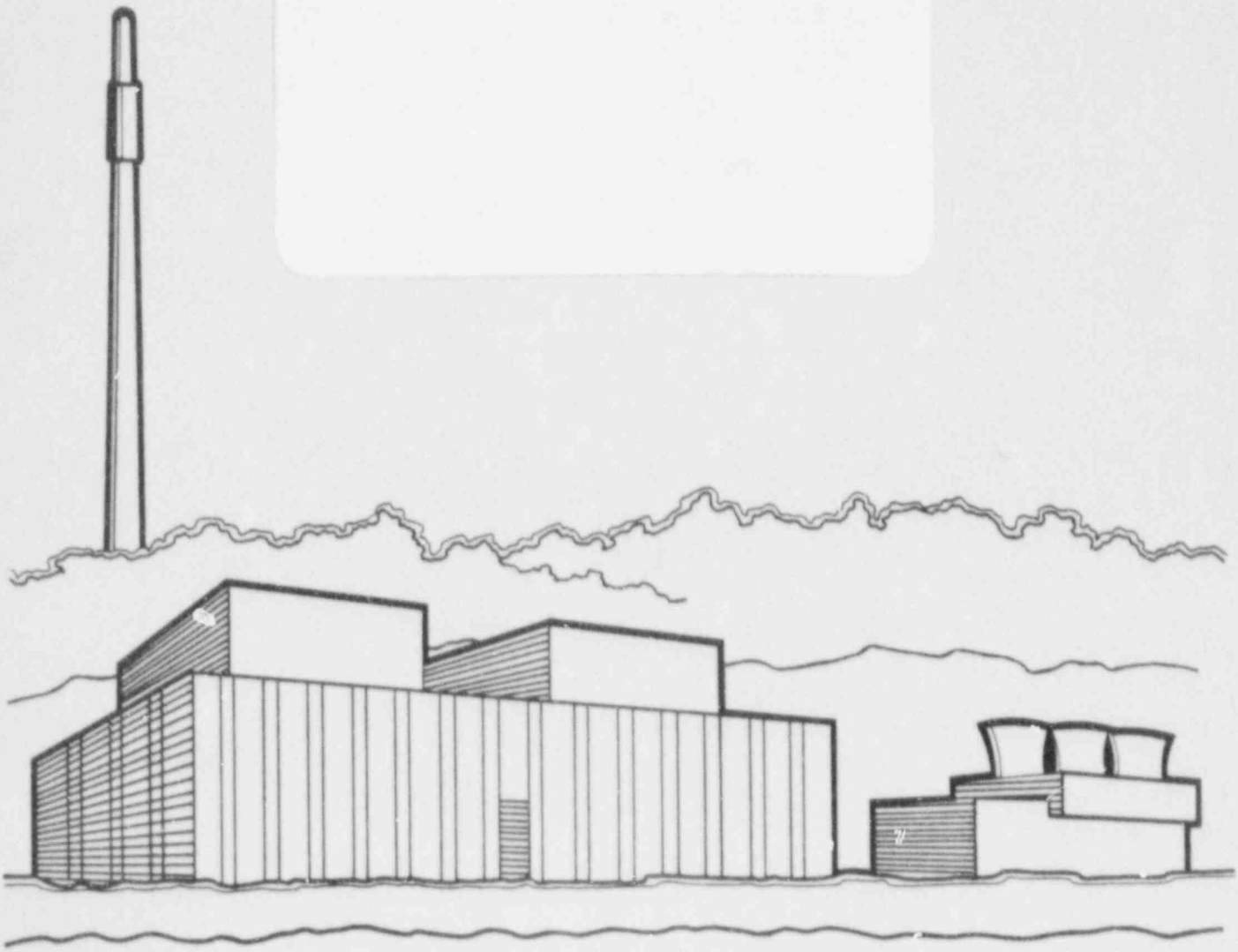
PHILADELPHIA ELECTRIC COMPANY
ELECTRIC SERVICE GAS



PEACH BOTTOM ATOMIC POWER STATION

8805020273 871231
PDR ADOCK 05000277
R DCD

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION
UNITS NOS. 2 & 3

DOCKET NOS. 50-277 AND 50-278

RADIATION DOSE ASSESSMENT REPORT

NO. 3

JANUARY 1, 1987 THROUGH DECEMBER 31, 1987

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

IE48
1/1

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, 1987 through December 31, 1987.

The radiation doses due to the release of radioactive materials during the reporting period were within 10CFR50 Appendix I limits and within 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 6.89E-01 mrem; the maximum dose due to gaseous releases was 1.39E-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.

This report is assembled in two parts: Part 1 is for liquid and gaseous dose calculations; Part 2 is for meteorological data.

TABLE I-1

COMPARISION OF DOSES RESULTING FROM PBAPS UNITS 2 and 3
WITH 10CFR50 APPENDIX I DESIGN OBJECTIVES

	TYPE OF DOSE	MAXIMUM DOSE FROM PBAPS		A DESIGN OBJECTIVE REG. GUIDE 1.109
		Value	% of A	
I	Liquid Effluents			
	a. Dose to total body from all pathways	4.89E-01	8.2	3 mrem/yr per unit
	b. Dose to any organ from all pathways	6.89E-01	3.4	10 mrem/yr per unit
II	Gaseous Effluents*			
	a. Gamma dose in air	1.68E-02	0.08	10 mrad/yr per unit
	b. Beta dose in air	6.91E-02	0.17	20 mrad/yr per unit
	c. Dose to total body of and individual	1.51E-02	0.15	5 mrem/yr per unit
	d. Dose to skin of an individual	4.27E-02	0.14	15 mrem/yr per unit
	e. Dose to any organ from all pathways	1.39E-01	0.46	15 mrem/yr per 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, particulate and iodine components.

