

PECO ENERGY COMPANY

PEACH BOTTOM ATOMIC POWER STATION
UNIT NOS. 2 & 3

DOCKET NOS. 50-277 AND 50-278

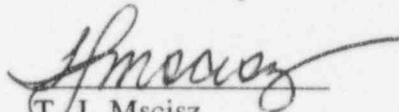
RADIATION DOSE
ASSESSMENT REPORT

NO. 11

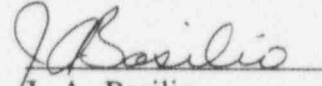
JANUARY 1, 1995 THROUGH DECEMBER 31, 1995

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

Prepared by:


T. J. Mscisz

Approved by:


J. A. Basilio

I. INTRODUCTION AND SUMMARY

In accordance with the reporting requirements of Peach Bottom ODCM Section 3.10 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, 1995 through December 31, 1995.

Detailed discussion of the methodology utilized in the report has been provided in a previous report (Ref. 1). 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 well below 10CFR50 Appendix I and 40CFR190 limits. A comparison of the calculated doses to the appropriate limits is presented 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 2.17E-03 mrem; the maximum dose due to gaseous releases was 2.29E-03 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 within 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	2.17E-03	0.036	3 mrem/yr/unit
b. Dose to any organ from all pathways	3.33E-03	0.016	10 mrem/yr/unit
II Gaseous Effluents*			
a. Gamma dose in air	4.54E-04	0.01	10 mrad/yr/unit
b. Beta dose in air	1.77E-02	0.04	20 mrad/yr/unit
c. Dose to total body of an individual	2.29E-03	0.02	5 mrem/yr/unit
d. Dose to skin of an individual	1.20E-02	0.04	15 mrem/yr/unit
e. Dose to any organ from all pathways	8.93E-01	2.97	15 mrem/yr/unit

* 10CFR50 Appendix 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 boiling water reactors (3458 MWt), is described in the Updated Final Safety Analysis Report (Ref. 2). 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 Annual Effluent Release Report No. 38 (Ref. 3).

IV. HYDROLOGY AND METEOROLOGY

A. HYDROLOGY

Travel times and dilution factors were determined based on the daily Conowingo Pond flows in 1995. 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 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 1995, 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 1995

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	2.0	1.9	13.5	5.4	19.7	9.8	6.0	6.9
February	1.5	1.7	11.1	11.1	16.2	13.6	4.1	8.2
March	2.3	2.0	14.5	4.7	21.2	9.0	7.0	6.5
April	2.3	2.0	14.4	4.7	21.1	9.1	6.9	6.5
May	3.2	2.1	17.9	3.3	26.3	7.0	11.6	5.5
June	3.8	1.9	21.3	2.6	31.3	5.3	14.2	4.6
July	6.2	1.6	32.9	1.9	48.4	3.7	24.1	3.5
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	4.6	1.5	28.5	2.0	41.6	3.8	14.3	3.6
November	1.9	1.9	12.8	6.2	18.7	10.5	5.4	7.1
December	2.3	2.0	14.5	4.7	21.2	9.0	7.0	6.5

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 (Ref.5) 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:

