{CEDE}}/\text{Ci inhaled})$$

and

$$\text{Dose}_{\text{EDE}}\ (\text{rem}) = \text{Plume Concentration}\ (\text{Ci/m}^3) * \text{Transit Duration (sec)} * \text{Submersion DCF}\ (\text{rem}_{\text{EDE}} - \text{m}^3/\text{Ci - sec})$$

and finally,

$$\text{Dose}_{\text{TEDE}}\ (\text{rem}) = \text{Dose}_{\text{CEDE}}\ (\text{rem}) + \text{Dose}_{\text{EDE}}\ (\text{rem})$$

2.6 *Acceptance Criteria*

Dose acceptance criteria are per 10CFR50.67 [Ref. 7] and R.G. 1.183 [Ref. 6] guidance.

Table 1 lists the regulatory limits for accidental dose to 1) a control room operator, 2) a person at the EAB, and 3) a person at the LPZ boundary.

Table 1. Regulatory Dose Limits (Rem TEDE) per Refs. 7 and 6.

I-131 Dose Equivalent	CR (30 days)	EAB (2 hours)	LPZ (30 days
Normal Equilibrium	5	2.5	2.5
Iodine Spike	5	25	25

3.0 ASSUMPTIONS

3.1 *Activity Release and Transport Models*

- Iodine activity distribution in the coolant is taken from UFSAR [Ref. 1] Section 14.6.5.2.1, assumption 2.
- Total release quantities from the break are taken from UFSAR [Ref. 1] Section 14.9.1.5, with Section 14.6.5 break flow and MSIV closure characteristics, including the conservative10-second valve closure time in comparison to the less than or equal to 5 seconds isolation time limit of Surveillance Requirement 3.6.1.3.9 [Ref. 8].
- Release from the break to the environment is assumed instantaneous. No holdup in the Turbine Building or dilution by mixing with Turbine Building air volume is credited.
- The steam cloud is assumed to consist of the initial steam blowdown and that portion of the liquid reactor coolant release that flashed to steam.
- The activity of the cloud is based on the total mass of water released from the break, not just the portion that flashes to steam. This assumption is conservative because it considers the maximum release of fission products.
- The fraction of liquid water contained in steam, which carries activity into the cloud, is assumed to be 2%, a conservatively high value consistent with current Boiling Water Reactor practice.
- A conservatively high flashing fraction of liquid water released of 40% is assumed. However, all activity in the water is assumed to be released.
- For offsite dose calculations, the release is treated per Regulatory Guide 1.5 [Ref. 5]. Buoyancy effect of the cloud was conservatively ignored.
- For the control room dose calculations,
  - the plume is modeled as a hemispherical volume. This is consistent with the assumption of no Turbine Building credit. It is also reasonable for the more likely release paths through multiple large openings above the Turbine Building operating deck.
  - dispersion of the activity of the plume is conservatively ignored.
  - The cloud is assumed to be carried away by a wind of speed 1 m/s. Credit is not taken for decay.

3.2 *Control Room Model*

- No credit is taken for the operation of the control room emergency filtration systems during the MSLB.
- Inhalation doses are determined based on concentrations at the intake, and exposures for the duration of plume traverse.
- External exposure doses are determined based on concentrations at the intake, exposures for the duration of plume traverse, and a geometry factor credit based on the control room envelope volume of 176,000 cubic feet.

3.3 *Site Boundary Model*

This model is as discussed in Subsection 2.5 above.

4.0 DESIGN INPUT

4.1 *Mass Release Data*

- The mass of steam released is 25,800 lb. [Section 14.9.1.5 of Ref. 1 and Ref. 2]
- The mass of liquid water released is 165,120 lb. [Section 14.9.1.5 of Ref. 1 and Ref. 2]

4.2 *Iodine Distribution*

The PBAPS UFSAR [Ref. 1] Section 14.6.5.2.1 provides the following design basis concentrations of significant radionuclides contained in the coolant:

Iodine Isotope	Activity (μCi/cc)
I-131	0.17
I-132	1.02
I-133	1.04
I-134	1.47
I-135	1.30

4.3 *Noble Gas Distribution*

The MSLB Power Rerate Calculation [Ref. 2] provides the following Noble Gas concentrations for potentially significant radionuclides contained in the coolant:

Noble Gas Isotope	Concentration uCi/g
Kr-83M	1.92E-03
Kr-85M	3.44E-03
Kr-85	1.13E-05
Kr-87	1.13E-02
Kr-88	1.13E-02
Kr-89	7.33E-02
Xe-131M	8.46E-06
Xe-133M	1.63E-04
Xe-133	4.62E-03
Xe-135M	1.47E-02
Xe-135	1.24E-02
Xe-137	8.46E-02
Xe-138	5.02E-02

4.4 *Control Room Data*

- Control Room Envelope = 176,000 ft^3. [Ref. 10]
- No Emergency Filtration Credit taken.

4.5 *EAB and LPZ Data*

- EAB Distance from Release, m 823 [Ref. 1]
- LPZ Distance from Release, m 7300 [Ref. 1]

5.0 REFERENCES

1. PBAPS UFSAR, Rev. 18.
2. PBAPS Calculation PM-740, Rev. 1A, "Power Rerate MSLB Dose Verification and Rerated Doses".
3. Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion", 1988.
4. Federal Guidance Report No. 12, "External Exposure to Radionuclides in Air, Water, and Soil", 1993.
5. Regulatory Guides 1.5, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Steam Line Break Accidents for Boiling Water Reactors," 3/10/71.
6. Regulatory Guide 1.183, "Alternative Radiological Source Terms For Evaluating Design Basis Accidents At Nuclear Power Reactors", July 2000.
7. 10 CFR Part 50.67, "Accident Source Term".
8. PBAPS Technical Specification 3.6.1.3, "Primary Containment Isolation Valves", Surveillance Requirement 3.6.1.3.9.
9. Design Analysis No. PM-1055, Rev. 0 "Calculation of Alternative Source Terms Onsite and Offsite X/Q Values".
10. PBAPS Calculation PM-738, Rev. A, "Power Rerate Control Rod Drop Dose Verification and Rerated Doses".

