

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION  
UNIT NOS. 2 & 3

DOCKET NOS. 50-277 AND 50-278

RADIATION DOSE  
ASSESSMENT REPORT

NO. 7

JANUARY 1, 1991 THROUGH DECEMBER 31, 1991

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

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I. INTRODUCTION AND SUMMARY

In accordance with the unique reporting requirement of Technical Specification 6.9.2 applicable during the reporting period, this report summarizes the radiation doses due to radioactive effluent releases from Peach Bottom Atomic Power Station Units 2 and 3 for the period January 1, 1991 through December 31, 1991.

Detailed discussion of the methodology utilized in the report has been provided in a previous report<sup>1</sup>. Only in those cases where the methodology has been changed will it be discussed in detail.

The radiation doses due to the release of radioactive materials during the reporting period were within 10CFR50 Appendix I limits and with 40CFR190 limits as indicated on Table I-1, Comparison of doses resulting from PBAPS Units 2 and 3 with 10CFR50 Appendix I Design Objectives. Specifically, the maximum offsite dose due to liquid releases was  $5.29E-03$  mrem; the maximum dose due to gaseous releases was  $9.25E-01$  mrem.

Since PBAPS releases were well within applicable radioactive effluent technical specifications limits and were a small fraction of 10CFR50 Appendix I design objectives, it is concluded that PBAPS releases were a small fraction of 40CFR190, "Environmental Radiation Protection Standards for Nuclear Power Operation" limits.

TABLE I-1

COMPARISON OF DOSES RESULTING FROM PBAPS UNITS 2 AND 3 WITH  
10CFR50 APPENDIX I DESIGN OBJECTIVES

DOSE PATHWAY	MAXIMUM DOSE FROM PBAPS		DESIGN OBJECTIVES REG. GUIDE 1.109
	VALUE	% of A	A
I Liquid Effluents			
a. Dose to total body from all pathways	3.38E-03	0.06	3 mrem/yr/unit
b. Dose to any organ from all pathways	5.29E-03	0.03	10 mrem/yr/unit
II Gaseous Effluents*			
a. Gamma dose in air	4.13E-02	0.21	10 mrad/yr/unit
b. Beta dose in air	5.80E-02	0.15	20 mrad/yr/unit
c. Dose to total body of an individual	4.37E-02	0.44	5 mrem/yr/unit
d. Dose to skin of an individual	8.43E-02	0.28	15 mrem/yr/unit
e. Dose to any organ from all pathways	9.25E-01	3.08	15 mrem/yr/unit

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

## II. STATION LOCATION

Peach Bottom Atomic Power Station is located on the western shore of Conowingo Pond in York County, Pennsylvania. The station, two 3293 MWT boiling water reactors, is described in the Updated Final Safety Analysis Report<sup>2</sup>. Conowingo Pond is the receiving stream for liquid radwaste effluents.

## III. PEACH BOTTOM LIQUID AND GASEOUS RADWASTE EFFLUENTS

The release of radioactive materials in liquid and gaseous effluents from PBAPS were reported in the Peach Bottom Atomic Power Station Semi-annual Effluent Release Reports Nos. 30 and 31<sup>3 and 4</sup>.

## IV. HYDROLOGY AND METEOROLOGY

### A. HYDROLOGY

Travel times and dilution factors were determined based on the daily Conowingo Pond flows in 1991. 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<sup>5</sup>. The resulting daily travel times and dilution factors were then averaged to determine a monthly mean travel time and dilution factor for each receptor location.

The travel times and dilution factors for those locations in Conowingo Pond, where the highest doses were calculated, are listed in Table IV-1 for each monthly flow regime.

### B. METEOROLOGY

Section VIII describes in detail the meteorology in the PBAPS region during 1991, affecting the atmospheric dispersion and the deposition of radionuclides from PBAPS gaseous radwaste releases. This meteorology was used for the evaluation of PBAPS Units 2 and 3 gaseous releases.

TABLE IV-1  
PEACH BOTTOM RECEPTOR LOCATION PARAMETERS FOR 1991

Month	1500 Feet Down-Flow of Plant Discharge		Glen Cove		Conowingo Dam		Chester Water Intake	
	Travel Time (hrs)	Dilution Factor	Travel Time (hrs)	Dilution Factor	Travel Time (hrs)	Dilution Factor	Travel Time (hrs)	Dilution Factor
January	1.6	1.8	11.7	8.7	17.0	12.4	4.5	7.9
February	1.8	1.8	12.2	7.2	17.8	11.3	4.9	7.4
March	1.5	1.7	11.0	12.0	16.0	14.0	4.0	8.3
April	1.6	1.4	11.5	4.8	16.8	8.0	4.4	5.3
May	2.3	3.1	15.3	8.5	22.3	13.9	7.0	11.0
June	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
July	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
August	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
September	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
October	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
November	7.8	1.5	40.0	1.7	58.9	3.4	31.1	3.3
December	2.7	2.1	15.9	4.0	23.3	8.2	9.0	6.1

V. LIQUID AND GASEOUS PATHWAY DOSE MODELS

The maximum annual doses to individuals in unrestricted areas which could result from the effluent releases from PBAPS were calculated according to the guidelines in USNRC Regulatory Guide 1.109<sup>b</sup> and the models described therein. Computer codes, LADTAP and GASPAR, which incorporate the computational models described in Regulatory Guide 1.109 and which were obtained from the NRC staff were used to perform the liquid and gaseous dose calculations respectively.