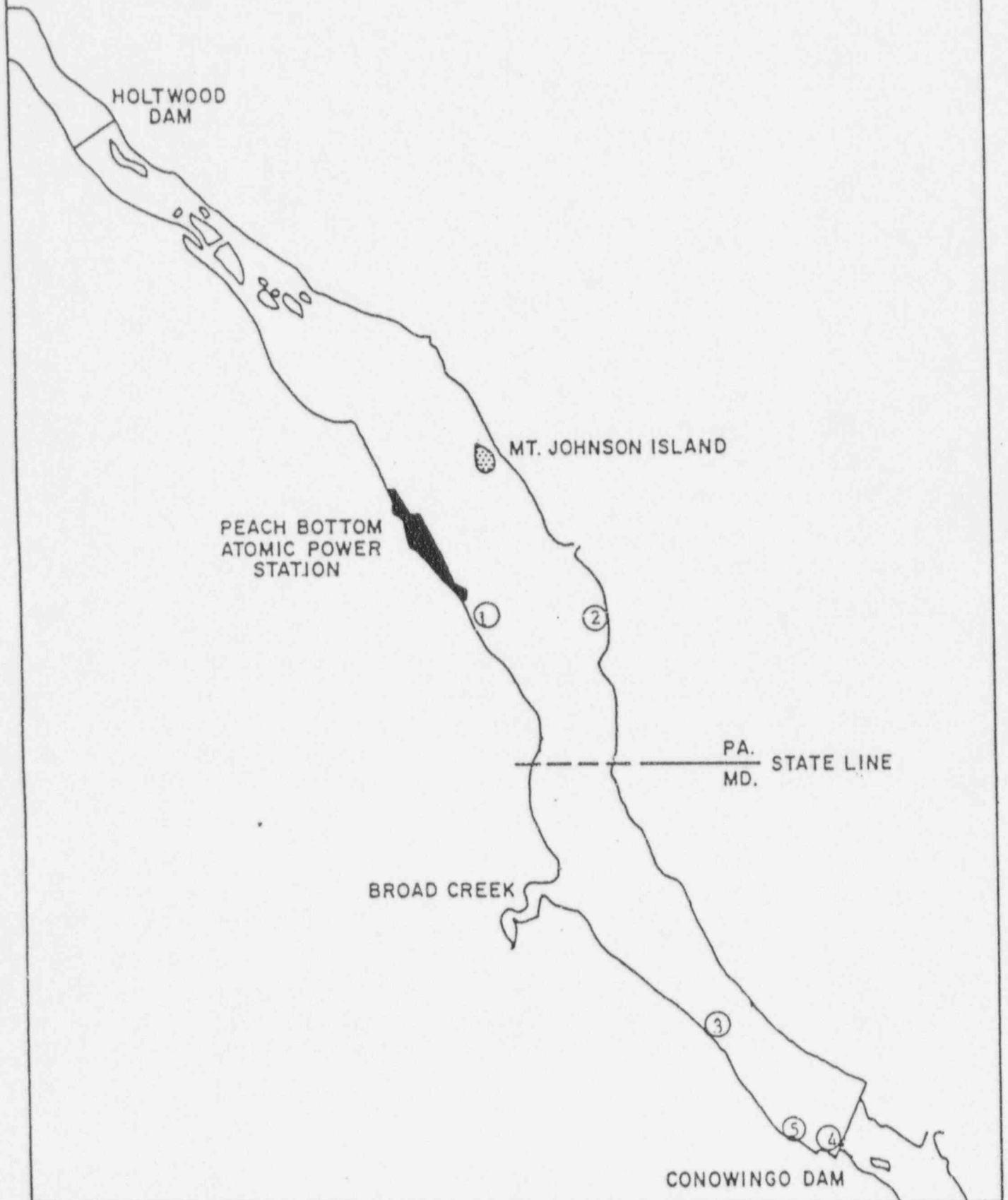
<u>Location Number</u>	<u>Name</u>	<u>Pathways</u>
1	1500 feet below discharge	boating, fish
2	Chester Water Authority	drinking water
3	Glen Cove	boating, fish, shoreline recreation, swimming
4	Conowingo Dam	drinking water, fish, boating

The City of Baltimore (location 5) withdrew drinking water from Conowingo Pond for only 65 days in 1995. 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 44 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 (Ref. 6).

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 1995 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 calculations changed from previous years (Ref. 7).

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 $2.17\text{E-}03$ mrem to the adult and occurred at Location 1, 1500 feet downstream from the PBAPS Discharge canal exit. This is 0.036% of the 10CFR50, Appendix I design objective.

The maximum calculated dose to any organ was $3.33\text{E-}03$ mrem to the teen liver and also occurred at Location 1. This dose is 0.016% 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 $2.29\text{E-}03$ mrem to the child and occurred at a residence 3800 feet SSE from the PBAPS building vents. This dose is 0.02% of the 10CFR50 Appendix I design objective.

The maximum calculated organ dose was $8.93\text{E-}01$ mrem to the infant thyroid and occurred at a dairy farm 4900 feet NW from the PBAPS building vents. This dose is 2.97% of the 10CFR50 Appendix I design objective.

The maximum calculated skin dose was $1.20\text{E-}02$ mrem at a residence 14800 feet SW from the PBAPS building vents. This dose is 0.04% of the Appendix I design objectives.

The maximum calculated offsite gamma air dose was $4.54\text{E-}04$ millirad, located 3900 feet NNW from the PBAPS building vents. This dose is 0.01% of the 10CFR50 Appendix I design objective.

