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Subject: Peach Bottom Atomic Power Station Units 2 and 3
 Facility Operating License DPR-44 and DPR-56
 NRC Docket 50-277 and 50-278

 Radiation Dose Assessment Report 24
 January 1, 2008 through December 31, 2008

Enclosed is the Radiation Dose Assessment Report 24, January 1, 2008, through December 31, 2008, for Peach Bottom Atomic Power Station Units 2 and 3.

This report is being submitted in accordance with the reporting requirements of Peach Bottom ODCM Sections 3.8.E.2 and 3.10.3 applicable during the reporting period.

There are no commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,



William F. Maguire
Site Vice President,
Peach Bottom Atomic Power Station

WFM/LJL/MHT/bcb

Enclosure

ccn 09-02

cc: S. J. Collins, Administrator, Region I, USNRC
 G. F. Wunder, Project Manager, USNRC
 F. Bower, USNRC Senior Resident Inspector, PBAPS A4

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LIRA

**PEACH BOTTOM ATOMIC POWER STATION
UNIT NOS. 2 & 3**

DOCKET NOS. 50-277 AND 50-278

ISFSI

DOCKET NO. 72-29

**RADIATION DOSE ASSESSMENT
REPORT NO. 24**

JANUARY 1, 2008 THROUGH DECEMBER 31, 2008

**SUBMITTED TO
THE UNITED STATES NUCLEAR REGULATORY COMMISSION
PURSUANT TO
FACILITY OPERATION LICENSES DPR-44 & DPR-56**

PREPARED BY

ExelonSM

Nuclear

**Peach Bottom Atomic Power Station
Delta, PA 17314**

**Peach Bottom Atomic Power Station
2008 Radiation Dose Assessment Report**

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**Peach Bottom Atomic Power Station
2008 Radiation Dose Assessment Report**

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I. EXECUTIVE SUMMARY

In accordance with the reporting requirements of Peach Bottom Offsite Dose Calculation Manual Specifications (ODCMS) Sections 3.8.E.2 and 3.10.3, this report summarizes the radiation doses due to the radioactive effluent releases from Peach Bottom Atomic Power Station Units 2 and 3 for the period January 1, 2008 through December 31, 2008.

The 2008 calculated doses were compared to the appropriate ODCMS and Appendix I Design Objective limits (Table I-1). The maximum offsite total body dose, due to liquid releases was **1.19E-02 mrem**. The maximum offsite total body dose, due to gaseous releases was **3.47E-01 mrem**.

TABLE I-1 COMPARISON OF THE 2008 CALCULATED DOSES RESULTING FROM PBAPS EFFLUENT RELEASES TO ODCMS LIMITS

CATEGORY	DOSE PATHWAY	MAXIMUM DOSE FROM PBAPS	% of A	ODCMS AND APPENDIX I DESIGN OBJECTIVE ANNUAL LIMITS A
I.	Liquid Effluents			
a.	Dose to total body from all pathways	1.19E-02	0.20%	6 mrem
b.	Dose to any organ from all pathways	1.78E-02	0.09%	20 mrem
c.	Total quantity of radioactive material, except tritium and dissolved gases	2.54E-01	2.54%	10 Ci
II.	Gaseous Effluents *			
a.	Gamma air dose	5.01E-01	2.51%	20 mrad
b.	Beta air dose	9.65E-02	0.24%	40 mrad
c.	Dose to total body of an individual	3.47E-01	3.47%	10 mrem
d.	Dose to skin of an individual	4.68 E-01	1.56%	30 mrem
e.	Dose to any organ (thyroid) from all pathways	5.27E+00	17.56%	30 mrem
f.	Total quantity of iodine-131	6.55E-03	0.32%	2 Ci

* 10CFR50 Appendix I specifies dose from noble gases only for Category II (a, b, c and d). PBAPS doses presented for Category II (c and d) items include noble gas and particulate components.

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The PBAPS radioactive releases and the doses that were conservatively calculated were well within all applicable Radioactive Effluent Technical Specifications, ODCMS, 10CFR50 Appendix I design objective dose limits. Therefore, we conclude that doses from PBAPS releases were within 10CFR72.104 and 40CFR190 limits of 25 mrem – total body, 75 mrem – thyroid and 25 mrem – any other organ to a real individual.

II. INTRODUCTION

Peach Bottom Atomic Power Station is located on the western shore of Conowingo Pond in York County, Pennsylvania. The station, two boiling water reactors (U2 – 3,514 MWt, U3 – 3,514 MWt), was described in the Updated Final Safety Analysis Report (Ref. 2). Conowingo Pond was the receiving stream for liquid radwaste effluents.

Detailed discussion of the methodology utilized in the report has been provided in a previous report (Ref. 1). Report No. 14 discussed that all future reports will be calculating doses using a bounding analysis (Ref. 6).

III. PEACH BOTTOM LIQUID AND GASEOUS RADWASTE EFFLUENTS

The releases of radioactive material in liquid and gaseous effluents from PBAPS were reported in the Peach Bottom Atomic Power Station Effluent Release Report No. 51 (Ref. 3) per ODCMS 3.10.2.

IV. PEACH BOTTOM LAND USE SURVEY

A dairy pasture survey was performed in 2008, which determined the milk-producing animal (cow or goat) closest to PBAPS in each sector per ODCMS 3.8.E.2.

V. HYDROLOGY AND METEOROLOGY

A. Hydrology

Travel times and dilution factors were determined based on the daily Conowingo Pond flows in 2008. Daily Pond flows were reviewed to determine a mean monthly Pond flow. Each daily flow value was assigned to one of three Pond flow regimes (Ref. 4). The resulting daily travel times and dilution factors were then averaged to determine a monthly mean travel time and dilution factor for nearest receptor location, 1,500 feet below the discharge (Table V-1). The annual average of 5.2 hours travel time and 1.6 dilution factor were used for dose calculations for this receptor.

TABLE V-1 TRAVEL TIMES AND DILUTION FACTORS FOR RECEPTOR/ LOCATION-1500 FEET BELOW THE PBAPS DISCHARGE, 2008

Month	Travel Time Hours	Dilution Factor
January	1.8	1.8
February	1.5	1.7
March	1.5	1.7
April	1.6	1.8
May	1.6	1.8
June	6.1	1.6
July	7.8	1.5
August	12.9	1.4
September	11.8	1.4
October	8.5	1.5
November	5.8	1.6
December	1.8	1.8

B. Meteorology

Appendix A details the 2008 meteorology affecting the atmospheric dispersion and the deposition of radionuclides from PBAPS gaseous effluent releases. This meteorology was used in the calculation of doses, due to radioactive effluents from PBAPS Units 2 and 3 offgas stack and roof vents.