PART 1

LIQUID AND GASEOUS RADIOACTIVE DOSE ASSESSMENT

TABLE OF CONTENTS

I INTRODUCTION

II PEACH BOTTOM LIQUID AND GASEOUS RADWASTE EFFLUENTS

III HYDROLOGY AND METEOROLOGY

IV LIQUID AND GASEOUS PATHWAY DOSE MODELS

V RECEPTOR LOCATIONS AND USAGE FACTORS FOR ANNUAL DOSE EVALUATIONS

VI CALCULATED ANNUAL DOSES

VII SUMMARY AND CONCLUSION

REFERENCES

I. INTRODUCTION

Peach Bottom Atomic Power Station (PBAPS) 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 [1]. Conowingo Pond is the receiving stream for liquid radwaste effluents. Information pertaining to the liquid and gaseous radwaste source terms, hydrology, meteorology, dose models, and receptor locations along with the resultant doses due to the operation of Peach Bottom is provided.

II. PEACH BOTTOM LIQUID AND GASEOUS RADWASTE EFFLUENT

The liquid radwaste system at Peach Bottom is a common system shared by both reactor units. The system is designed to collect various types of liquid wastes separately so that each type of waste can be processed by those methods most appropriate to that type. The liquid radwaste system is described in detail in the PBAPS UFSAR[2]. Liquid wastes are processed on a batch basis and each batch is sampled prior to release. The processed liquid wastes may be returned to the condensate system for plant reuse or discharged to the environs. The liquid to be discharged is released into a discharge canal where it is mixed with the plant circulating water prior to release into Conowingo Pond through a submerged jet-type discharge structure.

Gaseous effluents are released from Peach Bottom through three release points: (1) the off-gas stack, (2) the Unit 2 roof vent, and (3) the Unit 3 roof vent. For the purposes of this evaluation, Units 2 and 3 roof vents are considered a single release point. The physical characteristics which apply to each of the Station's release points were detailed in the 10CFR50, Appendix I Radioactive Effluent Dose Assessment Report[3].

The release of radioactive materials in liquid and gaseous effluents from Peach Bottom were reported in the Peach Bottom Atomic Power Station Semi-Annual Effluent Release Reports Nos. 23 and 24 [4 & 5].

III. HYDROLOGY AND METEOROLOGY

A. Hydrology

The Peach Bottom site is located on Conowingo Pond formed in the Susquehanna River by the Conowingo Dam. The flows of the Susquehanna River are unregulated except for the influences of the three run-of-the-river hydroelectric plants and one pumped storage hydroelectric plant upstream of Units 2 and 3. The average river flow at the plant site is 36,200 cubic feet per second [5].

The liquid radwaste from Peach Bottom Units 2 and 3 is discharged into a discharge canal where it is mixed with the station circulating water discharge. After release of the diluted liquid radwaste from the Peach Bottom discharge canal, the concentration of radioactivity in the Pond continues to decrease by several mechanisms, including radioactive decay and mixing of the discharged water with additional Pond water. At times, operation of the Muddy Run pumped storage hydroelectric plant also affects the mixing characteristics of Conowingo Pond by reversing the normal downstream flow during the pumping cycle. This only occurs when natural river flows are below about 13,000 cfs.

In order to estimate dilution of liquid radwaste by Pond water, an extensive series of tests were run under the supervision of Dr. D. W. Pritchard, Director of the Chesapeake Bay Institute of the Johns Hopkins University, utilizing the hydraulic model of Conowingo Pond located at the Alden Research Laboratories of Worcester Polytechnic Institute. A description of these tests and selected data are provided in the PBAPS UFSAR [7].

Since travel times and dilution factors applicable to the receptor locations of interest vary with Pond flow, the Pond flows were reviewed on a daily basis to determine a mean monthly Pond flow. Each daily flow value was assigned to one of the three Pond flow regimes (see Table III-1). 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 flow regimes - less than 15,000 cfs; between 15,000 cfs and 35,000 cfs; and greater than 35,000 cfs - match an appropriate grouping of average dilution conditions measured in model tests. The first flow regime (less than 15,000 cfs) is of particular importance because recirculation can only occur at these low natural river flows. Based on the model dilution tests, the recycle time from plant discharge to plant intake was estimated to be 50 hours, and 45 percent of the initial radwaste discharge was assumed to be recycled to the station water intake when flows are less than 15,000 cfs.

For river flows above 15,000 cfs, recirculation is not expected to occur. In 1987 recirculation occurred only in June, July, and August.

The travel times and dilution factors for those locations in Conowingo Pond where the highest doses were calculated are listed in Table III-2 for each monthly flow regime and were estimated using the test data presented in the Peach Bottom Updated Final Safety Analysis Report [8]. The location numbers are those shown on Figure V-1.