6.0 CALCULATIONS

No or minimal fuel damage is expected for the limiting MSLB. As discussed in section 2, two iodine concentrations will be used (0.2 µCi/g and 4.0 µCi/g) [per Refs. 6 and 8] when determining the consequences of the main steam line break. All of the radioactivity in the released coolant is assumed to be released to the atmosphere instantaneously as a ground-level release. No credit is taken for plateout, holdup, or dilution within facility buildings.

The spreadsheets in Attachment A perform this analysis using data and formulations discussed above. The following summarizes parameters and their treatment in the spreadsheet.

6.1 *Cloud Volumes, Masses, and Control Room Intake Transit Times*

As stated in Section 3.1, the cloud is assumed to consist of the initial steam blowdown and that portion of the liquid reactor coolant release that flashes to steam. The flashing fraction (FF) is derived as follows:

FF x (steam enthalpy at 212 F) + (1-FF) x (liquid enthalpy at 212 F) =
(liquid enthalpy at temperature of steam at reactor vessel outlet)

A 548 F vessel outlet temperature is used, with liquid enthalpy of 546.9 BTU/lb.
At 212 F, a steam enthalpy of 1150.5 BTU/lb and a liquid enthalpy of 180.17 BTU/lb are used (these enthalpies are taken from the ASME Steam Tables).

Substituting,

FF = (546.9 - 180.17) / [(1150.5 – 180.17)] = .378

For conservatism, a value of .40 or 40% is used below.

Mass of water carrying activity into the cloud is calculated as the sum of the fraction of water in the steam and the liquid blowdown.

The mass steam released	= 25,800 lb
The mass liquid water released	= 165,120 lb
Flashing fraction for calculating cloud volume	= 40%
The mass water contained in steam released	= (25,800 lb) * 2%
	= 516 lb
The mass of water carrying activity into the cloud	= 516 + 165,120 lb
	= 165,636 lb
	= (165,636 lb)(453.59 g/lb)
	= 7.5131E7 g
The mass of steam in the cloud	= (25,800 - 516) + 40%*165,120 lb
	=25,284 + 66,048
	= 91,332 lb

The release is assumed to be a hemisphere with a uniform concentration. The cloud dimensions (based on 91,332 lb of steam at 14.7 psi and 212 °F, v_g = 26.799 ft^3/lb) are calculated as follows:

$$\begin{aligned}\text{Volume} &= (91{,}332\ \text{lb})(26.799\ \text{ft}^3/\text{lb}) \\ &= 2{,}447{,}600\ \text{ft}^3 \\ &= (2{,}447{,}600\ \text{ft}^3)/(35.3\ \text{ft}^3/\text{m}^3) \\ &= 69{,}337\ \text{m}^3\end{aligned}$$

The volume of a hemisphere is $\pi d^3/12$. Thus, the diameter of the hemispherical cloud is 64.2 meters.

The period of time required for the cloud to pass over the control room intake, assuming a wind speed of 1 m/s is 64.2 s (=(64.2 m)/(1 m/s)).

Therefore, at a wind speed of 1 m/s, the base of the hemispherical cloud will pass over the control room intake in 64.2 seconds.

6.2 *Dispersion for Offsite Dose Assessment*

As discussed in Section 2.4.2 the following formulation was used for Offsite Dose X/Q assessment, with F Pasquill Stability and a 1 m/sec wind speed.

$$\frac{\chi}{Q} = \frac{0.0133}{\sigma_y u}$$

where

σ_y = horizontal standard deviation of the plume (meters)

u = wind velocity (meters/second)

As calculated in the PAVAN run in Reference 9, at the 823 meter EAB distance σ_y is 31.0, and at the 7300 meter LPZ distance σ_y is 222.6. The resulting EAB and LPZ X/Qs are 4.29E-04 and 5.97E-05 sec/m^3, respectively.

6.3 *Release Isotopics and Quantification*

The iodine isotopic distribution given in Section 4.2 is used. The concentrations of this mix are adjusted to I-131 equivalence, using the inhalation Committed Effective Dose Equivalent (CEDE) Dose Conversion Factors (DCFs) from Federal Guidance Report No. 11 [Ref. 3]. This is a more conservative set of DCF assumptions for Control Room and off-site dose calculation than the use of ICRP 2 DCFs. It is also more conservative for these calculations than use of R. G. 1.109 or Federal Guidance Report No. 12 [Ref. 4] DCFs.

This I-131 equivalent mix is adjusted to the activity yielding the two design basis MSLB accident reactor coolant activities of 0.2 μCi/cc and 4.0 μCi/cc. The released activities are these concentrations times the 7.51E+07 grams of water carrying activity released, with the assumption that TS activities are based on laboratory temperature and pressure conditions.

For the Noble Gases, the isotopic distribution given in Section 4.3 is used. The released activities are these concentrations times the 25,800 lb mass of steam released, converted to 1.17E+07 grams using the 453.59 g/lb conversion factor.

6.4 *Dose Assessment*

Doses at the EAB and LPZ distances, and in the Control Room are calculated in Attachment A using the formulas in Section 2.5. Concentrations at the receptor locations are that in the steam plume for the Control Room or based on the release times the applicable X/Q for the EAB and LPZ.

Doses are calculated for inhalation (rem CEDE) and plume submersion (rem EDE) and totaled to yield rem TEDE. The breathing rate of 3.47E-04 m^3/sec is per RG 1.183 guidance without the round-off.

The resulting calculated doses are in the spreadsheet and in the Summary and Conclusions Section below.

7.0 SUMMARY AND CONCLUSIONS

- Accidental doses from a design basis MSLB were calculated for the control room operator, a person at EAB, and a person at LPZ. The results are summarized in the Table below. The doses at the Control Room, EAB, and LPZ resulting from a postulated design basis MSLB do not exceed, and are a small fraction of, the regulatory limits.