The maximum offsite beta air dose is $1.77\text{E-}02$ millirad, located 14800 feet SW from the PBAPS building vents. This dose is 0.04% 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 $7.80\text{E-}03$ mrem and calculated skin dose is $2.12\text{E-}02$ 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
 1995 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-Li
1	1500 ft. below discharge canal exit	Eating fish	0.00	1.81e-03	3.25e-03	2.17e-03	9.54e-04	1.30e-03	2.95e-04	4.97e-04
		Boating	0.00	1.26e-06	1.26e-06	1.26e-06	1.26e-06	1.26e-06	1.26e-06	1.26e-06
		Total	0.00	1.81e-03	3.25e-03	2.17e-03	9.55e-04	1.30e-03	2.96e-04	4.98e-04
2	Chester Water	Drinking	0.00	7.42e-06	1.75e-05	1.34e-05	5.46e-05	1.02e-05	1.04e-05	8.52e-06
		Total	0.00	7.42e-06	1.75e-05	1.34e-05	5.46e-05	1.02e-05	1.04e-05	8.52e-06
3	Glen Cove	Eating Fish	0.00	1.25e-03	2.30e-03	1.54e-03	3.31e-04	9.11e-04	2.08e-04	3.45e-04
		Shoreline	5.47e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05
		Swimming	0.00	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07
		Boating	0.00	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07
		Total	5.47e-05	1.30e-03	2.35e-03	1.59e-03	3.79e-04	9.59e-04	2.56e-04	3.93e-04
4	Conowingo Dam	Eating Fish	0.00	6.63e-04	1.21e-03	8.14e-04	1.02e-04	4.76e-04	1.10e-04	1.82e-04
		Drinking	0.00	1.49e-05	6.75e-05	5.92e-05	3.93e-04	5.62e-05	4.55e-05	5.19e-05
		Fishing from dam	0.00	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07
		Total	0.00	6.78e-04	1.28e-03	8.74e-04	4.95e-04	5.33e-04	1.56e-04	2.34e-04

TABLE VII-2
 1995 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	0.00	1.89e-03	3.33e-03	1.35e-03	9.53e-04	1.30e-03	3.51e-04	3.36e-04
		Boating	0.00	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07
		Total	0.00	1.89e-03	3.33e-03	1.35e-03	9.54e-04	1.30e-03	3.52e-04	3.37e-04
2	Chester Water	Drinking	0.00	7.13e-06	1.57e-05	1.04e-05	4.94e-05	8.57e-06	4.50e-06	6.21e-06
		Total	0.00	7.13e-06	1.57e-05	1.04e-05	4.94e-05	8.57e-06	4.50e-06	6.21e-06
3	Glen Cove	Eating Fish	0.00	1.31e-03	2.35e-03	9.59e-04	3.30e-04	9.09e-04	2.46e-04	2.33e-04
		Shoreline	5.47e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05	4.68e-05
		Swimming	0.00	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07	6.01e-07
		Boating	0.00	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07	4.96e-07
		Total	5.47e-05	1.36e-03	2.40e-03	1.01e-03	3.78e-04	9.57e-04	2.94e-04	2.81e-04
4	Conowingo Dam	Eating Fish	0.00	6.90e-04	1.24e-03	5.05e-04	1.02e-04	4.79e-04	1.30e-04	1.22e-04
		Drinking	0.00	1.40e-05	5.34e-05	4.01e-05	3.50e-04	4.14e-05	3.28e-05	3.64e-05
		Fishing from dam	0.00	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07	4.86e-07
		Total	0.00	7.04e-04	1.29e-03	5.46e-04	4.52e-04	5.21e-04	1.63e-04	1.59e-04

TABLE VII-3
 1995 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-Li
1	1500 ft. below discharge canal exit	Eating fish	0.00	2.32e-03	2.88e-03	7.06e-04	1.17e-03	1.08e-03	2.77e-04	2.56e-04
		Boating	0.00	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07	6.95e-07
		Total	0.00	2.32e-03	2.88e-03	7.07e-04	1.17e-03	1.08e-03	2.78e-04	2.57e-04
2	Chester Water	Drinking	0.00	1.94e-05	3.02e-05	1.32e-05	1.38e-04	1.60e-05	8.57e-06	8.40e-06
		Total	0.00	1.94e-05	3.02e-05	1.32e-05	1.38e-04	1.60e-05	8.57e-06	8.40e-06
3	Glen Cove	Eating Fish	0.00	1.60e-03	1.82e-03	4.99e-04	4.06e-04	7.51e-04	1.95e-04	7.86e-05
		Shoreline	2.35e-06	2.02e-06	2.02e-06	2.02e-06	2.02e-06	2.02e-06	2.02e-06	2.02e-06
		Boating	0.00	2.77e-07	2.77e-07	2.77e-07	2.77e-07	2.77e-07	2.77e-07	2.77e-07
		Total	2.35e-06	1.60e-03	1.82e-03	5.01e-04	4.08e-04	7.53e-04	1.97e-04	8.09e-05
4	Conowingo Dam	Eating Fish	0.00	8.45e-04	1.07e-03	2.63e-04	1.25e-04	2.97e-04	1.03e-04	4.13e-05
		Drinking	0.00	3.94e-05	1.04e-04	7.20e-05	9.71e-04	8.19e-05	6.27e-05	6.40e-05
		Fishing from dam	0.00	2.10e-08	2.10e-08	2.10e-08	2.10e-08	2.10e-08	2.10e-08	2.10e-08
		Total	0.00	8.84e-04	1.17e-03	3.35e-04	1.10e-03	3.79e-04	1.66e-04	1.05e-04