B. Meteorology

Part 2 describes in detail the meteorology in the Peach Bottom Region during 1987 affecting the atmospheric dispersion and the deposition of radionuclides from PBAPS gaseous radwaste releases. This meteorology was used for the evaluation of Peach Bottom Units 2 and 3 gaseous releases.

For noble gas releases, X/Q values were corrected for radionuclide decay during the time of transport from the off-gas stack to the receptor location. This was done on an isotope by isotope basis as described in Section IV. The time of transport to the receptor location was calculated using average wind speeds for each sector bearing and the distance of receptor locations from the source. The average wind speeds used for the off-gas stack and vent releases are listed in Table III-3 for each sector bearing.

The following equation was used to calculate the isotope by isotope decay of noble gases during time of transport from the off-gas stack to the receptor location based on the average annual wind speed for that sector (see Table III-1).

X/Q_{ix} is DECAYED using average windspeed for each sector, distance to point of exposure, and λ_i (Sec^{-1}) for nuclide i

$$X/Q_{ix} = X/Q_x \, e^{-\lambda_i t}$$

t = travel time to point x = $\frac{\text{Distance of Point X from Source} \times 3600}{\text{Average sector wind speed} \times 5280}$

units: $sec = ft \times \frac{1}{mile/hr} \times \frac{1}{ft/mile} = \frac{sec}{hr}$

TABLE III-I

PEACH BOTTOM RECEPTOR LOCATION PARAMETERS

LOCATION NUMBER	LOCATION	Less Than 15,000 cfs River Flow		15,000-35,000 cfs River Flow		Greater Than 35,000 cfs River Flow	
		TRAVEL TIME (hrs)	DILUTION FACTOR	TRAVEL TIME (hrs)	DILUTION FACTOR	TRAVEL TIME (hrs)	DILUTION FACTOR
1	1500 feet down-flow of plant discharge	15	1.4	3	2.2	1.5	1.7
3	Glen Cove	68	1.5	17	3.6	11	12
4	Conowingo Dam	100	2.9	25	7.7	16	14
2	Chester Water Intake	70	2.9	11	5.9	4	8.3

TABLE III-2

PEACH BOTTOM RECEPTOR LOCATION PARAMETERS

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	2.5	2.2	15.1	4.3	22.2	8.6	7.9	6.3
February	3.3	2.1	18.5	3.1	27.2	6.5	12.1	5.3
March	1.8	1.8	12.3	7.2	17.9	11.3	4.9	7.4
April	1.5	1.7	11.1	11.1	16.2	13.6	4.1	8.2
May	2.7	2.1	15.9	4.0	23.3	8.2	9.0	6.1
June	6.1	1.6	32.4	1.9	47.6	3.8	23.6	3.6
July	5.1	1.7	27.8	2.1	40.8	4.2	19.5	3.8
August	15.0	1.4	68.0	1.5	100.0	2.9	70.0	2.9
September	2.5	1.7	16.4	3.4	23.9	6.2	2.2	5.1
October	3.8	1.9	21.1	2.6	31.0	5.4	14.1	4.7
November	2.8	2.2	16.4	3.8	24.1	7.9	9.8	6.0
December	4.5	1.8	25.0	2.3	36.5	4.5	17.0	4.1

TABLE III-3

AVERAGE WIND SPPED (MPH)

BY DIRECTIONAL SECTOR

	Off-Gas Stack		Vent
Sector *	Annual	2/9 - 3/16/87	Annual
NNE	9.3	11.1	6.0
NE	7.5	6.0	3.4
NNE	6.6	4.1	3.0
E	6.4	4.9	3.3
ESE	7.9	8.6	4.5
SE	8.5	10.5	4.8
SSE	8.8	8.1	5.3
S	10.2	9.6	6.2
SSW	8.1	7.4	5.1
SW	8.9	8.5	5.7
WSW	10.4	8.0	6.0
W	11.8	13.4	6.8
WNW	13.7	14.6	7.6
NW	13.3	14.3	8.0
NNW	11.4	12.8	7.8
N	10.0	11.8	6.6

*Sector indicates the direction the wind incoming from, i.e. NNE wind speeds should be used to decay concentrations in SSW downwind sector.

IV. LIQUID AND GASEOUS PATHWAY DOSE MODELS

The maximum annual doses to individuals in unrestricted areas which could result from the liquid effluent releases from Peach Bottom Atomic Power Station were calculated according to the guidelines in USNRC Regulatory Guide 1.109[9] 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. For noble gas releases, GASPAR was modified to perform dose calculations according to the models described below. For iodine and particulate releases, GASPAR was used without modification.

The liquid release pathways which were considered in making these calculations included drinking water, aquatic foods, shoreline usage, swimming and boating. The equations for drinking water, aquatic foods, and shoreline exposure and the bases for these equations have been discussed in detail in Regulatroy Guide 1.109[9]. Dose calculations for swimming and boating were not discussed in the guide, but total body doses from these pathways were calculated using the equations and dose factors provided in the LADTAP computer code. The doses to individual organs were taken to be the same as the total body doses for swimming and boating.