Location	Case 1 (normal equilibrium limit of 0.2 μCi) Dose (rem TEDE)	Case 2 (iodine spike limit of 4.0 μCi) Dose (rem TEDE)
LIMITS	CR: 5.0; EAB&LPZ: 2.5	CR: 5.0; EAB&LPZ: 25
EAB	9.88E-02	1.97E+00
LPZ	1.38E-02	2.75E-01
CR	1.62E-01	3.23 E+00

8.0 Owners Acceptance Review Checklist for External Design Analysis
Page 1 of 1

DESIGN ANALYSIS NO. PM-1058 REV: 1

		Yes	No	N/A
1.	Do assumptions have sufficient rationale?	☑	☐	☐
2.	Are assumptions compatible with the way the plant is operated and with the licensing basis? (For AST)	☑	☐	☐
3.	Do the design inputs have sufficient rationale?	☑	☐	☐
4.	Are design inputs correct and reasonable?	☑	☐	☐
5.	Are design inputs compatible with the way the plant is operated and with the licensing basis? (For AST)	☑	☐	☐
6.	Are Engineering Judgments clearly documented and justified?	☑	☐	☐
7.	Are Engineering Judgments compatible with the way the plant is operated and with the licensing basis?	☑	☐	☐
8.	Do the results and conclusions satisfy the purpose and objective of the Design Analysis?	☑	☐	☐
9.	Are the results and conclusions compatible with the way the plant is operated and with the licensing basis? (For AST)	☑	☐	☐
10.	Does the Design Analysis include the applicable design basis documentation?	☑	☐	☐
11.	Have any limitations on the use of the results been identified and transmitted to the appropriate organizations?	☐	☐	☑
12.	Are there any unverified assumptions?	☐	☑	☐
13.	Do all unverified assumptions have a tracking and closure mechanism in place?	☐	☐	☑
14.	Have all affected design analyses been documented on the Affected Documents List (ADL) for the associated Configuration Change?	☑	☐	☐
15.	Do the sources of inputs and analysis methodology used meet current technical requirements and regulatory commitments? (If the input sources or analysis methodology are based on an out-of-date methodology or code, additional reconciliation may be required if the site has since committed to a more recent code) (AST per RG 1.183)	☑	☐	☐
16.	Have vendor supporting technical documents and references (including GE DRFs) been reviewed when necessary?	☑	☐	☐

EXELON REVIEWER: T.J. Mscisz / [signature] **DATE:** 5/19/2008
Print / Sign

	A	B	C	D	E	F	G	H	I	J	K
1	**PBAPS MSLB Dose Spreadsheet**					Case 1:	Reactor Coolant at maximum value (DE I-131 of 0.2 uCi/cc) permitted for				
2							continued full power operation				
3	69,337	Volume of cloud (cubic meters)				Case 2:	Reactor Coolant at maximum value permitted (DE I-131 of 4.0 uCi/cc)				
4	7.51E+07	Mass of water in reactor coolant release (grams)					corresponding to an assumed pre-accident spike				
5	1.17E+07	Mass of steam release (grams)									
6	1	reactor coolant density when activity is measured (grams/cc)									
7	64.2	seconds for cloud to pass over CR intake for wind speed of 1 m/second									
8	176000	Volume of Control Room Envelope (cubic feet)									
9											
10	Halogens								Case 1	Case 2	
11		Activity							Release	Release	
12		Distribution		Normalized	Case 1	Case 2	Case 1	Case 2	Cloud	Cloud	
13	Isotope	(UFSAR	FGR 11	I-131 DE	Normalized	Normalized	Activity	Activity	Concentration	Concentration	
14		Sect. 14.6.5)	DCF[1]	Activity	Activity	Activity	Release	Release			
15		uCi/cc	Rem/Ci	uCi/cc	uCi/cc	uCi/cc	Ci	Ci	Ci/m^3	Ci/m^3	
16	I-131	0.17	3.29E+04	1.70E-01	8.07E-02	1.61E+00	6.07E+00	1.21E+02	8.75E-05	1.75E-03	
17	I-132	1.02	3.81E+02	1.18E-02	5.61E-03	1.12E-01	3.64E+01	7.28E+02	5.25E-04	1.05E-02	
18	I-133	1.04	5.85E+03	1.85E-01	8.78E-02	1.76E+00	3.71E+01	7.42E+02	5.35E-04	1.07E-02	
19	I-134	1.47	1.31E+02	5.85E-03	2.78E-03	5.56E-02	5.25E+01	1.05E+03	7.57E-04	1.51E-02	
20	I-135	1.3	1.23E+03	4.86E-02	2.31E-02	4.62E-01	4.64E+01	9.28E+02	6.69E-04	1.34E-02	
21				4.21E-01	2.00E-01	4.00E+00					
22					"non-spiked"	"spiked"					
23	Noble Gases										
24		Calc.			Case 1	Case 2					
25		PM-740-A			Release	Release					
26		Table 3	Case 1	Case 2	Cloud	Cloud					
27	Isotope	Noble Gas	Activity	Activity	Concentration	Concentration					
28		Activity	Release	Release							
29		uCi/gm	Ci	Ci	Ci/m^3	Ci/m^3					
30											
31	Kr-83M	1.92E-03	2.25E-02	2.25E-02	3.24E-07	3.24E-07					
32	Kr-85M	3.44E-03	4.03E-02	4.03E-02	5.81E-07	5.81E-07					
33	Kr-85	1.13E-05	1.32E-04	1.32E-04	1.91E-09	1.91E-09					
34	Kr-87	1.13E-02	1.32E-01	1.32E-01	1.91E-06	1.91E-06					
35	Kr-88	1.13E-02	1.32E-01	1.32E-01	1.91E-06	1.91E-06					
36	Kr-89	7.33E-02	8.58E-01	8.58E-01	1.24E-05	1.24E-05					
37	Xe-131M	8.46E-06	9.90E-05	9.90E-05	1.43E-09	1.43E-09					
38	Xe-133M	1.63E-04	1.91E-03	1.91E-03	2.75E-08	2.75E-08					
39	Xe-133	4.62E-03	5.41E-02	5.41E-02	7.80E-07	7.80E-07					
40	Xe-135M	1.47E-02	1.72E-01	1.72E-01	2.48E-06	2.48E-06					
41	Xe-135	1.24E-02	1.45E-01	1.45E-01	2.09E-06	2.09E-06					
42	Xe-137	8.46E-02	9.90E-01	9.90E-01	1.43E-05	1.43E-05					
43	Xe-138	5.02E-02	5.87E-01	5.87E-01	8.47E-06	8.47E-06					
44											