TABLE VII-4
 1995 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-Li
2	Chester Water	Drinking	0.00	2.01e-05	3.91e-05	1.41e-05	2.16e-04	1.87e-05	1.14e-05	1.35e-05
4	Conowingo Dam	Drinking	0.00	4.04e-05	1.15e-04	6.81e-05	1.49e-03	8.15e-05	6.22e-05	6.00e-05

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

ANNUAL BETA AIR DOSE = 9.07E-04 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.10E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.14E-04	8.77E-04
GROUND	2.81E-03	2.81E-03	2.81E-03	2.81E-03	2.81E-03	2.81E-03	2.81E-03	3.30E-03
VEGET								
ADULT	3.48E-04	8.31E-04	3.38E-03	1.38E-04	1.20E-04	1.70E-02	6.95E-06	0.0
TEEN	4.61E-04	9.51E-04	5.30E-03	1.85E-04	1.30E-04	1.48E-02	1.32E-05	0.0
CHILD	8.61E-04	6.99E-04	1.23E-02	2.93E-04	1.82E-04	2.35E-02	2.01E-05	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT								
ADULT	3.40E-05	1.54E-04	1.08E-04	2.99E-05	3.01E-05	5.32E-03	7.62E-07	0.0
TEEN	2.48E-05	8.47E-05	8.90E-05	2.40E-05	2.46E-05	3.85E-03	7.22E-07	0.0
CHILD	3.60E-05	4.43E-05	1.64E-04	3.12E-05	3.12E-05	5.81E-03	8.48E-07	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COW MILK								
ADULT	2.57E-04	2.04E-04	6.26E-04	4.27E-04	6.64E-04	1.17E-01	5.60E-06	0.0
TEEN	4.06E-04	2.75E-04	1.13E-03	7.59E-04	1.18E-03	1.84E-01	1.16E-05	0.0
CHILD	7.31E-04	2.22E-04	2.74E-03	1.32E-03	1.97E-03	3.67E-01	1.78E-05	0.0
INFANT	1.35E-03	2.21E-04	5.30E-03	3.16E-03	3.42E-03	8.93E-01	3.22E-05	0.0
INHAL								
ADULT	2.07E-05	4.94E-05	6.04E-05	5.17E-05	8.85E-05	9.59E-03	1.92E-04	0.0
TEEN	2.74E-05	5.39E-05	8.05E-05	7.14E-05	1.23E-04	1.25E-02	3.00E-04	0.0
CHILD	3.16E-05	2.60E-05	1.03E-04	7.05E-05	1.15E-04	1.55E-02	2.53E-04	0.0
INFANT	2.24E-05	1.00E-05	7.23E-05	6.60E-05	7.63E-05	1.43E-02	1.98E-04	0.0

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

ANNUAL BETA AIR DOSE = 1.59E-03 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.83E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04	2.03E-04	1.32E-03
GROUND	4.72E-03	4.72E-03	4.72E-03	4.72E-03	4.72E-03	4.72E-03	4.72E-03	5.55E-03
VEGET								
ADULT	5.91E-04	1.42E-03	5.80E-03	2.33E-04	2.04E-04	2.90E-02	1.17E-05	0.0
TEEN	7.85E-04	1.62E-03	9.11E-03	3.12E-04	2.21E-04	2.53E-02	2.21E-05	0.0
CHILD	1.47E-03	1.19E-03	2.11E-02	4.95E-04	3.09E-04	4.05E-02	3.38E-05	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT								
ADULT	5.76E-05	2.59E-04	1.86E-04	5.07E-05	5.13E-05	9.07E-03	1.28E-06	0.0
TEEN	4.21E-05	1.43E-04	1.53E-04	4.07E-05	4.19E-05	6.57E-03	1.21E-06	0.0
CHILD	6.09E-05	7.47E-05	2.81E-04	5.29E-05	5.32E-05	9.92E-03	1.43E-06	0.0
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COW MILK								
ADULT	4.38E-04	3.47E-04	1.07E-03	7.28E-04	1.13E-03	1.98E-01	9.42E-06	0.0
TEEN	6.91E-04	4.69E-04	1.94E-03	1.29E-03	2.02E-03	3.14E-01	1.95E-05	0.0
CHILD	1.25E-03	3.79E-04	4.68E-03	2.25E-03	3.36E-03	6.27E-01	2.99E-05	0.0
INFANT	2.29E-03	3.77E-04	9.08E-03	5.39E-03	5.83E-03	1.52E+00	5.42E-05	0.0
INHAL								
ADULT	1.89E-05	4.48E-05	5.47E-05	4.70E-05	8.06E-05	8.73E-03	1.73E-04	0.0
TEEN	2.49E-05	4.89E-05	7.30E-05	6.50E-05	1.12E-04	1.14E-02	2.70E-04	0.0
CHILD	2.87E-05	2.36E-05	9.34E-05	6.42E-05	1.05E-04	1.41E-02	2.28E-04	0.0
INFANT	2.04E-05	9.08E-06	6.56E-05	6.01E-05	6.95E-05	1.30E-02	1.78E-04	0.0