Since Peach Bottom Atomic Power Station is located on Conowingo Pond, where recirculation of water occurs during periods of low natural river flow, reconcentration of radionuclides was considered. To account for reconcentration in June, July, and August the external reconcentration model in LADTAP was used in conjunction with equation:

$$RECON_i = 1 + (RF * \exp^{-\lambda_i t_c})$$

Where:

$RECON_i$ is the reconcentration factor for nuclide i, unitless;

RF is the fraction of the discharged liquid that is recycled through the station (1/dilution factor at point of intake) 0.45;

λ_i is the radioactive decay constant of nuclide i, in hr^{-1};

t_c is the cycle time from the point of discharge to the river back to the station and through the station to the discharge point, 50 hours.

For all other months $RECON_i$ equals 1.0 for all nuclides.

The doses from liquid releases were calculated for each month at each receptor location; the doses for each month were then summed for each pathway at each location to arrive at the total annual doses listed in Section VI.

The gaseous release pathways which were considered included external radiation from the air and ground, inhalation, and ingestion of vegtation, meat, cow's milk, and goat's milk. The inhalation and ingestion pathways were evaluated for the adult, teenager, child, and infant groups. The dose calculated for each pathway were to the total body, GI-tract, bone, liver, kidney, thyroid, lung and skin.

The calculation of dose for all pathways at each receptor location (see Section V) was done in two parts - a dose component resulting from the off-gas stack and one from the building vents. The equations, source term, and meterology which apply to each case were used to calculate the dose resulting from each component. These dose were then summed to yield a total dose for each pathway and organ.

The annual gama dose (mrad/yr) resulting from noble gases in elevated plumes was calculated using a modified verision of the RADOS [10] computer program called MARE [11]. This program computes the sector average gamma dose in each of sixteen $22\frac{1}{2}$ degree compass sectors on an annual basis. It assumes that the radioactive plume is distributed uniformly across the width of each $22\frac{1}{2}$ degree sector and is distributed in a Gaussian form in the vertical direction. The total dose at each receptor location is the summation of the doses resulting from each isotope which is transported and diffused by the same set of meteorological conditions from which X/Q values were derived, including terrain heights, plume rises and vertical dispersion parameters. Radioactive decay of the noble gases was taken into account during the time of transport from the source to the receptor location.

The source term of isotopes used as input to the MARE program to calculate gamma dose from concentration of noble gases in elevated plumes from the PBAPS off-gas stack were reported in Peach Bottom Atomic Power Station Semi-Annual Effluent Releases Reports Nos. 23 and 24.

RECEPTOR LOCATIONS AND USAGE FACTORS FOR ANNUAL DOSE EVALUATIONS

A. Liquid Releases

The annual doses resulting from PBAPS liquid radwaste releases were calculated at various locations on Conowingo Pond. The locations are shown in Figure V-1. These were selected because they represent areas where the listed pathway activities are most likely to occur. Location No. 1 which is 1500 ft. downflow from the PBAPS Discharge Canal exit represents a worst case location where a significant amount of fishing from a boat may occur. Therefore, at this location doses from eating fish and boating were evaluated. Location No. 3, Glen Cove represents a worst case location where a significant amount of Conowingo Pond recreational uses may occur. Therefore, at this location the doses resulting from eating fish, swimming, boating and shoreline recreation were calculated.

Doses resulting from drinking water were calculated at drinking water supply intakes for Chester Water Authority (Location 2), and Conowingo Dam (Location 4) located on Conowingo Pond. The City of Baltimore (Location 5) withdrew drinking water from Conowingo Pond at an average of 4.3 days per month throughout 1987. However, 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 Conowingo Pond usage rates and fish and water consumption rates which were used in the calculation of doses for various pathways and locations resulting from Peach Bottom liquid radwaste releases are listed in Table V-1. The basis of each is also listed. Only fish consumption was considered for the aquatic foods pathways in the Peach Bottom region. In accordance with Regulatory Guide 1.109 [9], a shore width factor of 0.2 was utilized for shoreline recreation. There is no known use of water from Conowingo Pond for crop irrigation; therefore, this pathway was not included. There are no known private residences using Pond water for drinking purposes; therefore, this pathway was not included.

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. There was one herd of milk goats within five miles of PBAPS.

The locations of real receptors which were evaluated in this study were determined by an extensive field survey during 1976 in the area within five miles of the release points.

The survey was updated by a dairy pasture survey in 1987 which determined the pasture closest to PBAPS in each sector.

Doses via the cow-milk pathway and meat animal pathway determined at the center of dairy pastures were added to doses calculated at the farm residences for the external radiation, inhalation, and vegetation consumtion pathway. The farm residence was assumed to be at the same location as the dairy pasture. Since the cow-milk-thyroid pathway is the critical pathway by a large margin (see Section VI), this approach assures that the location with greatest total dose from all pathways has been evaluated.

In addition to the farm residence locations, annual doses via the external radiation, inhalation and vegetation consumption pathways were evaluated at several real residence locations. These locations included the residences with the highest annual X/Q values.

Standard usage factors were used in accordace with Regulatory Guide 1.109 [9] and are presented in Table V-2.

TABLE V-1

LIQUID PATHWAY USAGE AND CONSUMPTION RATES FOR PBAPS

PATHWAY	USAGE OR CONSUMPTION RATE ADULT	TEENAGER	CHILD	INFANT	UNITS
Eating Fish (a)	21	16	6.9	-	kg/yr
Drinking (b)	730	510	510	330	1/yr
Swimming (c)	280	280	-	-	hr/yr
Boating (c)	120	120	67	-	hr/yr
Shoreline Recreation (d)	325	325	14	-	hr/yr
Fishing from Conowingo Dam (e)	325	325	14	-	hr/yr

(a) The consumption rates for eating fish at all real locations evaluated are those listed in Table E-5, USNRC Regulatory Guide 1.109[9].