	A	B	C	D	E	F	G	H	I	J	K
45	Inhalation Doses										
46			Curies Released			Case 1 Dose (rem CEDE)			Case 2 Dose (rem CEDE)		
47			to the Environment				(Inhalation)			(Inhalation)	
48	Isotope		Case 1	Case 2	DCF[1]	CR	EAB	LPZ	CR	EAB	LPZ
49	I-131		6.07E+00	1.21E+02	3.29E+04	6.41E-02	2.97E-02	4.14E-03	1.28E+00	5.94E-01	8.28E-02
50	I-132		3.64E+01	7.28E+02	3.81E+02	4.46E-03	2.06E-03	2.88E-04	8.91E-02	4.13E-02	5.75E-03
51	I-133		3.71E+01	7.42E+02	5.85E+03	6.97E-02	3.23E-02	4.50E-03	1.39E+00	6.46E-01	9.00E-02
52	I-134		5.25E+01	1.05E+03	1.31E+02	2.21E-03	1.02E-03	1.42E-04	4.42E-02	2.05E-02	2.85E-03
53	I-135		4.64E+01	9.28E+02	1.23E+03	1.83E-02	8.50E-03	1.18E-03	3.67E-01	1.70E-01	2.37E-02
54					Totals	**1.59E-01**	**7.36E-02**	**1.02E-02**	**3.18E+00**	**1.47E+00**	**2.05E-01**
55											
56	External Doses										
57			Curies Released			Case 1 Dose (rem EDE)			Case 2 Dose (rem EDE)		
58			to the Environment				(External)			(External)	
59	Isotope		Case 1	Case 2	DCF[2]	CR	EAB	LPZ	CR	EAB	LPZ
60	I-131		6.07E+00	1.21E+02	6.73E-02	1.91E-05	1.75E-04	2.44E-05	3.82E-04	3.51E-03	4.88E-04
61	I-132		3.64E+01	7.28E+02	4.14E-01	7.06E-04	6.47E-03	9.01E-04	1.41E-02	1.29E-01	1.80E-02
62	I-133		3.71E+01	7.42E+02	1.09E-01	1.89E-04	1.73E-03	2.41E-04	3.78E-03	3.46E-02	4.82E-03
63	I-134		5.25E+01	1.05E+03	4.81E-01	1.18E-03	1.08E-02	1.51E-03	2.36E-02	2.17E-01	3.02E-02
64	I-135		4.64E+01	9.28E+02	2.95E-01	6.41E-04	5.88E-03	8.18E-04	1.28E-02	1.18E-01	1.64E-02
65	Kr-83M		2.25E-02	2.25E-02	5.55E-06	5.84E-12	5.35E-11	7.45E-12	5.84E-12	5.35E-11	7.45E-12
66	Kr-85M		4.03E-02	4.03E-02	2.77E-02	5.21E-08	4.78E-07	6.66E-08	5.21E-08	4.78E-07	6.66E-08
67	Kr-85		1.32E-04	1.32E-04	4.40E-04	2.72E-12	2.50E-11	3.48E-12	2.72E-12	2.50E-11	3.48E-12
68	Kr-87		1.32E-01	1.32E-01	1.52E-01	9.43E-07	8.65E-06	1.20E-06	9.43E-07	8.65E-06	1.20E-06
69	Kr-88		1.32E-01	1.32E-01	3.77E-01	2.34E-06	2.14E-05	2.98E-06	2.34E-06	2.14E-05	2.98E-06
70	Kr-89		8.58E-01	8.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Xe-131M		9.90E-05	9.90E-05	1.44E-03	6.67E-12	6.11E-11	8.51E-12	6.67E-12	6.11E-11	8.51E-12
72	Xe-133M		1.91E-03	1.91E-03	5.07E-03	4.53E-10	4.15E-09	5.78E-10	4.53E-10	4.15E-09	5.78E-10
73	Xe-133		5.41E-02	5.41E-02	5.77E-03	1.46E-08	1.34E-07	1.86E-08	1.46E-08	1.34E-07	1.86E-08
74	Xe-135M		1.72E-01	1.72E-01	7.55E-02	6.08E-07	5.57E-06	7.76E-07	6.08E-07	5.57E-06	7.76E-07
75	Xe-135		1.45E-01	1.45E-01	4.40E-02	2.99E-07	2.74E-06	3.82E-07	2.99E-07	2.74E-06	3.82E-07
76	Xe-137		9.90E-01	9.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	Xe-138		5.87E-01	5.87E-01	2.13E-01	5.87E-06	5.38E-05	7.49E-06	5.87E-06	5.38E-05	7.49E-06
78	Sub-total					**2.75E-03**	**2.52E-02**	**3.51E-03**	**5.47E-02**	**5.02E-01**	**6.99E-02**
79	**Total (rem TEDE)**					**1.62E-01**	**9.88E-02**	**1.38E-02**	**3.23E+00**	**1.97E+00**	**2.75E-01**
80											
81	[1]	Dose Conversion Factor (rem/Curie) from Federal Guidance Report (FGR) 11 per Reg. Guide 1.183									
82	[2]	Dose Conversion Factor (rem-m^3/Curie-second) from FGR 12 per Reg. Guide 1.183									
83	3.47E-04	Breathing rate (m^3/second) per Regulatory Guide 1.183 (without round-off)									
84	5.05E-02	Control Room Geometry Factor per Reg. Guide 1.183, Regulatory Position 4.2.7									
85	3.10E+01	EAB σ_y (meters) for F stability, (taken from PAVAN runs in Ref. 9)									
86	2.226E+02	LPZ σ_y (meters) for F stability, (taken from PAVAN runs in Ref. 9)									
87	1.00E+00	Wind Speed (m/s)									
88	4.29E-04	X/Q (seconds/m^3) at EA Boundary - 0-2 hours based on RG 1.5 methodology									
89	5.97E-05	X/Q (seconds/m^3) at Low Population Zone - 0-2 based on RG 1.5 methodology									