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

The gaseous release pathways which were considered included external radiation from the air and ground, inhalation and ingestion of vegetation, meat, cow's milk and goat's milk. The inhalation and ingestion pathways were evaluated for the adult, teenager, child and infant age groups. The dose calculation at each receptor was done in two parts - a dose component resulting from the off-gas stack and one from the building vents. These doses were then summed to yield a total dose for each pathway and organ.

VI. RECEPTOR LOCATION AND USAGE FACTORS FOR ANNUAL DOSE EVALUATIONS

A. Liquid releases

The annual doses resulting for PBAPS liquid radwaste releases were calculated at various locations on Conowingo Pond. The locations are shown in Figure VI-1. These locations were selected because they represent areas where the listed pathway activities are most likely to occur. The locations and pathways are:

<u>Location Number</u>	<u>Name</u>	<u>Pathways</u>
1	1500 feet below discharge	boating, fish
2	Chester Water Authority	drinking water
3	Glen Cove	boating, fish, shoreline, recreation, fishing
4	Conowingo Dam	drinking water

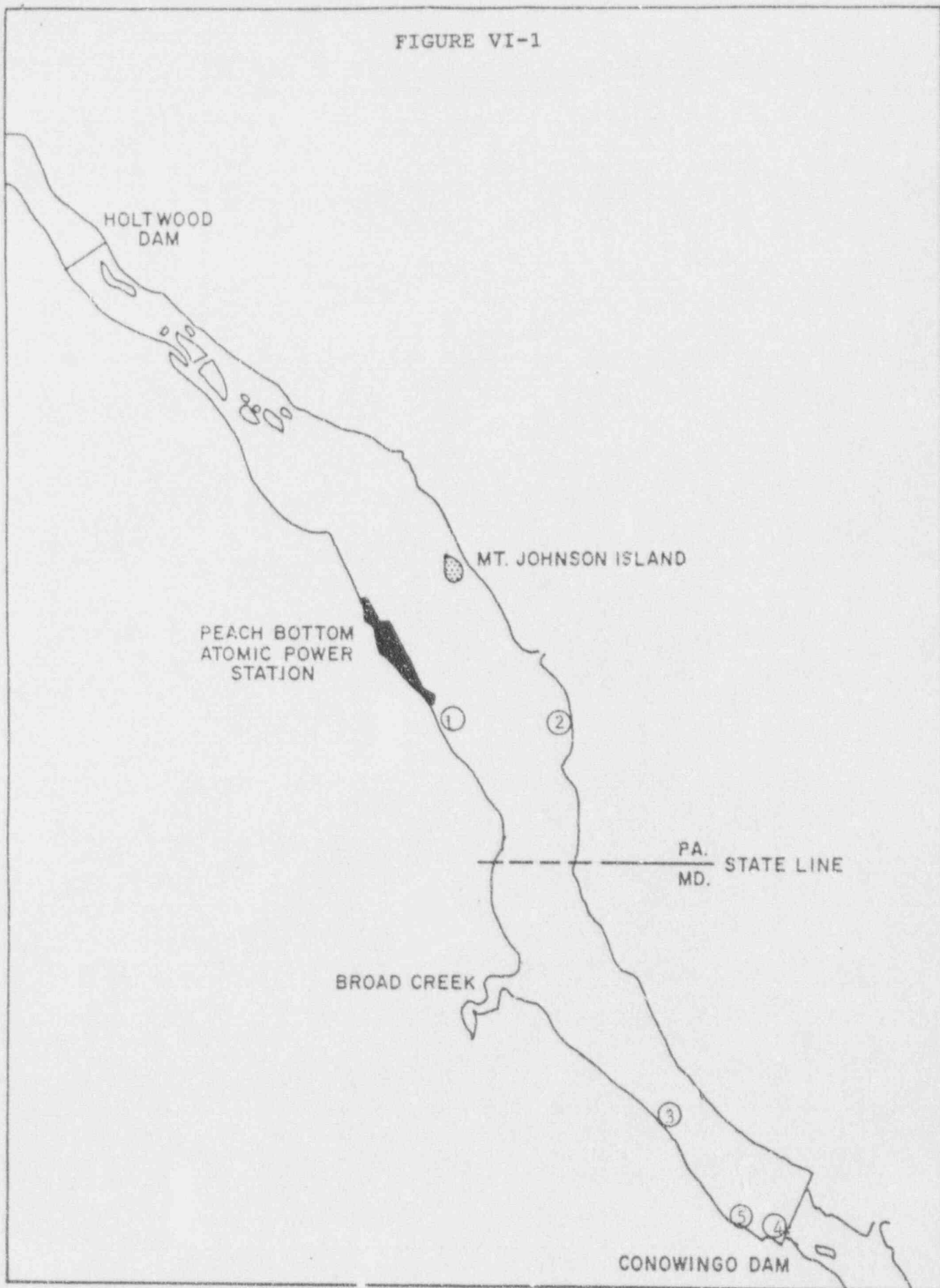
The City of Baltimore (location 5) withdrew drinking water from Conowingo Pond for only 13 days in 1991. Since Conowingo Pond represents only a small fraction of the water supply for the City of Baltimore, any doses resulting from this pathway are much smaller than those estimated from drinking water at Conowingo Dam. The Chester Water Authority withdrew drinking water from Conowingo Pond approximately 22 percent of the year. Usage factors were adjusted accordingly. No other liquid pathway usage and consumption rates used in these calculations changed from previous years<sup>7</sup>.