(b) The consumption rates for drinking water at all real locations evaluated except Chester Water Authority are those listed in Table E-5, USNRC Regulatory Guide 1.109[9]. The values used for Chester Water Authority were 5 percent of those listed above because the system pumped water from Conowingo Pond a maximum of once per month.

(c) The usage rates listed for adults and teenagers for swimming and boating are 1980 projections for maximum individuals based on 1968 Recreation Survey, Conowingo Reservoir - Susquehanna River by Fahringer, McCarty, Grey and Associates. These values were published in the PBAPS Environmental Report, Supplement No. 3, Page 19[12]. The child's usage rate for boating is derived from the adult usage rate based on the ratio between adult and child usage rates as listed in Table E-5, USNRC Regulatory Guide 1.109[9].

(d) The adult and teenager usage rates for shoreline recreation are the 1980 projected usage rates of maximum individuals for shoreline fishing based on 1968 Recreation Survey, Conowingo Reservior -Susquehanna River by Fahringer, McCarty, Grey and Associates. These values were published in the PBAPS Environmental Report Report Supplement No. 3, Page 19[12]. The child's usage rate is that listed in Table E-5 of USNRC Regulatory Guide 1.109[9].

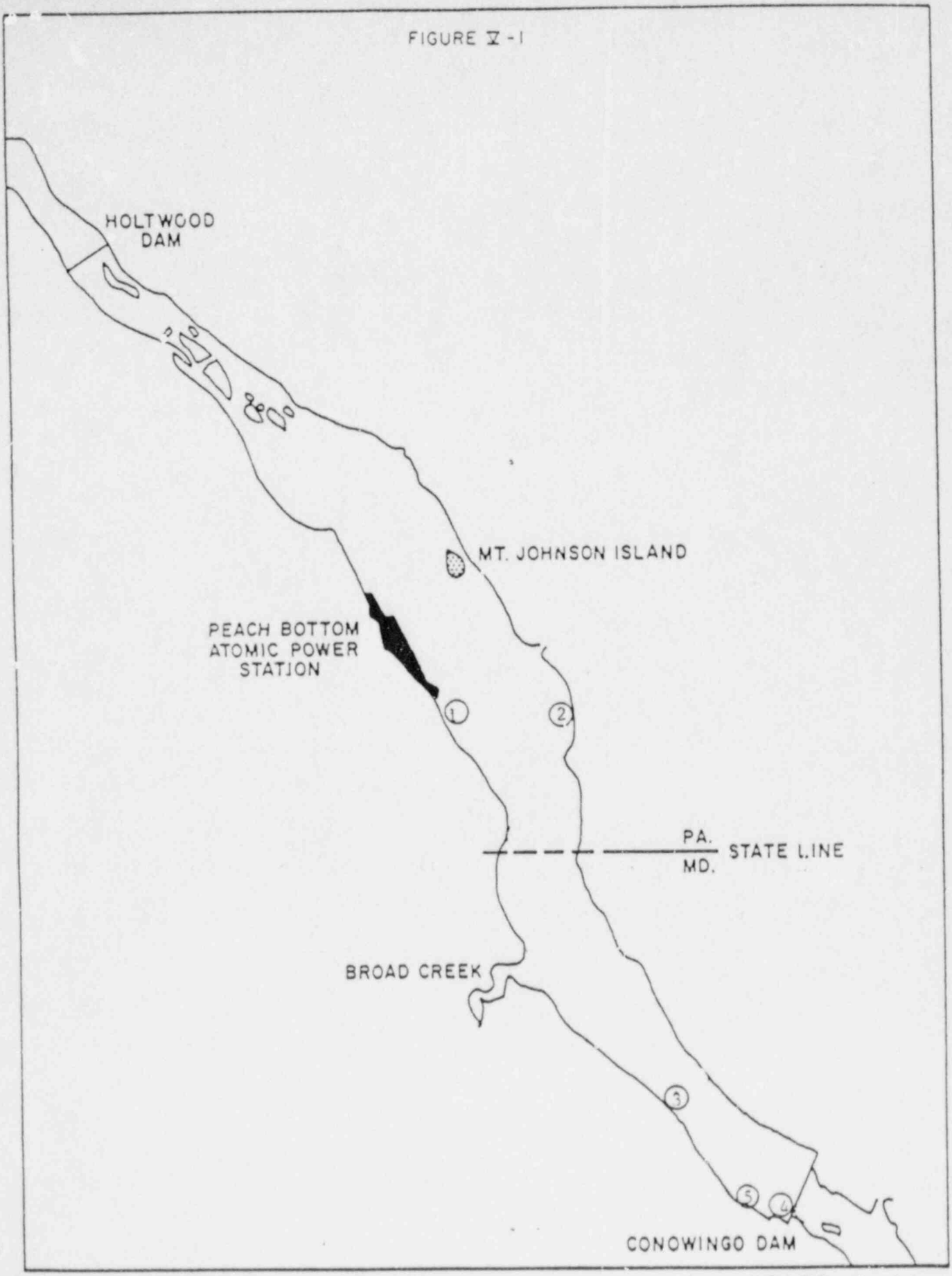
(e) The adult and teenager usage rates for fishing from Conowingo Dam are 1980 projected usage rates of maximum individuals for shoreline fishing based on 1968 Recreation Survey, Conowingo Reservoir - Susquehanna River by Fahringer, McCarty, Grey and Associates. These values were published in the PBAPS Environmental Report, Supplement No. 3, Page 19[12].