	A	B	C	D	E	F	G
1	**PBAPS MSLB Do**					Case 1:	Reactor Coolant at maximum
2							
3	69337	Volume of cloud				Case 2:	Reactor Coolant at maximum
4	75131000	Mass of water in					
5	=25800*453.59	Mass of steam r					
6	1	reactor coolant c					
7	64.2	seconds for clou					
8	176000	Volume of Contr					
9							
10	Halogens						
11		Activity					
12		Distribution		Normalized	Case 1	Case 2	Case 1
13	Isotope	(UFSAR	FGR 11	I-131 DE	Normalized	Normalized	Activity
14		Sect. 14.6.5)	DCF[1]	Activity	Activity	Activity	Release
15		uCi/cc	Rem/Ci	uCi/cc	uCi/cc	uCi/cc	Ci
16	I-131	0.17	32900	=C16*B16/C$16	=D16*0.2/D$21	=E16*20	=E16*$A$4*0.000001/$A$6
17	I-132	1.02	381	=C17*B17/C$16	=D17*0.2/D$21	=E17*20	=E17*$A$4*0.000001/$A$6
18	I-133	1.04	5846	=C18*B18/C$16	=D18*0.2/D$21	=E18*20	=E18*$A$4*0.000001/$A$6
19	I-134	1.47	131	=C19*B19/C$16	=D19*0.2/D$21	=E19*20	=E19*$A$4*0.000001/$A$6
20	I-135	1.3	1230	=C20*B20/C$16	=D20*0.2/D$21	=E20*20	=E20*$A$4*0.000001/$A$6
21				=SUM(D16:D20)	=SUM(E16:E20)	=SUM(F16:F20)	
22					"non-spiked"	"spiked"	
23	Noble Gases						
24		Calc.			Case 1	Case 2	
25		PM-740-A			Release	Release	
26		Table 3	Case 1	Case 2	Cloud	Cloud	
27	Isotope	Noble Gas	Activity	Activity	Concentration	Concentration	
28		Activity	Release	Release			
29		uCi/gm	Ci	Ci	Ci/m^3	Ci/m^3	
30							
31	Kr-83M	0.00192	=B31*$A$5*0.000001	0.02246903424	=C31/$A$3	=D31/$A$3	
32	Kr-85M	0.00344	=B32*$A$5*0.000001	0.04025701968	=C32/$A$3	=D32/$A$3	
33	Kr-85	0.0000113	=B33*$A$5*0.000001	0.0001322396286	=C33/$A$3	=D33/$A$3	
34	Kr-87	0.0113	=B34*$A$5*0.000001	0.1322396286	=C34/$A$3	=D34/$A$3	
35	Kr-88	0.0113	=B35*$A$5*0.000001	0.1322396286	=C35/$A$3	=D35/$A$3	
36	Kr-89	0.0733	=B36*$A$5*0.000001	0.8578021926	=C36/$A$3	=D36/$A$3	
37	Xe-131M	0.00000846	=B37*$A$5*0.000001	0.0000990041821	=C37/$A$3	=D37/$A$3	
38	Xe-133M	0.000163	=B38*$A$5*0.000001	0.001907527386	=C38/$A$3	=D38/$A$3	
39	Xe-133	0.00462	=B39*$A$5*0.000001	0.05406611364	=C39/$A$3	=D39/$A$3	
40	Xe-135M	0.0147	=B40*$A$5*0.000001	0.1720285434	=C40/$A$3	=D40/$A$3	
41	Xe-135	0.0124	=B41*$A$5*0.000001	0.1451125128	=C41/$A$3	=D41/$A$3	
42	Xe-137	0.0846	=B42*$A$5*0.000001	0.9900418212	=C42/$A$3	=D42/$A$3	
43	Xe-138	0.0502	=B43*$A$5*0.000001	0.5874716244	=C43/$A$3	=D43/$A$3	
44							