Regulatory Guide 1.23, Onsite Meteorological Programs, requires meteorological instruments be inspected and serviced at a frequency which will assure at least a 90% data recovery. ANSI/ANS 3.11-2000, Determining Meteorological Information at Nuclear Power Sites, requires a 90 percent joint data recovery for atmospheric stability, wind speed and direction at levels that represent potential release points. The data

recovery for Tower 2 75 ft. level was 99.6% and for Tower 2 320 ft. level was 99.6%.

VI. LIQUID AND GASEOUS PATHWAY DOSE MODELS

A. Liquid Dose Model

The maximum annual doses to individuals in unrestricted areas that could result from the liquid effluent releases from PBAPS were calculated according to the guidelines in USNRC Regulatory Guide 1.109 (Ref.5) and the models described therein. NRC computer code, LADTAP, was used to perform these dose calculations.

The liquid release pathways that were considered in making these calculations included drinking water, aquatic foods, shoreline, swimming, and boating. All pathways were calculated using the equations and dose factors provided in the LADTAP computer code.

A bounding dose analysis method was used to calculate total body, organ, and skin doses due to liquid releases, assuming that all pathways (i.e., drinking water, aquatic foods, shoreline usage, swimming, and boating) existed at the receptor location-1,500 feet below the plant discharge (Figure VI-1). The highest usage factors determined for Conowingo Pond were used for each pathway for conservatism. Table VI-1 below indicates the bounding usage factors for this location. The shoreline width factor was also set at 0.2, the highest factor in Conowingo Pond.

**Table VI-1 Bounding Usage Factors for Receptor Location
1500 feet below the Plant Discharge**

<u>Factor</u>	<u>Adult</u>	<u>Teen</u>	<u>Child</u>	<u>Infant</u>
Eating Fish (kg/yr)	21	16	6.9	0
Drinking Water (l/yr)	730	510	510	330
Shoreline Use (hr/yr)	325	325	14	0
Swimming (hr/yr)	280	280	0	0
Boating (hr/yr)	325	325	67	0

B. Gaseous Pathway Model

The maximum annual doses to individuals in unrestricted areas that could result from the gaseous radioactive effluents from PBAPS were calculated according to the guidelines in USNRC Regulatory Guide 1.109 (Ref.5) and the models described therein. NRC computer code, GASPAR, was used to perform these dose calculations.

The annual average X/Q, depleted X/Q and D/Q values were computed for gaseous radioactive effluents from the Unit 2 and Unit 3 off-gas stack and roof vents, using the dispersion methodologies of USNRC Regulatory Guide 1.111 (Ref. 7).

Using GASPAR, two bounding dose calculations were performed for the receptor locations with the highest X/Q from the Unit 2 and Unit 3 roof vents (I54A, 1,300 feet E) and from the Unit 2 and Unit 3 off-gas stack (2068A, 14,520 feet N) (Figures VI-1 and VI-2, respectively). Gaseous release pathways considered included external radiation from the air and ground, inhalation and ingestion of vegetation, meat, and cow's milk. The inhalation and ingestion pathways were evaluated for the adult, teenager, child, and infant age groups. To assure that this analysis was conservative, it was assumed that all pathways existed at these two locations.

In addition to the bounding dose analysis calculation, an analysis for determining the doses from gaseous radioactive effluents to members of the public due to their activities inside the site boundary during 2008 was completed to comply with ODCMS Section 3.10.3. For purposes of this report, the security checkpoint (I14A) located 1,300 feet N of the PBAPS Unit 2 and Unit 3 roof vents was chosen (Figure VI-1). This on-site location was used for measuring inhalation, plume and ground shine doses to the National Guardmen and State Police. Continuous occupancy was assumed.

Approximately 170 Ci of unidentified gaseous radioactive effluent activity released from PBAPS in 2008 were assigned to Kr-88 for calculating the Gamma Air, Beta Air and Plume doses. Kr-88 has the highest dose factor for gamma air dose, which is normally limiting, therefore the analysis remains conservative.