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 UFSAR (Ref 2). 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 METEOROLOGICAL TOWER - 33-FOOT LEVEL

PECO ENERGY COMPANY - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 33-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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	3	8	8	8	8	0	0	0	0	0	0	0	0	0	0	4	39
3.51- 7.50	7	7	4	2	15	6	1	3	0	0	0	0	0	0	1	5	51
7.51-12.50	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	0	4
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
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	15	12	10	23	6	2	4	0	0	0	0	0	3	1	9	95

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																	0
.51- 3.50	2	3	8	9	5	1	0	0	0	0	0	0	0	0	1	4	33
3.51- 7.50	13	12	9	2	5	5	7	3	1	0	0	1	0	0	2	9	69
7.51-12.50	0	1	0	0	0	0	1	4	12	0	0	0	4	17	5	12	56
12.51-18.50	0	0	0	0	0	0	0	1	2	0	0	0	0	4	0	1	8
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	15	16	17	11	10	6	8	8	15	0	0	1	4	21	8	26	166

PECO ENERGY COMPANY - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 33-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS C

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	3	7	15	17	7	4	1	1	1	0	0	0	1	0	2	1	60
3.51- 7.50	20	16	5	0	3	10	20	19	10	2	6	5	3	3	7	23	152
7.51-12.50	2	0	0	0	0	4	3	18	25	8	4	9	21	28	20	41	183
12.51-18.50	0	0	0	0	0	0	0	4	2	0	0	0	16	11	7	8	48
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	25	23	20	17	10	18	24	42	38	10	10	14	41	43	36	73	444

STABILITY CLASS D

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	109	90	146	185	117	55	55	34	28	18	14	16	22	24	28	55	996
3.51- 7.50	203	84	44	5	49	91	219	193	131	63	68	86	88	124	182	252	1882
7.51-12.50	46	10	0	0	0	11	73	101	81	16	32	81	142	267	313	199	1372
12.51-18.50	6	0	0	0	0	0	3	8	10	3	0	9	47	52	58	14	210
18.51-24.50	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0	0	6
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	364	184	190	190	166	157	350	338	250	100	114	193	302	467	581	520	4466

PECO ENERGY COMPANY - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 33-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS E

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	76	58	96	114	129	85	76	93	67	65	70	54	59	59	57	42	1200
3.51- 7.50	25	3	3	3	11	20	123	123	82	56	73	128	173	160	84	81	1148
7.51-12.50	3	0	0	0	0	0	19	15	9	10	11	31	42	31	9	5	185
12.51-18.50	0	0	0	0	0	0	5	0	2	1	0	0	0	1	2	1	12
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	104	61	99	117	140	105	223	231	160	132	154	213	274	251	152	129	2545

STABILITY CLASS F

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	3	14	28	39	31	12	10	10	13	25	45	58	52	34	12	4	390
3.51- 7.50	0	0	0	0	0	1	6	3	6	10	41	96	53	18	4	1	239
7.51-12.50	0	0	0	0	0	0	0	0	0	0	3	2	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	28	39	31	13	16	13	19	35	89	156	105	52	17	5	635

PECO ENERGY COMPANY - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 33-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS G

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	6	6	18	12	6	1	0	2	1	2	13	19	17	11	6	6	126
3.51- 7.50	0	0	0	0	0	0	0	1	0	0	21	20	3	2	0	0	47
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	6	6	18	12	6	1	0	3	1	2	34	39	20	13	6	6	173