TABLE V-2

GASEOUS PATHWAY USAGE AND CONSUMPTION RATES FOR PBAPS

PATHWAY	INFANT	CHILD	TEEN	ADULT	UNITS
Fruits & Vegetable and Grain	0.0	520.0	630.0	520.0	kg/yr
Leafy vegetables	0.0	26.0	42.0	64.0	kg/yr
Milk	330.0	330.0	400.0	310.0	liters//yr
Meat & Poultry	0.0	41.0	65.0	110.0	kg/yr
Inhalation	1400.0	3700.0	8000.0	8000.0	m^3/yr

FIGURE V - 1



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

VI. CALCULATED ANNUAL DOSES

A. Liquid Releases

Table VI-1 through VI-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 Peach Bottom liquid radwaste releases. All locations having maximum estimated doses to any organ by any pathway or by all pathways have been included. The maximum doses calculated vary between the adult, teenager, and child categories. The following discussion, therefore, pertains to the maximum individual in each case.

The location with the highest total dose to any organ and to the total body is 1500 ft. downstream of the Discharge Canal exit (Location 1), where eating fish and boating are the potential pathways. The highest dose calculated to any organ results from eating fish, where the critical organ is liver.

The location with the highest calculated doses to any organ for the shoreline recreation and swimming pathways is Location 3, Glen Cove. The doses from these two pathways, however, are a small fraction of the dose resulting from eating fish at this location and do not significantly contribute to the total dose.

Location 4, Conowingo Dam, is the location with the highest calculated dose to any organ for the drinking water pathway. The dose from this pathway, however, is only 4.3 percent of the maximum organ dose at Location 1.

B. Gaseous Releases

Table VI-5 lists the annual doses to all organs through each pathway by age group at the location where a person would receive the largest calculated organ dose. The dose is sum of the contributions from the two components; the off-gas stack and the building vents plume. The largest dose contribution to any organ resulted from the cow-milk-thyroid pathway at a dairy farm with the pasture located about 6600 feet SSW of the PBAPS building vents. The organ receiving the largest dose is the infant thyroid, which was calculated to receive a total of 1.39E-01 mrem/yr. from all real pathways listed in Table VI-5. Approximately 97% of this total dose resulted from the cow-milk-thryoid pathway, 2% from external exposure to noble gases, 1% from inhalation of air particulates and radioiodines, and less than 0.4% from exposure to activity deposited on the ground. No attempt was made to determine the age of distribution of real residents. Therefore, the assumption that an infant exists at this location could be very conservative.

Table VI-6 lists the annual doses to all organs through each pathway by age group at the location where a person would receive the largest calculated total body dose resulting from exposure to noble gases, particulates and iodine released from PBAPS. This is a residence located about 3800 feet SSE of the PBAPS building vents. This dose was calculated to be 1.51E-02 mrem/yr. to the total body. The location where a person would receive the largest calculated dose to the skin resulting from exposure to noble gases, particulates and iodine released from PBAPS is a residence located about 5400 feet S of the PBAPS building vents. This dose was calculated to be 4.27E-02 mrem/yr. to the skin.

The location where a real person would recieve the largest calculated total body dose from exposure to noble gases, particulates and iodine released from PBAPS due to non-occupational activities inside of the site boundary is at the boat ramp approximately 3300 feet NNW of the PBAPS building vents. This dose is calculated to be 6.51E-03 mrem/yr. to the total body. The calculated skin dose at this location is 1.91E-02 mrem/yr. assuming continuous occupancy. Assuming the shoreline recreational usage factor (325 hours per year) would result in an insignificant dose.

TABLE VI-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	3.71E-01	6.72E-01	4.88E-01	5.05E-03	2.38E-01	6.70E-02	1.44E-01
		Boating	0.00E+00	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04
		Total	0.00E+00	3.72E-01	6.73E-01	4.89E-01	5.74E-03	2.39E-01	6.77E-02	1.45E-01
3	Glen Cove	Eating Fish	0.00E+00	1.98E-01	3.60E-02	2.63E-01	8.44E-04	1.28E-01	3.61E-02	1.06E-01
		Shoreline	2.83E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02
		Swimming	0.00E+00	6.40E-03	6.40E-03	6.40E-03	6.40E-03	6.40E-03	6.40E-03	6.40E-03
		Boating	0.00E+00	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04
		Total	2.83E-02	2.29E-01	6.72E-02	2.94E-01	3.20E-02	1.59E-01	6.73E-02	1.37E-01
4	Conowingo Dam	Eating Fish	0.00E+00	1.06E-01	1.93E-01	1.40E-01	6.44E-04	6.83E-02	1.94E-02	5.36E-02
		Drinking	0.00E+00	1.85E-03	6.17E-03	1.93E-03	2.92E-03	2.66E-03	1.80E-03	2.98E-02
		Fishing from dam	0.00E+00	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04
		Total	0.00E+00	1.09E-01	2.00E-01	1.43E-01	4.33E-03	7.17E-02	2.20E-02	8.42E-02