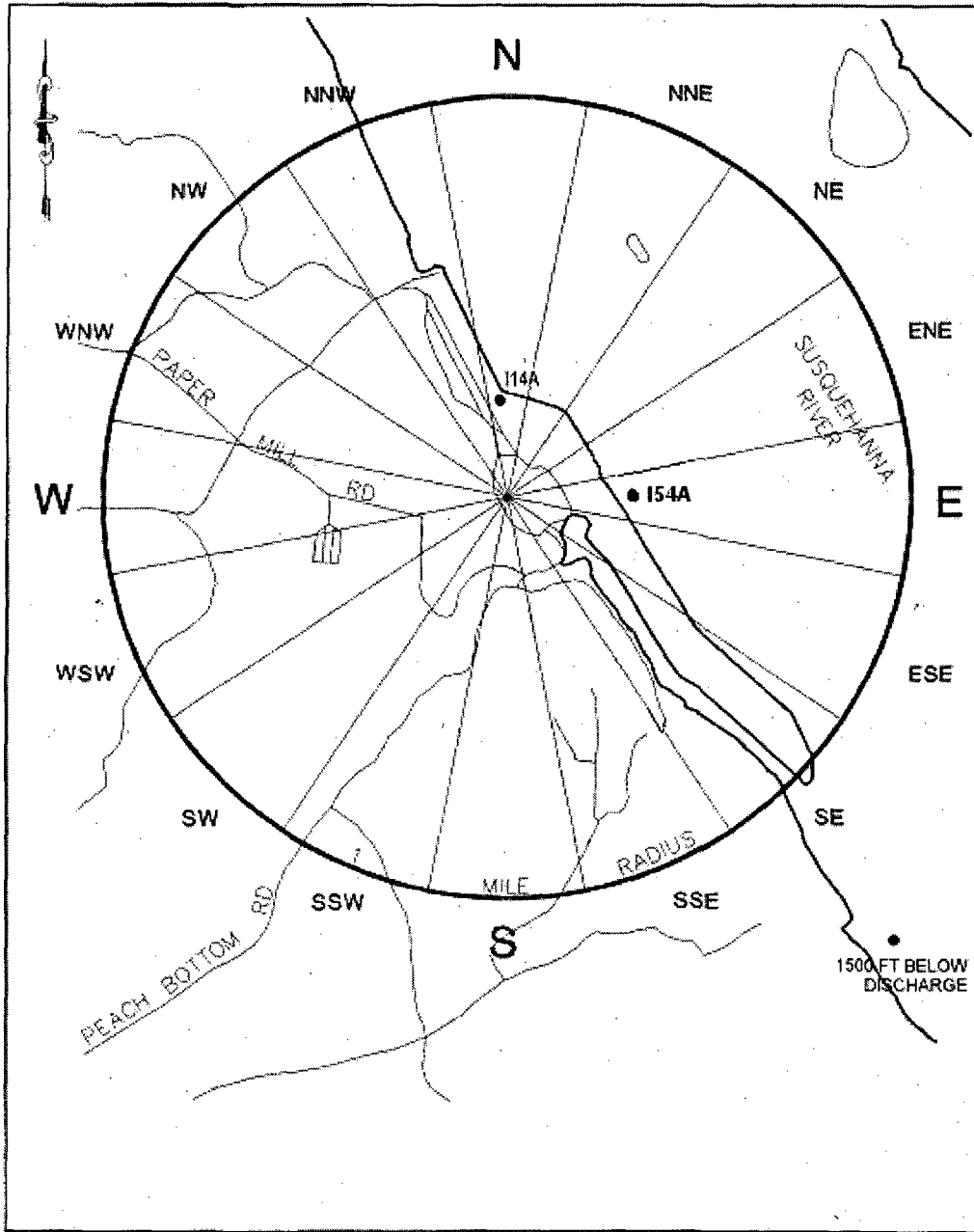


FIGURE VI-1 Locations Where The Maximum Exposed Individuals Were Evaluated For Doses Resulting From Radioactive Effluent Releases From PBAPS Unit 2 and Unit 3 Roof Vents and From Liquid Radwaste Discharges, 2008

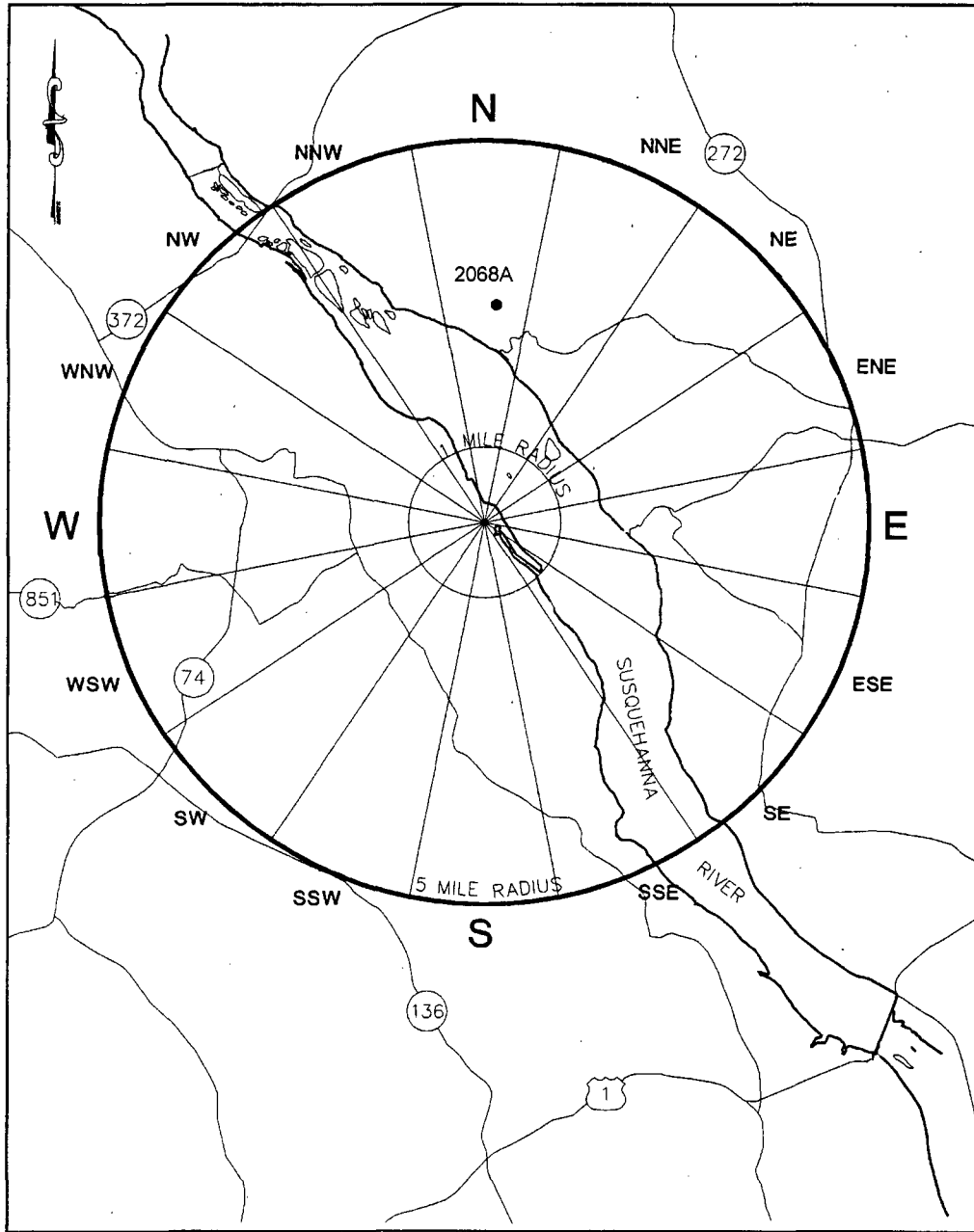


FIGURE VI-2 Locations Where The Maximum Exposed Individual Was Evaluated For Doses Resulting From Radioactive Releases From PBAPS Unit 2 and Unit 3 Off-Gas Stack, 2008

VII. CALCULATED ANNUAL DOSES

A. Liquid Releases

The annual doses for the maximum exposed organ in the adult, teenager, child, and infant age categories was calculated at the highest receptor location, 1,500 feet below the discharge (Table VII-1). The maximum doses were as follows:

DOSE PATHWAY	MAXIMUM CALCULATED DOSE (mrem)	PERCENT OF 10CFR50 APPENDIX I DESIGN OBJECTIVE
ADULT TOTAL BODY	1.19E-02	0.20%
ADULT GI-LLI	1.78E-02	0.09%