B. Gaseous Releases

In order to assure that the location of the maximum off-site annual dose to each pathway resulting from PBAPS radioactive gaseous effluents was identified, annual doses at several locations were calculated. These included real locations of dairy pastures, and residences in each sector. Meat animal pastures were assumed to co-exist with dairy pastures. A dairy pasture survey was performed in 1991 which determined the pasture closest to PBAPS in each sector. There were no herds of milk goats within five miles of PBAPS. No gaseous pathway usage and consumption rates used in these calculation changed from previous years<sup>8</sup>.



FIGURE VI-1



Locations at which annual doses to individuals resulting from PBAPS liquid radwaste releases were evaluated.

## VII. CALCULATED ANNUAL DOSES

### A. Liquid Releases

Tables VII-1 through VII-4 list the calculated annual doses through the various pathways to the maximum individual in the adult, teenager, child and infant age categories as a result of PBAPS liquid radwaste releases.

The maximum calculated total body dose was  $3.38E-03$  mrem to the adult and occurred at Location 1, 1500 feet downstream from the PBAPS discharge canal exit. This is 0.06% of the 10CFR50, Appendix I design objective.

The maximum calculated dose to any organ was  $5.29E-03$  mrem to the teenager liver and also occurred at Location 1. This dose is 0.03% of the 10CFR50 Appendix I design objective.

### B. Gaseous Releases

Tables VII-5 and VII-6 list the annual doses to all organs through pathway by age group at the location where a person would receive the largest calculated total body and organ dose respectively resulting from exposure to noble gases, particulates and iodine released from PBAPS.

The maximum calculated total body dose was  $4.37E-02$  mrem to the child and occurred at a residence 3900 feet NNW from the PBAPS building vents. This dose is 0.44% of the 10CFR50 Appendix I design objective.

The maximum calculated organ dose was  $9.25E-01$  mrem to the infant thyroid and occurred at a dairy farm 5400 feet S from the PBAPS building vents. This dose is 3.08% of the 10CFR50 Appendix I design objective.

The maximum calculated skin dose was  $8.43E-02$  mrem at a residence 3900 feet NNW from the PBAPS building vents. This dose is 0.28% of the Appendix I design objectives.

The maximum offsite gamma air dose is  $4.13E-02$  millirad, located 3900 feet NNW from the PBAPS building vents. This dose is 0.21% of the 10CFR50 Appendix I design objective.

The maximum offsite beta air dose is  $5.80E-02$  millirad, located 3900 feet NNW from the PBAPS building vents. This dose is 0.15% of the 10CFR50 Appendix I design

objective.

The location where a person would receive the largest calculated total body dose from exposure to PBAPS releases due to non-occupational activities inside the site boundary is at the boat ramp approximately 3300 feet NNW of the PBAPS building vents. The calculated total body dose is  $1.12\text{E-}02$  mrem and calculated skin dose is  $2.71\text{E-}02$  mrem assuming continuous occupancy. Assuming the shoreline recreational usage factor (325 hours per year) would result in an even more insignificant dose.

TABLE VII-1  
 CALCULATED MAXIMUM ANNUAL DOSES TO ADULT RESULTING FROM PBAPS LIQUID RADWASTE RELEASES  
 (mrem/year)

Map No.	Location	Pathway	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI	
1	1500 ft. below discharge canal exit	Eating fish	0.00E+00	2.68E-03	5.18E-03	3.38E-03	5.16E-04	2.23E-03	4.25E-04	3.51E-03	
		Boating	0.00E+00	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06
		Total	0.00E+00	2.68E-03	5.18E-03	3.38E-03	5.18E-04	2.23E-03	4.25E-04	3.51E-03	
3	Glen Cove	Eating Fish	0.00E+00	1.51E-03	2.76E-03	1.91E-03	1.92E-04	1.05E-03	3.03E-04	1.28E-03	
		Shoreline	2.91E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04
		Swimming	0.00E+00	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06
		Boating	0.00E+00	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07
Total	2.91E-04	1.76E-03	3.01E-03	2.16E-03	4.44E-04	1.33E-03	5.55E-04	1.53E-03			
4	Conowingo Dam	Eating Fish	0.00E+00	7.96E-04	1.48E-03	1.01E-03	1.11E-04	5.90E-04	1.57E-04	7.28E-04	
		Drinking	0.00E+00	1.50E-05	1.92E-04	1.81E-04	3.64E-04	1.72E-04	1.63E-04	1.98E-04	
		fishing from dam	0.00E+00	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	
Total	0.00E+00	8.12E-04	1.67E-03	1.19E-03	4.76E-04	7.63E-04	3.21E-04	9.27E-04			

TABLE VII-2  
 CALCULATED MAXIMUM ANNUAL DOSES TO TEENAGER RESULTING FROM PBAPS LIQUID RADWASTE RELEASES  
 (mrem/year)