STABILITY CLASS ALL

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	202	186	319	384	303	158	142	140	110	110	142	147	151	128	106	116	2844
3.51- 7.50	268	122	65	12	83	133	376	345	230	131	209	336	320	307	280	371	3588
7.51-12.50	51	11	0	0	0	15	97	139	127	34	50	123	209	345	348	257	1806
12.51-18.50	6	0	0	0	0	0	8	13	16	4	0	9	63	69	67	24	279
18.51-24.50	0	0	0	0	0	0	0	2	0	0	0	1	3	1	0	0	7
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	527	319	384	396	386	306	623	639	483	279	401	616	746	850	801	768	8524

PECO ENERGY COMPANY - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 33-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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: 8524

TOTAL NUMBER OF MISSING OBSERVATIONS: 236

PERCENT DATA RECOVERY FOR THIS PERIOD: 97.3 %

MEAN WIND SPEED FOR THIS PERIOD: 5.6 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
1.11	1.95	5.21	52.39	29.86	7.45	2.03

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	10	15	12	10	23	6	2	4	0	0	0	0	0	3	1	9	0
B	15	16	17	11	10	6	8	8	15	0	0	1	4	21	8	26	0
C	25	23	20	17	10	18	24	42	38	10	10	14	41	43	36	73	0
D	364	184	190	190	166	157	350	338	250	100	114	193	302	467	581	520	0
E	104	61	99	117	140	105	223	231	160	132	154	213	274	251	152	129	0
F	3	14	28	39	31	13	16	13	19	35	89	156	105	52	17	5	0
G	6	6	18	12	6	1	0	3	1	2	34	39	20	13	6	6	0
TOTAL	527	319	384	396	386	306	623	639	483	279	401	616	746	850	801	768	0

DATA FROM METEOROLOGICAL TOWER - 75-FOOT LEVEL

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 75-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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	4	7	2	1	0	0	0	0	0	0	0	0	0	0	0	14
3.51- 7.50	0	13	12	10	15	13	2	2	0	0	0	0	0	0	0	1	68
7.51-12.50	0	0	1	0	0	4	1	0	1	0	0	0	0	0	1	3	11
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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	0	17	20	12	14	17	3	2	1	0	0	0	0	2	1	4	95

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	3	8	8	2	0	0	0	0	0	0	0	0	0	0	0	21
3.51- 7.50	8	17	13	4	12	6	8	1	2	0	0	0	1	0	0	1	73
7.51-12.50	1	3	0	0	0	0	2	0	10	2	0	0	2	11	2	11	44
12.51-18.50	0	0	0	0	0	0	0	1	6	0	0	0	1	12	1	7	28
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	23	21	12	14	6	10	2	18	2	0	0	4	23	3	19	166

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 75-FT Winds - 1
 SITE IDENTIFIER:
 DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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																	0
.51- 3.50	0	4	10	16	6	1	3	1	0	0	0	0	0	0	1	0	42
3.51- 7.50	11	18	14	2	8	13	10	12	10	3	2	4	3	0	3	11	124
7.51-12.50	9	6	1	0	0	4	9	12	30	15	4	11	20	22	12	39	194
12.51-18.50	0	0	0	0	0	0	0	3	5	1	0	2	12	17	11	22	73
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0	9
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	28	25	18	14	18	22	28	45	19	6	17	40	43	27	72	442

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	48	54	101	119	99	37	30	20	34	20	10	11	7	5	13	18	626
3.51- 7.50	135	147	100	91	75	115	146	175	138	77	60	68	62	81	105	150	1725
7.51-12.50	103	40	6	0	3	32	78	108	137	35	40	88	138	263	285	258	1614
12.51-18.50	11	10	0	0	0	0	14	10	33	7	2	19	75	121	131	52	485
18.51-24.50	0	0	0	0	0	0	0	1	0	0	0	3	9	5	10	6	34
>24.50	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
TOTAL	297	251	207	210	177	184	268	314	343	139	112	190	291	475	544	484	4486

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 75-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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																	0
.51- 3.50	43	37	64	68	69	63	62	58	56	48	42	39	32	25	37	25	768
3.51- 7.50	55	21	28	12	18	55	108	143	121	81	84	123	124	117	100	79	1269
7.51-12.50	12	2	1	0	2	3	28	30	34	17	12	73	94	112	45	22	487
12.51-18.50	0	0	0	0	0	0	1	2	2	4	1	1	5	3	2	1	22
18.51-24.50	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	1	4
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	110	60	93	80	89	121	201	234	213	150	139	236	255	257	184	128	2550