B. Gaseous Releases

The annual offsite doses to all organs through all pathways by age group were calculated at the two locations with the highest annual average X/Q value for the Unit 2 and Unit 3 roof vents and off-gas stack releases. The two locations were 1,320 feet E of the PBAPS Unit 2 and Unit 3 roof vents (Table VII-2) and 14520 feet N of the PBAPS Unit 2 and Unit 3 off-gas stack (Table VII-3). A review of the calculated doses indicated that the offsite location where a person would receive the largest calculated total body, skin and organ doses was 1320 feet E of the PBAPS Unit 2 and Unit 3 roof vents. Therefore, doses to other geographical areas would be less. The maximum calculated doses were as follows:

DOSE PATHWAY	MAXIMUM CALCULATED DOSE	PERCENT OF ODCM AND 10CFR50 APPENDIX I DESIGN OBJECTIVE
Teenager Thyroid	1.76E+00	5.86%
Infant Thyroid	5.27E+00	17.55%
Child Thyroid	3.12E+00	10.39%
Gamma Air Dose	5.01E-01	2.51%
Beta Air Dose	9.65E-02	0.24%

C. Non-Occupational Activity

The location where a person would receive the largest calculated total body dose from exposure to PBAPS gaseous radioactive effluent releases due to non-occupational activities inside the site boundary was at the Security checkpoint, approximately 1,300 feet N of the PBAPS Unit 2 and Unit 3 roof vents. Assuming continuous occupancy, the calculated total body and skin doses were **1.29E-01 mrem** and **1.73E-01 mrem**, respectively (Table VII-4).

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**Table VII-1 CALCULATED MAXIMUM ANNUAL DOSES DUE TO LIQUID RADWASTE
RELEASES AT 1500 FEET DOWNSTREAM OF PEACH BOTTOM DISCHARGE, 2008**

	SKIN	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
ADULT								
FISH		1.74E-03	4.06E-03	2.27E-03	4.03E-06	1.89E-03	2.03E-04	6.75E-03
DRINKING		4.70E-05	2.27E-04	2.46E-04	4.43E-05	7.96E-05	4.57E-05	1.61E-03
SHORELINE	1.10E-02	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03
SWIMMING		6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05
BOATING		3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05
TOTAL	1.10E-02	1.12E-02	1.37E-02	1.19E-02	9.48E-03	1.14E-02	9.68E-03	1.78E-02
TEENAGER								
FISH		1.77E-03	4.10E-03	1.79E-03	3.61E-06	1.84E-03	2.45E-04	4.63E-03
DRINKING		4.31E-05	2.01E-04	2.13E-04	3.24E-05	6.43E-05	3.55E-05	1.03E-03
SHORELINE	1.10E-02	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03	9.32E-03
SWIMMING		6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05	6.79E-05
BOATING		3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05	3.94E-05
TOTAL	1.10E-02	1.12E-02	1.37E-02	1.14E-02	9.46E-03	1.13E-02	9.71E-03	1.51E-02
CHILD								
FISH		2.10E-03	3.42E-03	1.47E-03	3.57E-06	1.47E-03	1.96E-04	1.58E-03
DRINKING		1.19E-04	3.82E-04	4.96E-04	6.51E-05	1.20E-04	6.76E-05	8.47E-04
SHORELINE	4.72E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04
SWIMMING								
BOATING		8.13E-06	8.13E-06	8.13E-06	8.13E-06	8.13E-06	8.13E-06	8.13E-06
TOTAL	4.72E-04	2.63E-03	4.21E-03	2.38E-03	4.79E-04	2.00E-03	6.74E-04	2.84E-03
INFANT								
FISH		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
DRINKING		1.15E-04	4.63E-04	5.08E-04	7.27E-05	1.14E-04	6.94E-05	5.43E-04
SHORELINE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SWIMMING								
BOATING								
TOTAL	0.00E+00	1.15E-04	4.63E-04	5.08E-04	7.27E-05	1.14E-04	6.94E-05	5.43E-04

TABLE VII-2 ANNUAL DOSES⁽¹⁾ TO ALL ORGANS BY PATHWAY AT LOCATION OF HIGHEST
CALCULATED TOTAL BODY DOSE DUE TO RADIOACTIVE EFFLUENT RELEASES
FROM PEACH BOTTOM UNIT 2 AND UNIT 3 ROOF VENTS, 2008

LOCATION I54A- 1,320 FEET, EAST

ANNUAL BETA AIR DOSE = 9.65E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 5.01E-01 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.39E-01	3.39E-01	3.39E-01	3.39E-01	3.39E-01	3.39E-01	3.40E-01	4.67E-01
GROUND	7.85E-04	7.85E-04	7.85E-04	7.85E-04	7.85E-04	7.85E-04	7.85E-04	9.26E-04
VEGET								
ADULT	6.49E-04	1.36E-03	6.55E-03	8.22E-04	1.40E-03	2.65E-01	1.57E-07	0.00E+00
TEEN	9.84E-04	1.66E-03	1.10E-02	1.27E-03	2.18E-03	3.67E-01	2.95E-07	0.00E+00
CHILD	1.96E-03	1.30E-03	2.68E-02	2.17E-03	3.54E-03	7.11E-01	4.50E-07	0.00E+00
MEAT								
ADULT	3.41E-05	7.17E-05	1.43E-04	4.85E-05	7.99E-05	1.53E-02	1.67E-08	0.00E+00
TEEN	2.63E-05	4.17E-05	1.20E-04	3.94E-05	6.52E-05	1.11E-02	1.58E-08	0.00E+00
CHILD	3.88E-05	2.35E-05	2.26E-04	5.23E-05	8.29E-05	1.67E-02	1.85E-08	0.00E+00
COWMILK								
ADULT	2.25E-04	1.53E-04	4.62E-04	3.91E-04	6.70E-04	1.24E-01	7.19E-08	0.00E+00
TEEN	3.76E-04	2.07E-04	8.44E-04	6.95E-04	1.20E-03	1.97E-01	1.49E-07	0.00E+00
CHILD	7.02E-04	1.67E-04	2.06E-03	1.21E-03	1.99E-03	3.91E-01	2.28E-07	0.00E+00
INFANT	1.33E-03	1.67E-04	4.14E-03	2.97E-03	3.46E-03	9.49E-01	4.15E-07	0.00E+00
GOATMILK								
ADULT	9.42E-04	6.57E-04	2.20E-03	1.63E-03	2.79E-03	5.18E-01	3.48E-07	0.00E+00
TEEN	1.58E-03	8.93E-04	4.02E-03	2.89E-03	4.98E-03	8.20E-01	7.20E-07	0.00E+00
CHILD	2.95E-03	7.24E-04	9.85E-03	5.05E-03	8.28E-03	1.63E+00	1.11E-06	0.00E+00
INFANT	5.59E-03	7.22E-04	1.97E-02	1.24E-02	1.44E-02	3.95E+00	2.00E-06	0.00E+00
INHAL								
ADULT	3.62E-05	6.47E-05	7.46E-05	8.56E-05	1.48E-04	1.91E-02	1.45E-04	0.00E+00
TEEN	4.82E-05	7.13E-05	1.05E-04	1.18E-04	2.05E-04	2.44E-02	2.39E-04	0.00E+00
CHILD	5.43E-05	3.47E-05	1.44E-04	1.16E-04	1.92E-04	2.91E-02	2.09E-04	0.00E+00
INFANT	3.92E-05	1.34E-05	1.09E-04	1.09E-04	1.27E-04	2.67E-02	1.85E-04	0.00E+00
TOTAL								
ADULT	3.42E-01	3.42E-01	3.49E-01	3.43E-01	3.45E-01	1.28E+00	3.41E-01	4.68E-01
TEEN	3.43E-01	3.43E-01	3.56E-01	3.45E-01	3.48E-01	1.76E+00	3.41E-01	4.68E-01
CHILD	3.45E-01	3.42E-01	3.79E-01	3.48E-01	3.54E-01	3.12E+00	3.41E-01	4.68E-01
INFANT	3.47E-01	3.41E-01	3.64E-01	3.55E-01	3.58E-01	5.27E+00	3.41E-01	4.68E-01