Map No.	Location	Pathway	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LI	
1	1500 ft. below discharge canal exit	Eating fish	0.00E+00	2.76E-03	5.29E-03	2.21E-03	4.80E-04	2.20E-03	4.99E-04	2.44E-03	
		Boating	0.00E+00	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06	1.60E-06
		Total	0.00E+00	2.76E-03	5.29E-03	2.21E-03	4.82E-04	2.20E-03	5.01E-04	2.44E-03	
3	Glen Cove	Eating Fish	0.00E+00	1.66E-03	2.94E-03	1.21E-03	1.33E-04	1.09E-03	3.30E-04	8.73E-04	
		Shoreline	2.91E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	2.49E-04	
		Swimming	0.00E+00	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	2.60E-06	
		Boating	0.00E+00	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	5.83E-07	
		Total	2.91E-04	1.91E-03	3.19E-03	1.46E-03	3.35E-04	1.34E-03	5.82E-04	1.13E-03	
4	Conowings Dam	Eating Fish	0.00E+00	8.72E-04	1.57E-03	6.47E-04	8.14E-05	5.95E-04	1.71E-04	4.96E-04	
		Drinking	0.00E+00	1.44E-05	1.40E-04	1.26E-04	2.88E-04	1.24E-04	1.16E-04	1.37E-04	
		Fishing from dam	0.00E+00	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	8.95E-07	
		Total	0.00E+00	8.87E-04	1.71E-03	7.74E-04	3.70E-04	7.20E-04	2.88E-04	6.34E-04	

TABLE VII-3  
 CALCULATED MAXIMUM ANNUAL DOSES TO CHILD RESULTING FROM PBAPS LIQUID RADWASTE RELEASES  
 (mrem/year)

Map No.	Location	Pathway	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-III	
1	1500 ft. below discharge canal Exit	Eating fish	0.00E+00	3.34E-03	4.50E-03	1.31E-03	4.96E-04	1.80E-03	3.95E-04	8.63E-04	
		Boating	0.00E+00	8.97E-07	8.97E-07	8.97E-07	5.97E-07	8.97E-07	8.97E-07	8.97E-07	8.97E-07
		Total	0.00E+00	3.34E-03	4.50E-03	1.31E-03	4.97E-04	1.80E-03	3.96E-04	8.64E-04	
3	Glen Cove	Eating Fish	0.00E+00	2.04E-03	2.54E-03	5.86E-04	1.36E-04	9.07E-04	2.61E-04	3.10E-04	
		Shoreline	1.26E-05	1.07E-05	1.07E-05	1.07E-05	1.07E-05	1.07E-05	1.07E-05	1.07E-05	1.07E-05
		Boating	0.00E+00	3.25E-07	3.25E-07	3.25E-07	3.25E-07	3.25E-07	3.25E-07	3.25E-07	3.25E-07
		Total	1.26E-05	2.05E-03	2.55E-03	5.97E-04	1.47E-04	9.18E-04	2.72E-04	3.21E-04	
4	Conowingo Dam	Eating Fish	0.00E+00	1.07E-03	1.35E-03	3.28E-04	8.38E-05	4.93E-04	1.35E-04	1.76E-04	
		Drinking	0.00E+00	3.78E-05	2.41E-04	2.07E-04	4.42E-04	2.10E-04	1.96E-04	2.13E-04	
		Fishing from dam	0.00E+00	3.88E-08	3.88E-08	3.88E-08	3.88E-08	3.88E-08	3.88E-08	3.88E-08	
		Total	0.00E+00	1.11E-03	1.59E-03	5.35E-04	5.26E-04	7.03E-04	3.31E-04	3.89E-04	

TABLE VII-4  
 CALCULATED MAXIMUM ANNUAL DOSES TO INFANT RESULTING FROM PBAPS LIQUID RADWASTE RELEASES  
 (mrem/year)

Map No.	Location	Pathway	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-III
4	Conowingo Dam	Drinking		4.23E-05	2.78E-04	2.27E-04	8.76E-04	2.33E-04	2.18E-04	2.30E-04

TABLE VII-5  
ANNUAL DOSES TO ALL ORGANS BY PATHWAY AT LOCATION  
OF HIGHEST CALCULATED TOTAL BODY DOSE

ANNUAL BETA AIR DOSE = 5.80E-02 MILLIRADS  
ANNUAL GAMMA AIR DOSE = 4.13E-02 MILLIRADS

PATHWAY	T. BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.70E-02	2.70E-02	2.70E-02	2.70E-02	2.70E-02	2.70E-02	2.76E-02	7.29E-02
GROUND	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	3.38E-03
VEGET ADULT	6.44E-03	4.29E-03	1.38E-02	5.04E-03	3.95E-03	3.89E-02	3.36E-03	3.16E-03
TEEN	7.56E-03	5.13E-03	2.00E-02	6.75E-03	4.93E-03	3.51E-02	4.15E-03	3.77E-03
CHILD	1.16E-02	6.99E-03	4.09E-02	1.10E-02	7.78E-03	5.51E-02	6.50E-03	5.92E-03
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT ADULT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHILD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COW MILK ADULT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TEEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHILD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INHAL ADULT	1.99E-03	1.99E-03	2.86E-04	2.00E-03	2.02E-03	1.47E-02	2.13E-03	1.93E-03
TEEN	2.00E-03	2.00E-03	3.37E-04	2.04E-03	2.07E-03	1.80E-02	2.27E-03	1.94E-03
CHILD	1.77E-03	1.75E-03	3.62E-04	1.81E-03	1.84E-03	2.03E-02	2.07E-03	1.72E-03
INFANT	1.02E-03	9.98E-04	1.92E-04	1.07E-03	1.07E-03	1.80E-02	1.24E-03	9.88E-04