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																	0
.51- 3.50	14	14	7	16	15	19	13	16	12	15	21	23	50	26	26	21	308
3.51- 7.50	0	1	0	0	0	0	8	12	14	10	18	58	85	43	21	4	274
7.51-12.50	0	0	0	0	0	0	0	0	0	0	3	25	11	4	2	0	45
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	14	15	7	16	15	19	21	23	26	25	42	106	146	73	49	25	627

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 75-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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	5	2	2	0	0	0	1	2	1	4	5	11	21	17	25	13	109
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	5	13	26	11	3	3	61
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	5	2	2	0	0	0	1	2	1	4	10	24	47	28	28	16	170

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																	0
.51- 3.50	110	118	199	229	192	120	109	97	103	87	78	84	110	73	102	77	1888
3.51- 7.50	209	217	167	119	128	202	282	345	285	171	169	266	301	252	232	249	3594
7.51-12.50	125	51	9	0	5	43	118	150	212	69	59	197	265	412	347	333	2395
12.51-18.50	11	10	0	0	0	0	15	16	46	12	3	22	93	155	145	82	610
18.51-24.50	0	0	0	0	0	0	2	2	0	0	0	3	14	9	10	7	47
>24.50	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
TOTAL	455	396	375	348	325	365	526	610	647	339	309	573	783	901	836	748	8536

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 75-FT Winds - 1997

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY BASED ON: DELTA 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: 8536

TOTAL NUMBER OF MISSING OBSERVATIONS: 224

PERCENT DATA RECOVERY FOR THIS PERIOD: 97.4 %

MEAN WIND SPEED FOR THIS PERIOD: 6.7 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
1.11	1.94	5.18	52.55	29.87	7.35	1.99

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	17	20	12	16	17	3	2	1	0	0	0	0	2	1	4	0
B	9	23	21	12	14	6	10	2	18	2	0	0	4	23	3	19	0
C	20	28	25	18	14	18	22	28	45	19	6	17	40	43	27	72	0
D	297	251	207	210	177	184	268	314	343	139	112	190	291	475	544	484	0
E	110	60	93	80	89	121	201	234	213	150	139	236	255	257	184	128	0
F	14	15	7	16	15	19	21	28	26	25	42	106	146	73	49	25	0
G	5	2	2	0	0	0	1	2	1	4	10	24	47	28	28	16	0
TOTAL	453	396	375	348	325	365	526	610	647	339	309	573	783	901	836	748	0

DATA FROM METEOROLOGICAL TOWER - 320-FOOT LEVEL

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 320-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS A

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																	0
.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	3	4	7	9	11	3	1	0	0	0	0	0	0	0	0	38
7.51-12.50	0	0	4	9	8	20	3	0	0	0	0	0	0	0	0	4	48
12.51-18.50	0	0	1	0	0	3	0	1	1	0	0	0	0	1	0	0	7
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	3	9	16	17	34	6	2	1	0	0	0	0	3	0	4	95

STABILITY CLASS B

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																	0
.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	4	5	9	12	13	3	4	0	1	0	0	0	0	1	0	0	52
7.51-12.50	10	5	8	1	5	8	7	1	3	4	0	0	0	2	2	1	57
12.51-18.50	1	0	0	0	0	0	1	0	7	2	1	0	3	11	7	4	37
18.51-24.50	0	0	0	0	0	0	0	1	2	0	0	0	1	9	1	2	16
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	15	10	17	13	18	11	12	2	13	6	1	0	4	23	10	7	162

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 320-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** 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																	0
.51- 3.50	0	0	1	2	4	0	0	0	0	0	0	0	0	0	0	0	7
3.51- 7.50	10	8	9	5	13	11	4	2	7	4	0	2	4	0	0	3	82
7.51-12.50	15	6	1	4	3	7	17	11	15	14	4	6	7	8	9	20	147
12.51-18.50	3	0	4	0	0	0	6	1	15	9	4	8	16	17	15	28	126
18.51-24.50	0	0	0	0	0	0	1	2	2	0	0	0	10	9	11	10	45
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	4	11	3	0	18
TOTAL	28	14	15	11	20	18	28	16	39	27	8	16	41	45	38	61	425

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																	0
.51- 3.50	9	14	24	26	20	10	8	4	6	4	4	3	1	3	5	5	146
3.51- 7.50	61	63	79	92	102	57	75	60	64	49	30	29	9	22	17	61	870
7.51-12.50	133	63	59	75	68	105	99	128	138	69	49	51	62	86	89	138	1412
12.51-18.50	68	33	23	15	20	30	74	51	97	47	24	46	97	209	245	194	1273
18.51-24.50	10	12	3	0	1	3	17	8	38	10	2	8	47	138	167	39	503
>24.50	0	0	0	0	0	0	0	2	2	1	0	2	17	32	33	6	95
TOTAL	281	185	188	208	211	205	273	253	345	180	109	139	233	490	556	443	4299