	A	B	C	D	E	F	G
45	Inhalation Doses						
46			Curies Released				Case 1 Dose (rem CEDE)
47			to the Environment				(Inhalation)
48	Isotope		Case 1	Case 2	DCF[1]	CR	EAB
49	I-131		=G16	=H16	32900	=I16*$E49*$A$83*$A$7	=C49*$E49*$A$83*$A$88
50	I-132		=G17	=H17	381	=I17*$E50*$A$83*$A$7	=C50*$E50*$A$83*$A$88
51	I-133		=G18	=H18	5846	=I18*$E51*$A$83*$A$7	=C51*$E51*$A$83*$A$88
52	I-134		=G19	=H19	131	=I19*$E52*$A$83*$A$7	=C52*$E52*$A$83*$A$88
53	I-135		=G20	=H20	1230	=I20*$E53*$A$83*$A$7	=C53*$E53*$A$83*$A$88
54					Totals	**=SUM(F49:F53)**	**=SUM(G49:G53)**
55							
56	External Doses						
57			Curies Released				Case 1 Dose (rem EDE)
58			to the Environment				(External)
59	Isotope		Case 1	Case 2	DCF[2]	CR	EAB
60	I-131		=C49	=D49	0.06734	=I16*$E60*$A$84*$A$7	=C60*$E60*$A$88
61	I-132		=C50	=D50	0.4144	=I17*$E61*$A$84*$A$7	=C61*$E61*$A$88
62	I-133		=C51	=D51	0.10878	=I18*$E62*$A$84*$A$7	=C62*$E62*$A$88
63	I-134		=C52	=D52	0.481	=I19*$E63*$A$84*$A$7	=C63*$E63*$A$88
64	I-135		=C53	=D53	0.29526	=I20*$E64*$A$84*$A$7	=C64*$E64*$A$88
65	Kr-83M		0.02246903424	0.02246903424	0.00000555	=E31*$E65*$A$84*$A$7	=C65*$E65*$A$88
66	Kr-85M		0.04025701968	0.04025701968	0.027676	=E32*$E66*$A$84*$A$7	=C66*$E66*$A$88
67	Kr-85		0.0001322396286	0.0001322396286	0.0004403	=E33*$E67*$A$84*$A$7	=C67*$E67*$A$88
68	Kr-87		0.1322396286	0.1322396286	0.15244	=E34*$E68*$A$84*$A$7	=C68*$E68*$A$88
69	Kr-88		0.1322396286	0.1322396286	0.3774	=E35*$E69*$A$84*$A$7	=C69*$E69*$A$88
70	Kr-89		0.8578021926	0.8578021926	0	=E36*$E70*$A$84*$A$7	=C70*$E70*$A$88
71	Xe-131M		0.00009900418212	0.00009900418212	0.0014393	=E37*$E71*$A$84*$A$7	=C71*$E71*$A$88
72	Xe-133M		0.001907527386	0.001907527386	0.005069	=E38*$E72*$A$84*$A$7	=C72*$E72*$A$88
73	Xe-133		0.05406611364	0.05406611364	0.005772	=E39*$E73*$A$84*$A$7	=C73*$E73*$A$88
74	Xe-135M		0.1720285434	0.1720285434	0.07548	=E40*$E74*$A$84*$A$7	=C74*$E74*$A$88
75	Xe-135		0.1451125128	0.1451125128	0.04403	=E41*$E75*$A$84*$A$7	=C75*$E75*$A$88
76	Xe-137		0.9900418212	0.9900418212	0	=E42*$E76*$A$84*$A$7	=C76*$E76*$A$88
77	Xe-138		0.5874716244	0.5874716244	0.21349	=E43*$E77*$A$84*$A$7	=C77*$E77*$A$88
78	Sub-total					**=SUM(F60:F77)**	**=SUM(G60:G77)**
79	**Total (rem TEDE)**					**=SUM(F54+F78)**	**=SUM(G54+G78)**
80							
81	1	Dose Conversion					
82	2	Dose Conversion					
83	0.000347	Breathing rate (m^3					
84	=($A$8^0.338)/1173	Control Room Geo					
85	31	EAB σ_y (meters) fo					
86	222.6	LPZ σ_y (meters) fo					
87	1	Wind Speed (m/s)					
88	=0.0133/A$85/A$87	X/Q (seconds/m^3)					
89	=0.0133/A$86/A$87	X/Q (seconds/m^3)					

	H	I	J	K
1	value (DE I-131 of 0.2 uCi/cc) permitted for continued full power operation			
2				
3	value permitted (DE I-131 of 4.0 uCi/cc) corresponding to an assumed pre-accident spike			
4				
5				
6				
7				
8				
9				
10		Case 1	Case 2	
11		Release	Release	
12	Case 2	Cloud	Cloud	
13	Activity	Concentration	Concentration	
14	Release			
15	Ci	Ci/m^3	Ci/m^3	
16	=F16*$A$4*0.000001/$A$6	=G16/$A$3	=H16/$A$3	
17	=F17*$A$4*0.000001/$A$6	=G17/$A$3	=H17/$A$3	
18	=F18*$A$4*0.000001/$A$6	=G18/$A$3	=H18/$A$3	
19	=F19*$A$4*0.000001/$A$6	=G19/$A$3	=H19/$A$3	
20	=F20*$A$4*0.000001/$A$6	=G20/$A$3	=H20/$A$3	
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				