TABLE VII-6  
 ANNUAL DOSES TO ALL ORGANS AT LOCATION  
 OF HIGHEST CALCULATED ORGAN DOSE (THYROID)

ANNUAL BETA AIR DOSE = 3.82E-02 MILLIRADS  
 ANNUAL GAMMA AIR DOSE = 1.70E-02 MILLIRADS

	PATHWAY	T. BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	ADULT	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.15E-02	3.75E-02
	CHILD	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.47E-03
GROUND	ADULT	2.74E-03	1.83E-03	6.15E-03	2.13E-03	1.66E-03	1.81E-02	1.40E-03	1.31E-03
	CHILD	3.21E-03	2.19E-03	8.92E-03	2.86E-03	2.07E-03	1.63E-02	1.73E-03	1.56E-03
VEGET	ADULT	4.94E-03	2.94E-03	1.83E-02	4.66E-03	3.27E-03	2.56E-02	2.71E-03	2.46E-03
	CHILD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT	ADULT	2.89E-04	2.43E-04	1.94E-04	3.10E-04	2.66E-04	5.89E-03	2.17E-04	2.08E-04
	CHILD	1.67E-04	1.45E-04	1.52E-04	2.06E-04	1.71E-04	4.24E-03	1.33E-04	1.24E-04
COW MILK	ADULT	1.90E-04	1.62E-04	2.64E-04	2.59E-04	2.10E-04	6.36E-03	1.60E-04	1.50E-04
	CHILD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INHAL	ADULT	1.15E-03	6.52E-04	1.13E-03	1.47E-03	1.33E-03	1.19E-01	5.57E-04	4.88E-04
	CHILD	1.44E-03	8.56E-04	1.98E-03	2.38E-03	2.13E-03	1.89E-01	7.79E-04	6.35E-04
INHAL	ADULT	2.06E-03	1.18E-03	4.63E-03	4.03E-03	3.49E-03	3.73E-01	1.22E-03	1.00E-03
	CHILD	3.18E-03	1.70E-03	6.08E-03	7.99E-03	5.76E-03	9.05E-01	1.92E-03	1.52E-03
INHAL	ADULT	8.21E-04	8.23E-04	1.15E-04	8.29E-04	8.38E-04	6.05E-03	8.80E-04	8.00E-04
	CHILD	8.78E-04	8.29E-04	1.36E-04	8.45E-04	8.57E-04	7.48E-03	9.39E-04	8.05E-04
INHAL	ADULT	7.34E-04	7.23E-04	1.46E-04	7.51E-04	7.61E-04	8.34E-03	2.30E-04	7.12E-04
	CHILD	4.22E-04	4.14E-04	7.76E-05	4.43E-04	4.41E-04	7.40E-03	5.13E-04	4.09E-04

VIII. METEOROLOGICAL DATA

The meteorology at the PBAPS site is evaluated by instruments on a meteorological tower on the bluff overlooking the plant. It is described in the USFSAR<sup>2</sup>. All data are 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.

DATA FROM 33-FOOT LEVEL

JFD - Delta-T (320-33ft) - 33-FT Winds - 1991  
 SITE IDENTIFIER:  
 DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS A  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 33.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	2	1	4	11	11	3	2	0	1	0	0	0	0	0	0	0	35
3.51- 7.50	7	8	1	0	2	8	6	6	0	0	1	0	0	1	1	0	42
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	9	5	12	13	11	8	6	1	0	1	0	0	1	1	0	77

STABILITY CLASS B  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 33.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
.51- 3.50	1	3	2	8	6	2	2	1	0	0	0	0	0	0	0	0	26
3.51- 7.50	8	1	0	3	2	2	7	3	1	1	0	2	1	7	0	3	41
7.51-12.50	1	0	0	0	0	0	0	2	0	0	0	0	0	1	4	1	11
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	4	3	11	8	4	9	6	1	1	2	2	1	8	4	4	79

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 33-FT Winds - 1991  
 SITE IDENTIFIER:  
 DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS C  
 STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 33.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	0	2	7	7	1	9	3	1	0	0	0	0	0	0	0	0	30
3.51- 7.50	15	9	0	0	5	7	2	10	8	3	7	1	6	6	6	18	101
7.51-12.50	1	0	0	0	0	0	0	4	10	6	1	4	5	5	5	13	54
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	16	11	7	7	6	16	5	15	18	9	6	5	15	11	11	31	189

STABILITY CLASS D  
 STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 33.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	51	83	119	169	111	66	57	38	18	12	13	11	16	26	27	37	856
3.51- 7.50	177	86	27	22	35	58	116	165	162	90	59	54	79	102	103	294	1705
7.51-12.50	92	3	0	0	0	1	11	46	118	39	39	24	96	156	205	257	1087
12.51-18.50	1	1	0	0	0	0	0	3	8	1	0	3	23	37	26	28	131
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	321	173	142	191	146	125	184	252	306	162	111	92	214	324	441	617	3781

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 33-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET STABILITY CLASS E

WIND MEASURED AT: 33.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
.51- 3.50	61	51	59	97	174	122	137	124	140	112	82	76	95	83	75	72	1560
3.51- 7.50	57	14	1	6	18	16	69	146	145	89	88	97	131	183	164	121	1345
7.51-12.50	2	0	0	0	0	1	4	10	22	12	6	7	18	25	23	25	155
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	120	65	60	103	192	139	210	260	307	213	176	182	244	291	262	218	3065