(1) Includes the corresponding dose due to radioactive effluent releases from Unit 2 and Unit 3 Off-Gas Stack

TABLE VII-3 ANNUAL DOSES⁽¹⁾ TO ALL ORGANS BY PATHWAY AT LOCATION OF HIGHEST CALCULATED TOTAL BODY DOSE DUE TO RADIOACTIVE EFFLUENT RELEASES FROM PEACH BOTTOM UNIT 2 AND UNIT 3 OFF-GAS STACK, 2008

LOCATION 2068A - 14520 FEET, NORTH

ANNUAL BETA AIR DOSE = 2.44E-03 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.01E-02 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.82E-03	6.85E-03	9.70E-03
GROUND	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.60E-05
VEGET								
ADULT	1.46E-05	3.76E-05	1.63E-04	1.78E-05	2.87E-05	5.35E-03	1.18E-07	0.00E+00
TEEN	2.16E-05	4.57E-05	2.63E-04	2.76E-05	4.47E-05	7.42E-03	2.24E-07	0.00E+00
CHILD	4.23E-05	3.57E-05	6.23E-04	4.70E-05	7.26E-05	1.43E-02	3.42E-07	0.00E+00
MEAT								
ADULT	8.29E-07	2.46E-06	3.77E-06	1.13E-06	1.67E-06	3.08E-04	1.35E-08	0.00E+00
TEEN	6.15E-07	1.45E-06	3.07E-06	9.13E-07	1.36E-06	2.23E-04	1.27E-08	0.00E+00
CHILD	8.83E-07	8.29E-07	5.65E-06	1.21E-06	1.73E-06	3.37E-04	1.50E-08	0.00E+00
COW MILK								
ADULT	4.97E-06	3.35E-06	1.09E-05	8.53E-06	1.37E-05	2.51E-03	6.82E-08	0.00E+00
TEEN	8.02E-06	4.52E-06	1.95E-05	1.51E-05	2.45E-05	3.97E-03	1.41E-07	0.00E+00
CHILD	1.46E-05	3.63E-06	4.69E-05	2.64E-05	4.07E-05	7.88E-03	2.17E-07	0.00E+00
INFANT	2.72E-05	3.76E-06	8.97E-05	6.35E-05	7.08E-05	1.91E-02	3.92E-07	0.00E+00
GOATMILK								
ADULT	2.09E-05	1.32E-05	4.94E-05	3.57E-05	5.73E-05	1.04E-02	3.34E-07	0.00E+00
TEEN	3.36E-05	1.80E-05	8.89E-05	6.35E-05	1.02E-04	1.65E-02	6.89E-07	0.00E+00
CHILD	6.10E-05	1.45E-05	2.15E-04	1.11E-04	1.70E-04	3.28E-02	1.06E-06	0.00E+00
INFANT	1.14E-04	1.45E-05	4.13E-04	2.66E-04	2.95E-04	7.97E-02	1.92E-06	0.00E+00
INHAL								
ADULT	1.02E-06	1.67E-06	9.13E-06	6.67E-06	5.09E-06	3.71E-04	5.78E-06	0.00E+00
TEEN	1.26E-06	1.81E-06	1.02E-05	7.61E-06	6.31E-06	4.73E-04	9.38E-06	0.00E+00
CHILD	1.32E-06	8.62E-07	9.21E-06	6.03E-06	5.28E-06	5.64E-04	8.11E-06	0.00E+00
INFANT	8.68E-07	3.31E-07	4.73E-06	3.62E-06	3.07E-06	5.18E-04	7.17E-06	0.00E+00
TOTAL								
ADULT	6.88E-03	6.90E-03	7.08E-03	6.91E-03	6.95E-03	2.58E-02	6.88E-03	9.73E-03
TEEN	6.91E-03	6.91E-03	7.23E-03	6.96E-03	7.02E-03	3.54E-02	6.88E-03	9.73E-03
CHILD	6.96E-03	6.90E-03	7.74E-03	7.03E-03	7.13E-03	6.27E-02	6.88E-03	9.73E-03
INFANT	6.98E-03	6.86E-03	7.35E-03	7.18E-03	7.21E-03	1.06E-01	6.88E-03	9.73E-03

(1) Includes the corresponding dose due to radioactive effluent releases from Unit 2 and Unit 3 Roof Vents

TABLE VII-4 ANNUAL TOTAL BODY AND ORGAN DOSES DUE TO NON-OCCUPATIONAL
ACTIVITIES INSIDE THE PEACH BOTTOM SITE BOUNDARY, 2008