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 320-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS E

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																	0
.51- 3.50	5	4	7	8	12	9	10	12	9	7	12	4	6	4	7	3	119
3.51- 7.50	13	23	31	46	41	43	47	54	63	44	45	24	26	14	18	16	548
7.51-12.50	48	45	25	24	19	52	57	96	135	81	68	70	69	63	55	59	966
12.51-18.50	20	12	2	4	4	8	8	35	77	38	25	50	70	130	121	45	649
18.51-24.50	1	0	0	0	1	0	10	3	7	5	7	11	11	19	21	4	100
>24.50	0	0	0	0	1	0	0	4	1	1	1	0	1	0	1	1	11
TOTAL	87	84	65	82	78	112	132	204	292	176	158	159	183	230	223	128	2393

STABILITY CLASS F

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																	0
.51- 3.50	2	3	4	3	2	0	5	6	5	6	11	3	2	1	3	2	58
3.51- 7.50	8	5	7	5	2	2	18	21	19	19	18	10	19	12	14	11	190
7.51-12.50	8	3	1	1	0	4	1	11	6	8	15	20	36	21	26	18	179
12.51-18.50	2	0	0	0	0	0	0	6	1	10	9	20	45	17	20	5	135
18.51-24.50	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0	0	10
>24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	11	12	9	4	6	24	44	31	43	53	53	110	53	63	36	572

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 320-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANNUAL ***

STABILITY CLASS G

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																	0
.51- 3.50	2	2	1	1	1	2	1	1	1	1	0	5	4	3	0	1	26
3.51- 7.50	8	5	4	3	2	0	3	5	4	4	3	5	9	11	7	10	83
7.51-12.50	3	5	0	1	0	0	0	0	1	0	0	7	5	3	2	4	31
12.51-18.50	0	0	0	0	0	0	0	0	0	0	2	1	11	3	0	0	17
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	13	12	5	5	3	2	4	6	6	5	5	18	29	20	9	15	157

STABILITY CLASS ALL

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																	0
.51- 3.50	18	23	37	40	39	21	24	23	21	18	27	15	13	11	15	11	356
3.51- 7.50	104	112	143	170	182	127	154	143	158	120	96	70	67	60	56	101	1863
7.51-12.50	217	127	98	115	103	196	184	247	298	176	136	154	179	183	183	244	2840
12.51-18.50	94	45	30	19	24	41	89	94	198	106	65	125	242	388	408	276	2244
18.51-24.50	11	12	3	0	2	3	28	14	49	15	9	19	77	179	200	55	676
>24.50	0	0	0	0	1	0	0	6	3	2	1	2	22	43	37	7	124
TOTAL	444	319	311	344	351	388	479	527	727	437	334	385	600	864	899	694	8103

PECO NUCLEAR - Peach Bottom Atomic Power Station

PROGRAM: JFD VERSION: PC-1.2

JFD - Delta-T (320-33ft) - 320-FT Winds - 1995

SITE IDENTIFIER:

DATA PERIOD EXAMINED: 1/ 1/95 - 12/31/95

*** ANN ***

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: 8103

TOTAL NUMBER OF MISSING OBSERVATIONS: 657

PERCENT DATA RECOVERY FOR THIS PERIOD: 92.5 %

MEAN WIND SPEED FOR THIS PERIOD: 11.3 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
1.17	2.00	5.24	53.05	29.53	7.06	1.94

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	3	9	16	17	34	6	2	1	0	0	0	0	3	0	4	0
B	15	10	17	13	18	11	12	2	13	6	1	0	4	23	10	7	0
C	28	14	15	11	20	18	28	16	39	27	8	16	41	45	38	61	0
D	281	185	188	208	211	205	273	253	345	180	109	139	233	490	556	443	0
E	87	84	65	82	78	112	132	204	292	176	158	159	183	230	223	128	0
F	20	11	12	9	4	6	24	44	31	43	53	53	110	53	63	36	0
G	13	12	5	5	3	2	4	6	6	5	5	18	29	20	9	15	0
TOTAL	444	319	311	344	351	388	479	527	727	437	334	385	600	864	899	694	0

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.

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, Annual Effluent Releases Report No. 38", January 1, 1995 through December 31, 1995.
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. 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.
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-2.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000