TABLE VI-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-Lli
1	1500 ft. below discharge canal exit	Eating fish	0.00E+00	3.89E-01	6.88E-01	2.97E-01	4.70E-03	2.40E-01	8.02E-02	9.84E-02
		Boating	0.00E+00	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04	6.89E-04
		Total	0.00E+00	3.90E-01	6.89E-01	2.98E-01	5.39E-03	2.41E-01	8.09E-02	9.91E-02
3	Glen Cove	Eating Fish	0.00E+00	2.08E-01	3.69E-01	1.59E-01	7.76E-04	1.29E-01	4.28E-02	7.21E-02
		Shoreline	2.83E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02	2.42E-02
		Swimming	0.00E+00	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03
		Boating	0.00E+00	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04	5.65E-04
		Total	2.83E-02	2.35E-01	3.96E-01	1.86E-01	2.82E-02	1.56E-01	7.02E-02	9.95E-02
4	Conowingo Dam	Eating Fish	0.00E+00	1.11E-01	1.97E-01	8.47E-02	5.94E-04	6.89E-02	2.29E-02	3.64E-02
		Drinking	0.00E+00	1.78E-03	5.41E-03	5.23E-03	2.28E-03	2.14E-03	1.40E-03	1.86E-02
		Fishing from dam	0.00E+00	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04	7.63E-04
		Total	0.00E+00	1.14E-01	2.03E-01	9.07E-02	3.54E-03	7.18E-02	2.51E-02	5.58E-02

TABLE VI-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-Lli
1	1500 ft. below discharge canal exit	Eating fish	0.00E+00	4.80E-01	5.97E-01	1.36E-01	4.84E-03	2.01E-01	6.32E-02	3.36E-02
		Boating	0.00E+00	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04
		Total	0.00E+00	4.80E-01	5.97E-01	1.36E-01	5.22E-03	2.01E-01	6.36E-02	3.40E-02
3	Glen Cove	Eating Fish	0.00E+00	2.56E-01	3.20E-01	7.59E-02	7.90E-04	1.08E-01	3.37E-02	2.45E-02
		Shoreline	1.22E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03
		Boating	0.00E+00	3.16E-04	3.16E-04	3.16E-04	3.16E-04	3.16E-04	3.16E-04	3.16E-04
		Total	1.22E-03	2.57E-01	3.21E-01	7.73E-02	2.15E-03	1.09E-01	3.51E-02	2.59E-02
4	Conowingo Dam	Eating Fish	0.00E+00	1.37E-01	1.71E-01	4.03E-02	6.03E-04	5.76E-02	1.80E-02	1.24E-02
		Drinking	0.00E+00	5.08E-03	1.06E-02	1.05E-02	4.95E-03	4.12E-03	2.65E-03	1.58E-02
		Fishing from dam	0.00E+00	3.29E-05	3.29E-05	3.29E-05	3.29E-05	3.29E-05	3.29E-05	3.29E-05
		Total	0.00E+00	1.42E-01	1.82E-01	5.08E-02	5.59E-03	6.18E-02	2.07E-02	2.82E-02

TABLE VI-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-LLI
4	Conowingo Dam	Drinking	0.00E+00	5.24E-03	1.26E-02	1.03E-02	6.63E-03	4.07E-03	2.71E-03	9.93E-03

TABLE VI-5

ANNUAL DOSES TO ALL ORGANS BY PATHWAY AT
LOCATION OF HIGHEST ORGAN DOSE (THYROID)

ANNUAL BETA AIR DOSE = 4.78E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 4.89E-03 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.24E-03	3.24E-03	3.24E-03	3.24E-03	3.24E-03	3.24E-03	3.72E-03	2.97E-02
GROUND	5.14E-04	5.14E-04	5.14E-04	5.14E-04	5.14E-04	5.14E-04	5.14E-04	6.04E-04
VEGET								
ADULT	8.45E-04	5.69E-04	1.93E-03	5.40E-04	4.60E-04	2.89E-03	4.07E-04	3.94E-04
TEEN	1.03E-03	6.76E-04	2.69E-03	6.99E-04	5.67E-04	2.66E-03	4.96E-04	4.71E-04
CHILD	1.66E-03	8.92E-04	5.17E-03	1.12E-03	8.89E-04	4.19E-03	7.77E-04	7.39E-04
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT								
ADULT	8.72E-05	9.39E-05	5.18E-05	9.44E-05	8.16E-05	8.87E-04	6.39E-05	6.25E-05
TEEN	5.31E-05	5.44E-05	3.85E-05	6.24E-05	5.20E-05	6.34E-04	3.86E-05	3.73E-05
CHILD	6.51E-05	5.38E-05	6.23E-05	7.61E-05	6.27E-05	9.47E-04	4.66E-05	4.50E-05
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COW MILK								
ADULT	2.82E-04	2.11E-04	2.46E-04	3.47E-04	3.07E-04	1.76E-02	1.57E-04	1.47E-04
TEEN	3.69E-04	2.70E-04	4.13E-04	5.41E-04	4.71E-04	2.79E-02	2.13E-04	1.91E-04
CHILD	5.72E-04	3.59E-04	9.16E-04	8.90E-04	7.57E-04	5.52E-02	3.36E-04	3.02E-04
INFANT	8.44E-04	6.82E-04	1.51E-03	1.66E-03	1.20E-03	1.34E-01	5.19E-04	4.58E-04
GOATMILK								
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	2.44E-04	2.45E-04	2.77E-05	2.46E-04	2.48E-04	1.08E-03	2.64E-04	2.41E-04
TEEN	2.47E-04	2.47E-04	3.17E-05	2.49E-04	2.52E-04	1.32E-03	2.79E-04	2.42E-04
CHILD	2.18E-04	2.17E-04	3.26E-05	2.21E-04	2.23E-04	1.50E-03	2.45E-04	2.14E-04
INFANT	1.26E-04	1.24E-04	1.61E-05	1.29E-04	1.29E-04	1.30E-03	1.48E-04	1.23E-04