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET STABILITY CLASS F

WIND MEASURED AT: 33.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	10
.51- 3.50	8	18	16	30	64	47	21	15	33	27	62	112	119	57	40	14	683
3.51- 7.50	0	1	0	0	0	3	0	3	5	6	13	81	30	32	7	0	181
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	19	16	30	64	50	21	18	38	33	75	194	149	90	47	14	876

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 33-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET STABILITY CLASS G

WIND MEASURED AT: 33.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	5
.51- 3.50	6	4	7	21	36	17	7	4	4	6	18	41	38	14	10	7	246
3.51- 7.50	0	0	0	0	0	1	0	0	0	0	13	32	4	0	0	1	51
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6	4	7	21	36	18	7	4	4	6	31	79	42	15	10	8	303

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET STABILITY CLASS ALL

WIND MEASURED AT: 33.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 33.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	19
.51- 3.50	129	162	215	343	403	266	229	183	196	157	175	246	268	182	152	130	3436
3.51- 7.50	264	119	25	32	62	95	200	333	321	189	179	267	251	331	361	437	3466
7.51-12.50	96	3	0	0	0	2	15	62	150	57	48	36	119	189	237	296	1310
12.51-18.50	1	1	0	0	0	0	0	3	8	1	0	5	27	37	26	28	137
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	490	285	240	375	465	363	444	581	675	404	402	554	665	740	776	892	8370

PHILADELPHIA ELECTRIC COMPANY (PECo) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 33-Ft Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 33.0 FEET

WIND THRESHOLD AT: .50 MPH

TOTAL NUMBER OF OBSERVATIONS: 8760

TOTAL NUMBER OF VALID OBSERVATIONS: 8370

TOTAL NUMBER OF MISSING OBSERVATIONS: 390

PERCENT DATA RECOVERY FOR THIS PERIOD: 95.5 %

MEAN WIND SPEED FOR THIS PERIOD: 4.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.92	.94	2.26	45.17	36.62	10.47	3.62

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	9	9	5	12	13	11	8	6	1	0	0	0	0	1	1	0	0
B	10	4	3	11	8	4	9	6	1	1	2	2	1	8	4	4	1
C	16	11	7	7	6	16	5	15	18	9	6	5	15	11	11	31	0
D	321	173	142	191	146	125	184	252	306	142	111	92	214	324	441	617	0
E	120	65	60	103	192	139	210	280	307	213	176	182	244	291	262	218	3
F	8	19	16	30	64	50	21	18	38	33	75	194	149	90	47	14	10
G	6	4	7	21	36	18	7	4	4	6	31	79	42	15	10	8	5
TOTAL	490	285	240	375	465	363	444	581	675	404	402	554	665	740	776	892	19



DATA FROM 75-FOOT LEVEL

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-1 (320-33ft) - 75-FT Winds - 1991  
 SITE IDENTIFIER:  
 DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS A  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 75.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
3.51- 7.50	1	13	7	13	6	15	7	1	0	0	1	0	0	0	1	0	65
7.51-12.50	2	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	6
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	14	7	16	11	15	7	1	0	0	1	0	0	1	1	0	77

STABILITY CLASS B  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 75.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	0	0	3	2	0	1	0	0	0	0	0	0	0	0	0	0	6
3.51- 7.50	4	6	2	7	9	6	4	0	1	0	1	0	2	1	0	3	46
7.51-12.50	3	0	0	0	0	2	1	3	1	0	1	2	3	3	4	2	25
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	6	5	9	9	9	5	3	2	0	2	2	5	5	5	5	79

PHILADELPHIA ELECTRIC COMPANY (PECo) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 75-ft Winds - 1991  
 SITE IDENTIFIER:  
 DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS C  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 75.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
.51- 3.50	0	2	5	4	2	2	1	0	0	0	0	0	0	0	0	1	17
3.51- 7.50	7	11	1	2	6	9	3	7	4	1	1	2	1	3	0	7	66
7.51-12.50	5	3	0	0	0	4	3	5	14	6	5	6	5	7	10	20	93
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	1	7	2	1	1	12
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	16	6	6	8	15	7	12	18	8	6	9	15	12	11	29	191

STABILITY CLASS D  
 STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 75.0 FEET  
 WIND THRESHOLD AT: .50 MPH  
 JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	40	53	58	63	56	27	17	14	21	9	13	17	17	11	13	22	451
3.51- 7.50	113	118	64	69	87	104	111	136	114	84	44	43	60	59	99	168	1473
7.51-12.50	125	50	2	0	6	10	55	73	169	65	57	63	118	166	269	291	1519
12.51-18.50	19	6	0	0	0	0	1	3	17	6	3	12	74	103	71	80	395
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	5	13	10	3	11	42
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL	297	227	124	132	149	141	184	226	321	164	117	140	283	349	455	572	3801

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta T (320-33ft) - 75-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 75.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM	48	33	38	43	58	67	64	76	97	76	70	60	52	47	43	26	898
.51- 3.50	48	42	6	12	66	59	100	171	219	165	116	106	148	158	167	100	1685
3.51- 7.50	17	4	0	1	1	10	9	39	60	34	38	59	101	92	77	63	605
7.51-12.50	1	0	0	0	0	0	1	0	1	1	0	0	13	1	6	2	26
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	114	79	44	56	119	136	182	286	377	276	224	227	314	298	293	191	3216