	H	I	J	K
45				
46			Case 2 Dose (rem CEDE)	
47			(Inhalation)	
48	LPZ	CR	EAB	LPZ
49	=C49*$E49*$A$83*$A$89	=J16*$E49*$A$83*$A$7	=D49*$E49*$A$83*$A$88	=D49*$E49*$A$83*$A$89
50	=C50*$E50*$A$83*$A$89	=J17*$E50*$A$83*$A$7	=D50*$E50*$A$83*$A$88	=D50*$E50*$A$83*$A$89
51	=C51*$E51*$A$83*$A$89	=J18*$E51*$A$83*$A$7	=D51*$E51*$A$83*$A$88	=D51*$E51*$A$83*$A$89
52	=C52*$E52*$A$83*$A$89	=J19*$E52*$A$83*$A$7	=D52*$E52*$A$83*$A$88	=D52*$E52*$A$83*$A$89
53	=C53*$E53*$A$83*$A$89	=J20*$E53*$A$83*$A$7	=D53*$E53*$A$83*$A$88	=D53*$E53*$A$83*$A$89
54	**=SUM(H49:H53)**	**=SUM(I49:I53)**	**=SUM(J49:J53)**	**=SUM(K49:K53)**
55				
56				
57			Case 2 Dose (rem EDE)	
58			(External)	
59	LPZ	CR	EAB	LPZ
60	=C60*$E60*$A$89	=J16*$E60*$A$84*$A$7	=D60*$E60*$A$88	=D60*$E60*$A$89
61	=C61*$E61*$A$89	=J17*$E61*$A$84*$A$7	=D61*$E61*$A$88	=D61*$E61*$A$89
62	=C62*$E62*$A$89	=J18*$E62*$A$84*$A$7	=D62*$E62*$A$88	=D62*$E62*$A$89
63	=C63*$E63*$A$89	=J19*$E63*$A$84*$A$7	=D63*$E63*$A$88	=D63*$E63*$A$89
64	=C64*$E64*$A$89	=J20*$E64*$A$84*$A$7	=D64*$E64*$A$88	=D64*$E64*$A$89
65	=C65*$E65*$A$89	=F31*$E65*$A$84*$A$7	=D65*$E65*$A$88	=D65*$E65*$A$89
66	=C66*$E66*$A$89	=F32*$E66*$A$84*$A$7	=D66*$E66*$A$88	=D66*$E66*$A$89
67	=C67*$E67*$A$89	=F33*$E67*$A$84*$A$7	=D67*$E67*$A$88	=D67*$E67*$A$89
68	=C68*$E68*$A$89	=F34*$E68*$A$84*$A$7	=D68*$E68*$A$88	=D68*$E68*$A$89
69	=C69*$E69*$A$89	=F35*$E69*$A$84*$A$7	=D69*$E69*$A$88	=D69*$E69*$A$89
70	=C70*$E70*$A$89	=F36*$E70*$A$84*$A$7	=D70*$E70*$A$88	=D70*$E70*$A$89
71	=C71*$E71*$A$89	=F37*$E71*$A$84*$A$7	=D71*$E71*$A$88	=D71*$E71*$A$89
72	=C72*$E72*$A$89	=F38*$E72*$A$84*$A$7	=D72*$E72*$A$88	=D72*$E72*$A$89
73	=C73*$E73*$A$89	=F39*$E73*$A$84*$A$7	=D73*$E73*$A$88	=D73*$E73*$A$89
74	=C74*$E74*$A$89	=F40*$E74*$A$84*$A$7	=D74*$E74*$A$88	=D74*$E74*$A$89
75	=C75*$E75*$A$89	=F41*$E75*$A$84*$A$7	=D75*$E75*$A$88	=D75*$E75*$A$89
76	=C76*$E76*$A$89	=F42*$E76*$A$84*$A$7	=D76*$E76*$A$88	=D76*$E76*$A$89
77	=C77*$E77*$A$89	=F43*$E77*$A$84*$A$7	=D77*$E77*$A$88	=D77*$E77*$A$89
78	**=SUM(H60:H77)**	**=SUM(I60:I77)**	**=SUM(J60:J77)**	**=SUM(K60:K77)**
79	**=SUM(H54+H78)**	**=SUM(I54+I78)**	**=SUM(J54+J78)**	**=SUM(K54+K78)**
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				

Computer Disclosure Sheet

Discipline Nuclear

Client:: Exelon Corporation / Amergen
Project: Peach Bottom Atomic Power Station MSLB AST

Date: May 19, 2008
Job No.

Program(s) used	Rev No.	Rev Date	Calculation Set No.: PM-1058, Rev. 1
Attachment A spreadsheet		N/A	N/A

Status

[ ] Prelim.
[X] Final
[ ] Void

WGI Prequalification [ ] Yes
[X] No

Run No. Description:

Analysis Description: Spreadsheet used to perform dose assessment for MSLB, as described in calculation.

The attached computer output has been reviewed, the input data checked,
And the results approved for release. Input criteria for this analysis were established.

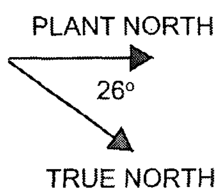
By: H. Rothstein On: May 19, 2008

Run by: H. Rothstein *Harold Rothstein*

Checked by: P. Reichert *P. Reichert*

Approved by: H. Rothstein *Harold Rothstein*

Remarks: WGI Form for Computer Software Control
This spreadsheet is relatively straight-forward and was hand checked. Attachment includes the spreadsheet in both normal and formula display mode and so is completely documented.



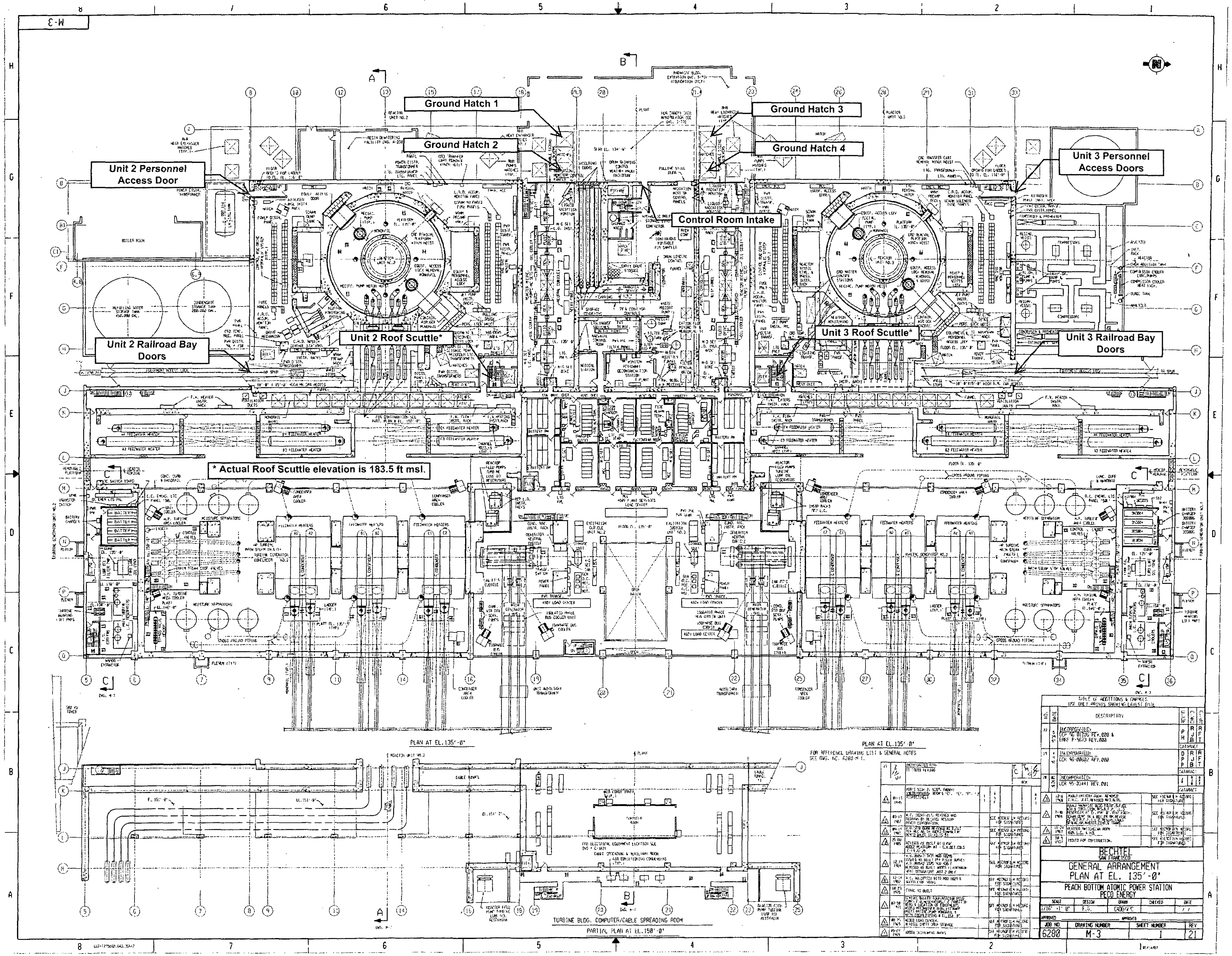
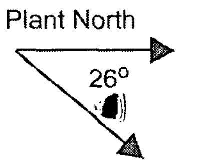