LOCATION I14A - SECURITY CHECKPOINT - 1,300 FEET, NORTH

ANNUAL BETA AIR DOSE = 3.55E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.84E-01 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.72E-01
GROUND	4.57E-04	4.57E-04	4.57E-04	4.57E-04	4.57E-04	4.57E-04	4.57E-04	5.40E-04
VEGET								
ADULT	3.75E-04	7.94E-04	3.80E-03	4.75E-04	8.07E-04	1.53E-01	1.74E-07	0.00E+00
TEEN	5.69E-04	9.68E-04	6.35E-03	7.36E-04	1.26E-03	2.12E-01	3.29E-07	0.00E+00
CHILD	1.14E-03	7.59E-04	1.55E-02	1.25E-03	2.04E-03	4.10E-01	5.01E-07	0.00E+00
MEAT								
ADULT	1.98E-05	4.21E-05	8.31E-05	2.81E-05	4.61E-05	8.80E-03	1.92E-08	0.00E+00
TEEN	1.52E-05	2.45E-05	6.97E-05	2.28E-05	3.77E-05	6.37E-03	1.81E-08	0.00E+00
CHILD	2.25E-05	1.38E-05	1.31E-04	3.03E-05	4.78E-05	9.62E-03	2.13E-08	0.00E+00
COW MILK								
ADULT	1.30E-04	8.84E-05	2.68E-04	2.26E-04	3.87E-04	7.16E-02	8.99E-08	0.00E+00
TEEN	2.17E-04	1.20E-04	4.88E-04	4.02E-04	6.90E-04	1.13E-01	1.86E-07	0.00E+00
CHILD	4.05E-04	9.66E-05	1.19E-03	7.00E-04	1.15E-03	2.25E-01	2.86E-07	0.00E+00
INFANT	7.67E-04	9.62E-05	2.39E-03	1.71E-03	2.00E-03	5.47E-01	5.18E-07	0.00E+00
GOATMILK								
ADULT	5.45E-04	3.78E-04	1.27E-03	9.41E-04	1.61E-03	2.98E-01	4.38E-07	0.00E+00
TEEN	9.10E-04	5.15E-04	2.33E-03	1.67E-03	2.87E-03	4.73E-01	9.05E-07	0.00E+00
CHILD	1.70E-03	4.17E-04	5.69E-03	2.92E-03	4.78E-03	9.38E-01	1.39E-06	0.00E+00
INFANT	3.22E-03	4.16E-04	1.13E-02	7.13E-03	8.31E-03	2.28E+00	2.52E-06	0.00E+00
INHAL								
ADULT	1.39E-05	2.49E-05	2.88E-05	3.29E-05	5.70E-05	7.34E-03	5.60E-05	0.00E+00
TEEN	1.85E-05	2.74E-05	4.06E-05	4.54E-05	7.87E-05	9.38E-03	9.24E-05	0.00E+00
CHILD	2.09E-05	1.34E-05	5.54E-05	4.48E-05	7.39E-05	1.12E-02	8.06E-05	0.00E+00
INFANT	1.51E-05	5.16E-06	4.20E-05	4.19E-05	4.89E-05	1.03E-02	7.16E-05	0.00E+00
TOTAL								
ADULT	1.27E-01	1.27E-01	1.31E-01	1.27E-01	1.28E-01	6.64E-01	1.26E-01	1.73E-01
TEEN	1.27E-01	1.27E-01	1.35E-01	1.28E-01	1.30E-01	9.39E-01	1.26E-01	1.73E-01
CHILD	1.29E-01	1.27E-01	1.48E-01	1.30E-01	1.34E-01	1.72E+00	1.26E-01	1.73E-01
INFANT	1.29E-01	1.26E-01	1.39E-01	1.34E-01	1.36E-01	2.96E+00	1.26E-01	1.73E-01

VIII. ENVIRONMENTAL MONITORING CHANGES

Milk Changes

- Quarterly Milk Farm F (Barrow Farm) went out of business. The Barrow farm is located in the South Sector with the following distance(s) and directions: Sector South-Direction S-0-59-2W, Distance (ft.) 68372.7 Milk Farm F (Barrow Farm) has been replaced with Milk Farm W (Dallam Farm) with the following distances and direction: Sector South-Direction (azimuth) 181, Distance (ft.) 89354.4
- Control Milk Farm T went out of business on 12/18/2008, station T was a control milk farm located 34,584 feet W of the site. Station T has been replaced by Station V, which is located 6.2 miles (32,736 ft) W of the site

ODCM Changes

- Changes were made to the Offsite Dose Calculation Manual (ODCM) for the 2008 reporting period and is submitted as Appendix B in the Exelon Nuclear, "Peach Bottom Atomic Power Station Units 2 and 3, Radioactive Effluent Release Report No. 51", January 1, 2008 through December 31, 2008.

IX. ISFSI DOSES

The Independent Spent Fuel Storage Installation (ISFSI) had no liquid, gaseous or particulate releases in 2008. Direct radiation measurements made at the site boundary indicated no increase in ambient radiation levels from the ISFSI operation. Therefore, the annual doses were within 10CFR72.104 limits of 25 mrem – total body, 75 mrem – thyroid and 25 mrem – any other organ to a real individual.

X. 40CFR190 DOSES

The annual dose equivalent to a real individual from all uranium fuel cycle sources within 8 kilometers were as follows:

DOSE PATHWAY	MAXIMUM CALCULATED DOSE (mrem)	PERCENT OF ODCMS 3.8.D.1
TOTAL BODY	1.73E+00	6.92%
THYROID	1.78E+00	2.37%
CRITICAL ORGAN	1.74E+00	6.96%

XI. CONCLUSIONS

Using conservative methodologies (i.e. bounding analysis with the highest annual average X/Q receptor locations with all pathways available) has shown that the calculated doses were small and well within ODCMS, 10CFR50 Appendix I design objectives, 10CFR72.104, and 40CFR190 dose limits.

XII. REFERENCES

1. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Radiation Dose Assessment Report No. 5", January 1, 1989 through December 31, 1989.
2. PECO Energy Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report."
3. Exelon Nuclear, "Peach Bottom Atomic Power Station Units 2 and 3, Radioactive Effluent Release Report No. 51", January 1, 2008 through December 31, 2008.
4. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Radioactive Effluent Dose Assessment", September 30, 1976.
5. U. S. Nuclear Regulatory Commission, Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluent for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I", Revision 1, October, 1977.
6. PECO Energy Company, "Peach Bottom Atomic Power Station Units 2 and 3, Radiation Dose Assessment Report No. 14", January 1, 1998 through December 31, 1998.
7. U. S. Nuclear Regulatory Commission, Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors", Revision, 1, July 1977.

APPENDIX A - METEOROLOGICAL DATA

The meteorology at the PBAPS site was evaluated by instruments on a meteorological tower on the bluff overlooking the plant and was described in the UFSAR (Ref. 2). All data were summarized using the Pasquill-Gifford system. The following three tables present the annual summary of hourly meteorological data joint frequency distributions of wind speed, wind direction, and atmospheric stability at the three elevations of concern.