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 75.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM	13	12	7	8	21	23	33	27	15	22	38	50	65	44	42	25	445
.51- 3.50	3	0	0	0	3	12	9	12	16	14	15	43	110	81	32	10	410
3.51- 7.50	0	0	0	0	0	0	0	0	1	4	2	23	17	16	2	0	65
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	16	12	7	8	24	35	42	39	32	40	55	166	192	141	76	35	920

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 75-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS: G

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 75.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	4	4	4	3	4	6	6	5	9	7	15	24	35	38	27	10	271
3.51- 7.50	0	0	0	0	0	1	1	0	1	1	3	22	40	19	7	0	95
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	4
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	4	4	3	4	7	7	5	10	8	18	47	77	57	34	11	300

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 75.0 FEET

WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 75.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
.51- 3.50	105	104	115	126	144	126	121	122	142	114	136	151	169	140	125	84	2024
3.51- 7.50	176	190	80	103	171	206	243	327	355	266	181	266	361	322	305	288	3840
7.51-12.50	152	58	2	1	9	26	68	120	245	109	103	154	246	284	363	377	2317
12.51-18.50	20	6	0	0	0	0	2	3	18	7	3	13	94	107	79	83	435
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	7	15	10	3	11	46
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL	453	358	197	230	324	358	434	572	760	496	423	591	886	863	875	843	8664

PHILADELPHIA ELECTRIC COMPANY (PECo) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 75-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY BASED ON: LCLTA T BETWEEN 320.0 AND 33.0 FEET

WIND MEASURED AT: 75.0 FEET

WIND THRESHOLD AT: .50 MPH

TOTAL NUMBER OF OBSERVATIONS: 8760

TOTAL NUMBER OF VALID OBSERVATIONS: 8664

TOTAL NUMBER OF MISSING OBSERVATIONS: 96

PERCENT DATA RECOVERY FOR THIS PERIOD: 98.9 %

MEAN WIND SPEED FOR THIS PERIOD: 6.4 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.89	.91	2.20	44.79	37.12	10.62	3.46

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	3	14	7	16	11	15	7	1	0	0	1	0	9	1	1	0	0
B	7	6	5	9	9	9	5	3	2	0	2	2	5	5	5	5	0
C	12	16	6	6	8	15	7	12	18	8	6	9	15	12	11	29	1
D	297	227	124	132	149	141	184	226	321	164	117	140	283	349	455	572	0
E	114	79	44	56	119	136	182	286	377	276	224	227	314	298	293	151	0
F	16	12	7	8	24	35	42	39	32	40	55	166	192	141	76	35	0
G	4	4	4	3	4	7	7	5	10	8	18	47	77	57	34	11	0
TOTAL	453	358	197	230	324	358	434	572	760	496	423	591	837	863	875	843	1

DATA FROM 320-FOOT LEVEL

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peabottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-1 (320-33ft) - 320-FT Winds - 1991  
 SITE IDENTIFIER:  
 DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS A  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA 1  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
.51- 3.50	0		0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	0	4	2	6	8	7	2	0	0	0	0	0	0	0	0	0	29
7.51-12.50	2	3	6	5	7	13	4	0	0	0	1	0	1	0	1	0	43
12.51-18.50	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	8	9	12	15	20	6	0	0	0	1	0	1	0	1	0	77

STABILITY CLASS B  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA 1  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	5	3	1	3	12	9	2	0	0	0	0	0	1	2	0	3	41
7.51-12.50	2	1	0	0	2	1	7	2	0	1	1	0	3	2	1	2	20
12.51-18.50	1	0	0	0	0	0	1	0	2	0	1	0	1	2	3	0	11
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	4	1	3	15	10	10	2	2	1	2	0	5	7	4	5	79



PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 320-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
WIND MEASURED AT: 320.0 FEET  
WIND THRESHOLD AT: .50 MPH  
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
.51- 3.50	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
3.51- 7.50	6	6	3	4	2	11	4	3	0	0	1	0	0	2	1	4	47
7.51-12.50	5	3	2	1	2	4	10	4	14	6	5	3	7	9	7	14	96
12.51-18.50	1	2	0	0	0	0	3	1	3	3	2	3	2	3	3	8	34
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0	8
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
TOTAL	12	11	6	6	5	15	17	8	17	9	8	6	16	17	11	26	191

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
WIND MEASURED AT: 320.0 FEET  
WIND THRESHOLD AT: .50 MPH  
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
.51- 3.50	5	15	26	25	23	13	12	11	6	3	4	2	2	7	9	6	169
3.51- 7.50	57	50	39	58	73	60	67	49	51	42	29	19	32	31	44	78	779
7.51-12.50	94	58	50	56	66	72	125	100	174	103	67	52	70	53	121	188	1449
12.51-18.50	120	42	21	2	24	30	28	25	88	36	23	34	78	139	172	205	1067
18.51-24.50	13	3	0	0	2	2	2	2	6	6	3	7	65	94	70	54	329
>24.50	0	0	0	0	0	0	0	0	0	0	0	1	23	36	10	13	83
TOTAL	289	168	136	141	188	177	234	187	325	190	126	115	270	360	426	544	3879