FIGURE 1

PBAPS AST LAR - RAI Response
Question 18 Supporting Information



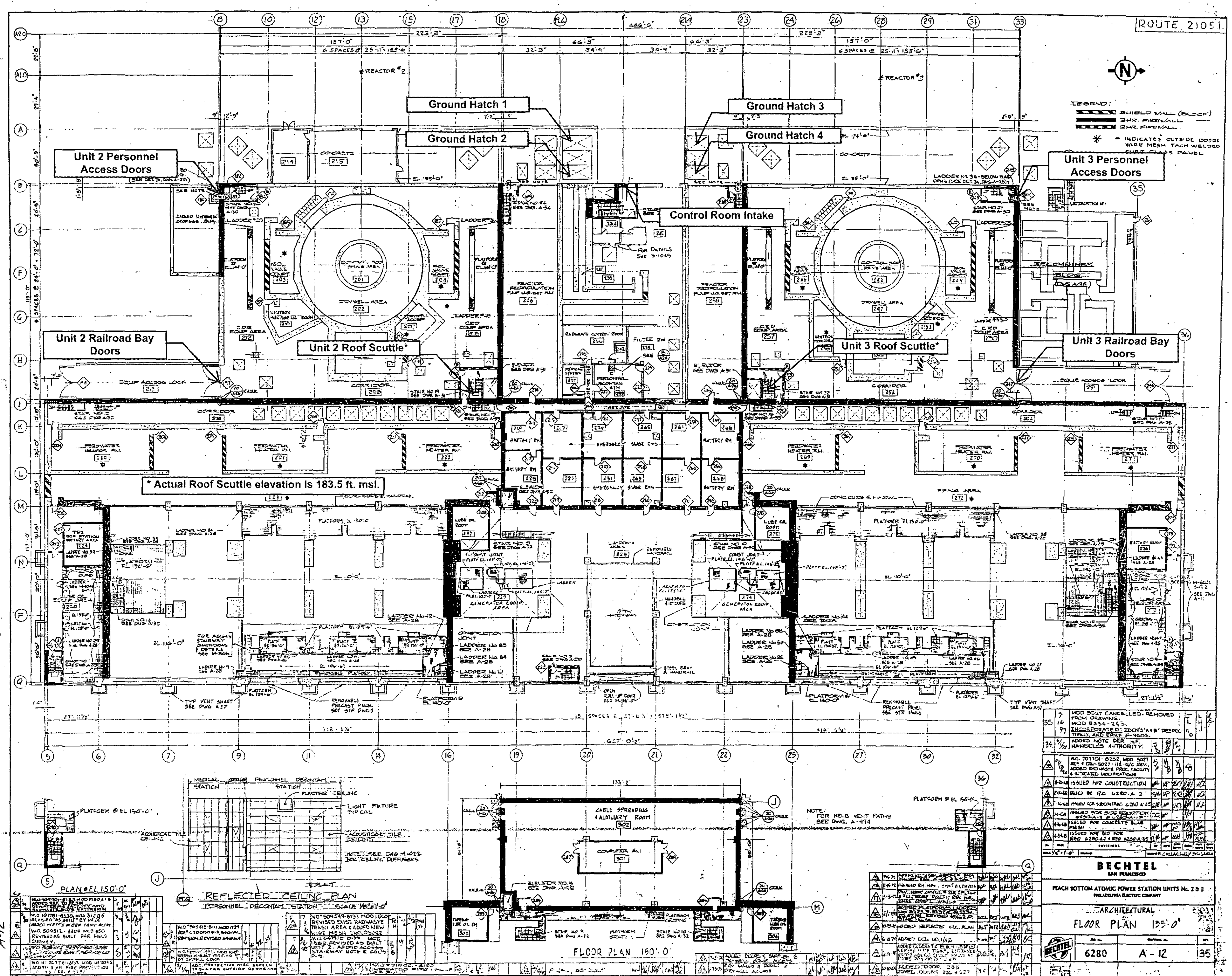


FIGURE 2

PBAPS AST LAR - RAI Response
Question 18 Supporting Information