<u>Table</u>	<u>Description</u>
APP-A-1	Primary Meteorological Tower - 33' Elevation
APP-A-2	Primary Meteorological Tower - 320' Elevation

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TABLE APP-A-1

PRIMARY METEOROLOGICAL TOWER - 33-FOOT LEVEL

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**Peach Bottom Atomic Power Station
2008 Radiation Dose Assessment Report**

Peach Bottom Nuclear Station
33 ft. Wind Speed and Direction

January-March, 2008
150Ft-33Ft Delta-T (F)

Number of Observations = 2145
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES														TOTAL	STABILITY CLASSES							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW		NW	NNW	EU	MU	SU	N	SS	MS
TOTAL																							
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00					
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00				
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00			
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00		
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
0.00																							
EU	0.00	0.00	0.14	0.56	0.47	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	1.26					
MU	0.00	0.05	0.05	0.09	0.14	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.42					
1 SU	0.00	0.00	0.14	0.09	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.37				
- N	0.65	0.51	0.61	1.03	0.98	0.33	0.23	0.05	0.05	0.00	0.05	0.05	0.09	0.42	0.33	5.41				5.41			
3 SS	0.93	1.49	1.96	1.86	2.14	1.77	1.49	0.70	0.93	0.65	0.42	0.70	0.89	1.17	1.21	1.17	19.49			19.49			
MS	0.42	0.05	0.19	0.61	0.70	0.89	0.42	0.09	0.37	0.28	0.56	1.26	0.79	0.70	0.75	0.33						8.39	
ES	0.05	0.00	0.00	0.00	0.23	0.37	0.09	0.09	0.00	0.05	0.05	0.42	0.37	0.23	0.14	0.09	2.19						2.19
37.53																							
EU	0.37	0.00	0.05	0.09	0.65	0.42	0.05	0.00	0.05	0.00	0.00	0.05	0.05	0.05	0.14	0.19	2.14	2.14					
MU	0.56	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.09	0.00	0.00	0.09	0.19	0.05	0.05	0.33		1.40					
4 SU	0.05	0.00	0.00	0.00	0.05	0.09	0.05	0.00	0.05	0.00	0.09	0.05	0.23	0.09	0.37	0.37			1.49				
- N	0.56	0.05	0.05	0.00	0.00	0.23	0.93	0.70	0.42	0.19	0.47	0.42	0.89	1.03	1.96	1.91	9.79			9.79			
7 SS	0.65	0.19	0.00	0.00	0.14	0.37	1.96	1.49	1.63	0.47	0.28	1.12	3.59	4.71	3.17	1.40	21.17			21.17			
MS	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.05	0.00	0.23	0.56	0.19	0.09	0.00	0.00						1.21	
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.00	0.14						0.14
37.34																							
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.28	0.05	0.00	0.00	0.00	0.05	0.05	0.05	0.65	0.65					
MU	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.00	0.14	0.09	0.28	0.42	0.23	0.14		1.59					
8 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.19	0.56	0.33	0.19			1.35				
- N	0.05	0.00	0.00	0.00	0.00	0.00	0.37	0.51	0.23	0.23	0.05	0.42	1.26	2.42	3.92	1.49	10.96			10.96			
1 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.75	0.93	0.23	0.19	0.14	0.89	1.72	1.35	0.47	7.13			7.13			
2 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
21.68																							
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00		0.19					
3 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.05	0.00			0.19				
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.51	0.65	0.93	0.23	2.56			2.56			
1 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.05	0.05	0.09	0.05	0.00	0.09	0.00					0.47		
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00	
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00
3.40																							

TABLE APP-A-2

PRIMARY METEOROLOGICAL TOWER - 320-FOOT LEVEL

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Peach Bottom Atomic Power Station 2008 Radiation Dose Assessment Report

Peach Bottom Nuclear Station
320 ft. Wind Speed and Direction

January-December, 2008
316Ft-33Ft Delta-T (F)

SPEED CLASS	WIND DIRECTION CLASSES																TOTAL	STABILITY CLASSES						TOTAL	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		EU	MU	SU	N	SS	MS		ES
EU	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.07	0.07	0.07						
9 SU	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.06	0.01	0.00	0.00	0.02	0.10	0.06	0.03	0.32	0.32	0.32	0.32	0.32	0.22	0.22	0.22	0.22
- N	0.31	0.11	0.07	0.01	0.08	0.06	0.09	0.02	0.33	0.16	0.16	0.22	1.00	1.27	1.18	0.75	5.83	5.83	5.83	5.83	5.83	5.83	5.83	5.83	5.83
2 SS	0.07	0.16	0.00	0.01	0.03	0.07	0.07	0.09	0.53	0.29	0.10	0.11	0.32	0.30	0.32	0.14	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
4 MS	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.01	0.02	0.09	0.02	0.00	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
																									9.09
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
G MU	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
T SU	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.03	0.01	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
N	0.00	0.02	0.00	0.00	0.00	0.08	0.02	0.02	0.03	0.02	0.05	0.07	0.53	0.48	0.21	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06
2 SS	0.05	0.00	0.15	0.01	0.00	0.00	0.01	0.02	0.10	0.02	0.01	0.03	0.01	0.01	0.02	0.00	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
																									2.69
TOT	6.26	4.78	3.04	3.33	4.59	5.19	4.75	5.14	8.15	5.09	5.37	5.81	8.15	9.53	10.76	10.06	100.00	1.53	1.44	3.93	42.55	37.37	9.46	3.72	100.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.00	0.02	0.07	0.21	0.36	0.61	0.23	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.53	Extremely Unstable
0.09	0.01	0.13	0.11	0.22	0.25	0.13	0.06	0.19	0.07	0.02	0.01	0.01	0.01	0.02	0.10	1.44	Moderately Unstable
0.26	0.19	0.18	0.22	0.25	0.23	0.29	0.19	0.42	0.13	0.15	0.16	0.10	0.25	0.29	0.61	3.93	Slightly Unstable
3.33	2.35	1.23	1.25	1.89	1.92	2.17	1.82	2.59	1.20	1.66	1.79	3.49	4.83	5.34	5.69	42.55	Neutral
1.77	1.64	1.07	1.20	1.70	1.96	1.57	2.43	4.36	2.91	2.42	2.28	3.08	3.02	3.72	2.25	37.37	Slightly Stable
0.44	0.32	0.28	0.29	0.13	0.23	0.30	0.60	0.53	0.67	0.95	1.23	0.95	1.01	0.86	0.70	9.46	Moderately Stable
0.38	0.24	0.09	0.05	0.05	0.00	0.07	0.02	0.06	0.11	0.16	0.34	0.52	0.41	0.53	0.69	3.72	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	C A L M
0.33	0.39	0.42	0.41	0.62	0.32	0.26	0.30	0.30	0.25	0.26	0.19	0.25	0.23	0.28	0.29	5.11	< 3.5 mph
1.87	1.33	1.20	1.61	1.71	1.49	1.20	1.10	1.39	1.18	1.47	1.11	0.70	1.00	1.26	1.94	21.56	3.6 - 7.5 mph
2.25	1.87	0.95	0.95	1.73	2.16	2.11	2.42	2.78	2.09	2.12	2.17	2.21	2.32	3.04	4.01	35.17	7.6 - 12.5 mph
1.38	0.88	0.24	0.32	0.39	1.00	0.94	1.15	2.61	1.06	1.15	1.87	3.05	3.61	4.06	2.66	26.36	12.6 - 18.5 mph
0.39	0.29	0.07	0.02	0.13	0.13	0.19	0.13	0.94	0.47	0.31	0.36	1.36	1.79	1.58	0.94	9.09	18.6 - 24.5 mph
0.05	0.02	0.15	0.01	0.01	0.10	0.03	0.05	0.14	0.05	0.06	0.11	0.57	0.58	0.54	0.22	2.69	> 24.5 mph