PHILADELPHIA ELECTRIC COMPANY (PECo) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 320-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS E  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51-3.50	5	7	7	9	15	16	15	8	14	13	16	11	5	6	5	6	158
3.51-7.50	55	22	19	43	35	24	69	68	114	57	87	58	39	32	39	49	810
7.51-12.50	61	34	24	15	38	55	54	111	217	171	106	75	69	76	125	108	1359
12.51-18.50	22	11	8	0	8	18	7	64	109	80	49	48	92	99	122	77	814
18.51-24.50	2	2	1	0	0	0	4	2	4	10	2	5	21	13	14	13	93
>24.50	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
TOTAL	145	76	59	67	96	113	169	253	458	331	260	199	226	226	305	253	3216

STABILITY CLASS F  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51-3.50	6	3	4	2	13	6	10	9	11	16	12	15	5	10	6	9	137
3.51-7.50	12	6	2	1	12	11	17	16	29	28	34	25	22	32	22	24	293
7.51-12.50	13	2	2	0	0	1	4	6	38	39	39	36	38	32	43	31	324
12.51-18.50	0	0	0	0	0	0	0	1	8	8	6	25	36	31	24	10	159
18.51-24.50	0	0	0	0	0	0	0	0	2	0	0	0	3	2	2	0	9
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	31	11	8	3	25	18	31	32	88	91	91	111	104	107	97	74	922

PHILADELPHIA ELECTRIC COMPANY (PECo) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-1 (320-33ft) - 320-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

\*\*\* ANNUAL \*\*\*

STABILITY CLASS G  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESF	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.51- 3.50	5	2	2	0	5	0	0	1	2	2	7	3	4	3	7	3	46
3.51- 7.50	10	7	3	4	6	0	3	2	9	7	16	8	9	13	13	12	122
7.51-12.50	2	0	0	0	0	0	0	1	0	10	13	44	9	12	7	12	110
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	7	11	4	0	0	22
18.51-24.50	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	4
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	18	9	5	4	11	0	3	4	11	19	36	62	35	33	27	27	304

STABILITY CLASS ALL  
 BETWEEN 320.0 AND 33.0 FEET

STABILITY BASED ON: DELTA T  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 320.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	5
.51- 3.50	21	27	40	38	58	35	37	29	33	34	39	31	16	26	27	24	515
3.51- 7.50	145	98	69	119	148	122	164	138	203	134	167	110	103	112	119	170	2121
7.51-12.50	179	101	84	77	115	146	204	224	443	330	232	210	197	184	305	355	3386
12.51-18.50	145	56	30	2	32	48	39	91	210	127	61	127	220	278	324	300	2110
18.51-24.50	16	5	1	0	2	2	6	4	12	16	5	12	96	114	86	67	444
>24.50	0	0	0	0	0	0	0	0	0	0	0	3	25	36	10	13	87
TOTAL	506	287	224	236	355	353	450	486	901	641	524	493	657	750	871	929	8668

PHILADELPHIA ELECTRIC COMPANY (PECO) - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.1

JFD - Delta-T (320-33ft) - 320-FT Winds - 1991

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/91 - 12/31/91

STABILITY BASED ON: DELTA T BETWEEN 320.0 AND 33.0 FEET  
 WIND MEASURED AT: 320.0 FEET  
 WIND THRESHOLD AT: .50 MPH

TOTAL NUMBER OF OBSERVATIONS: 8760  
 TOTAL NUMBER OF VALID OBSERVATIONS: 8668  
 TOTAL NUMBER OF MISSING OBSERVATIONS: 92  
 PERCENT DATA RECOVERY FOR THIS PERIOD: 98.9 %  
 MEAN WIND SPEED FOR THIS PERIOD: 10.4 MPH  
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

	A	B	C	D	E	F	G
	.89	.91	2.20	44.75	37.10	10.64	3.51

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	3	8	9	12	15	20	6	0	0	0	1	0	1	0	1	0	1
B	8	4	1	3	15	10	10	2	2	1	2	0	5	7	4	5	0
C	12	11	6	6	5	15	17	8	17	9	8	6	16	17	11	26	1
D	289	168	136	141	188	177	234	187	325	190	126	115	270	360	426	544	3
E	145	76	59	67	96	113	149	253	458	331	260	199	226	226	305	253	0
F	31	11	8	3	25	18	31	32	88	91	91	111	104	107	97	74	0
G	18	9	5	4	11	0	3	4	11	19	36	62	35	33	27	27	0
TOTAL	506	287	224	236	355	353	450	486	901	641	524	493	657	750	871	929	5

IX. CONCLUSION

Table I-1, Introduction and Summary, summarized the maximum calculated annual doses resulting from Peach Bottom Atomic Power Station Units 2 and 3 routine liquid and atmospheric radwaste releases and how they compare to the 10CFR50 Appendix I design objective dose limits. All calculated doses were extremely low and well within the 10CFR50 Appendix I design objective dose limits.

X. 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. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report."
3. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Semi-Annual Effluent Releases Report No. 30", January 1, 1991 through June 30, 1991.
4. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Semi-Annual Effluent Releases Report No. 31", July 1, 1991 through December 31, 1991.
5. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Radioactive Effluent Dose Assessment", September 30, 1976.
6. 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.
7. 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, Table V-1.
8. 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, Table V-2.