APPENDIX B
ENVIRONMENTAL MONITORING CHANGES

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TABLE VII.A-1

ODCM - Peach Bottom Atomic Power Station
Radiological Environmental Monitoring Program

Pathway	Station Code	Distance and Direction from PBAPS Vents	Collection Method and Discussion	Analyses
Sediment	4J	7,346 feet SE of site	A sediment sample is taken down stream of discharge semi-annually.	Gamma isotopic analysis each sample
IV. <u>Ingestion</u>				
Milk	V	32,736 feet W of site	Sample of fresh milk is collected from each farm. biweekly when cows are on pasture (April through October), monthly at other times.	I-131 analyses on each sample
	C	5,119 feet W of site		
	R	4,694 feet WSW of site		Gamma isotopic analysis or Cs-134, -137 by chemical separation quarterly
	U	11,414 feet SSW of site		
Fish	4	7,162 feet SE of site	Two species of recreationally important fish (predator and bottom feeder) sampled in season or semiannually if not seasonal.	Gamma isotopic analyses on edible portions.
	6 C	57,347 feet NW of site		
Food Products	Two offsite locations of highest predicted annual average ground level D/Q and one location (15-30 km distance) in the least prevalent wind direction as determined using the results of the most recent annual Land use Survey.		Samples of three (3) different kinds of broad leaf vegetation monthly when available if milk sampling is not performed	Gamma isotopic and I-131 analysis

C = Control Location

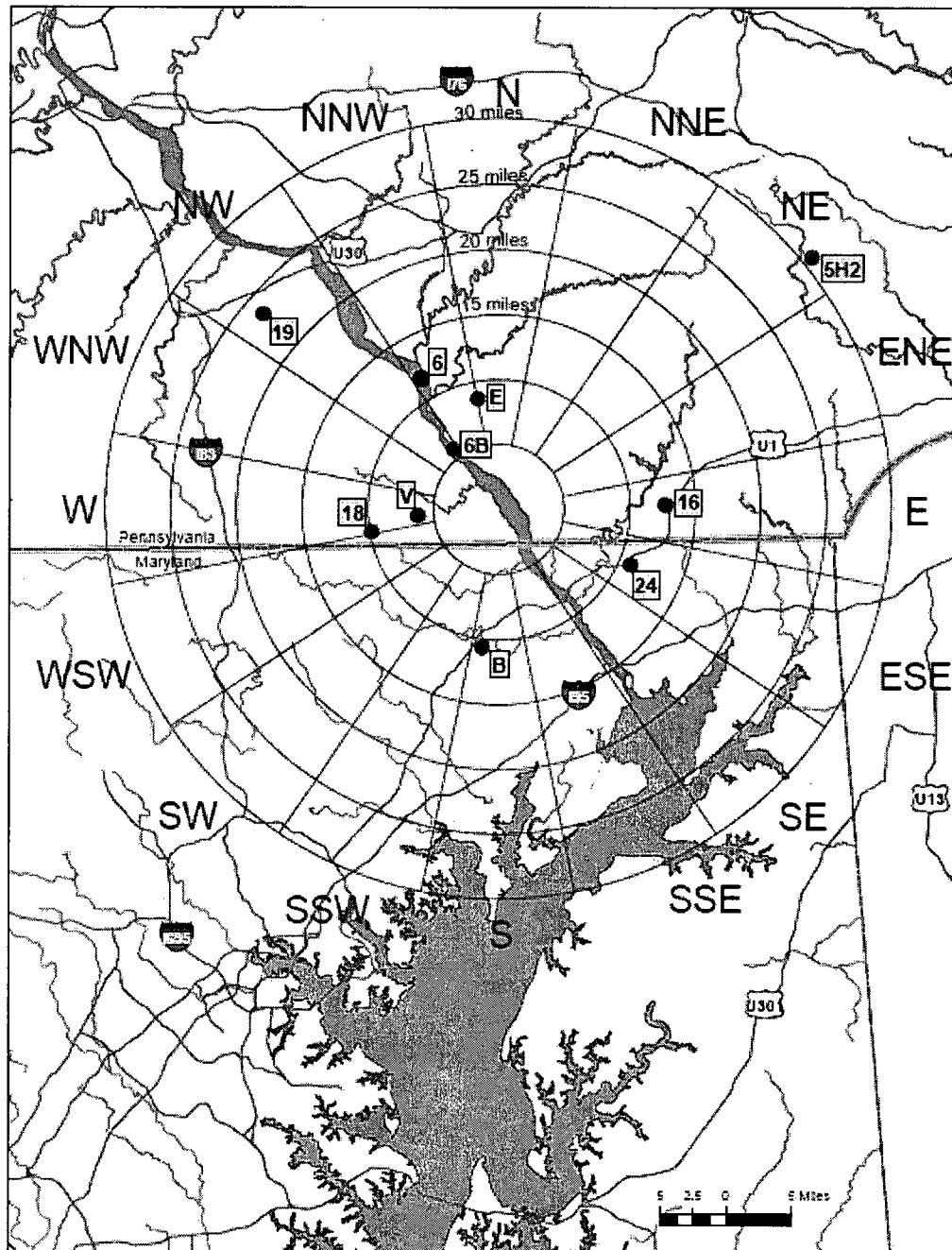


FIGURE VII.A.3
ENVIRONMENTAL SAMPLING STATIONS AT
REMOTE DISTANCES FROM PEACH BOTTOM SITE