TABLE VI-6

ANNUAL DOSES TO ALL ORGANS BY PATHWAY AT
LOCATION OF HIGHEST TOTAL BODY DOSE

ANNUAL BETA AIR DOSE = 5.09E-02 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.22E-02 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.12E-03	8.12E-03	8.12E-03	8.12E-03	8.12E-03	8.12E-03	8.63E-03	4.01E-02
GROUND	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	2.00E-03
VEGET								
ADULT	2.43E-03	1.44E-03	5.69E-03	1.45E-03	1.19E-03	8.56E-03	1.02E-03	9.75E-04
TEEN	2.97E-03	1.71E-03	7.73E-03	1.91E-03	1.47E-03	7.80E-03	1.25E-03	1.16E-03
CHILD	4.77E-03	2.23E-03	1.43E-02	3.08E-03	2.32E-03	1.23E-02	1.95E-03	1.83E-03
INFANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEAT								
ADULT	0.00	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
GOATMILK								
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	6.07E-04	6.06E-04	8.69E-05	6.09E-04	6.15E-04	2.83E-03	6.56E-04	5.96E-04
TEEN	6.12E-04	6.11E-04	9.84E-05	6.18E-04	6.26E-04	3.46E-03	6.94E-04	5.99E-04
CHILD	5.42E-04	5.35E-04	9.91E-05	5.48E-04	5.55E-04	3.96E-03	6.10E-04	5.30E-04
INFANT	3.12E-04	3.07E-04	4.73E-05	3.21E-04	3.21E-04	3.46E-03	3.64E-04	3.05E-04

VII. CONCLUSION

Table I-I, Introduction and Summary, summarizes the maximum calculated annual doses resulting from Peach Bottom Units 2 and 3 routine liquid and atmospheric radwaste releases and how they compare to the 10CFR50 Appendix I design objective dose limits

The maximum calculated total body dose resulting from Peach Bottom Units 2 and 3 routine liquid radwaste releases during 1987 was 4.89E-01 mrem/yr. and occured at Location 1, 1500 ft. downstream from the Peach Bottom Discharge Canal exit. USNRC Regulatory Guide 1.109[9], Table 1 lists the 10CFR50, Appendix I, design objective for dose to total body from all pathways as 3 mrem/yr. per reactor. The maximum calculated total body dose resulting from Peach Bottom liquid radwaste releases is 8.2% of this design objective.

The maximum calculated dose to any organ resulting from Peach Bottom Units 2 and 3 routine liquid radwaste releases was 6.89E-01 mrem/yr. to liver and also occured at Location 1. The Appendix I design objective for dose to any organ from all pathways as listed in USNRC Regulatory Guide 1.109[9] is 10 mrem/yr. per reactor. The maximum calculated dose to any organ resulting from Peach Bottom liquid radwaste releases is 3.4% of this design objective.

The maximum calculated total body and skin doses occurring at occupied locations resulting from exposure to noble gases, particulates, and iodine released to the atmosphere by PBAPS were 1.51E-02 and 4.27E-02 mrem/yr. respectively. These values are very small fractions of the 10CFR50 Appendix I design objective dose limits as shown in Table I-I, Introduction and Summary.

The maximum calculated total annual dose to any organ from all nuclides which occurs at any location off site was 1.39E-01 mrem/yr. to an infant's thyroid due to all real pathways at that location. The corresponding value resulting from only radioiodines and air particulates at this location was 1.31E-01 mrem/yr. to the infant's thyroid.

As indicated in Table I-I, Introduction and Summary, this maximum dose is a small fraction of the design objective dose limits of 10CFR50 Appendix I listed.

The maximum calculated total body and skin doses due to non-occupational on-site activities resulting from exposure to gaseous releases to the atmosphere by PBAPS were 6.51-03 and 1.91E-02 mrem/yr. respectively. the values are very small fractions of 10CFR50 Appendix I design objective dose limits.

It is concluded that the estimated radiation doses resulting from the routine discharge of liquid and atmospheric releases from Peach Bottom Atomic Power Station are extremely low and well within the design objectives given in 10CFR50, Appendix I.

REFERENCES:

1. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report."

2. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report," Section 9.2.

3. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Radioactive Effluent Dose Assessment", September 30, 1976.

4. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Semi-Annual Effluent Releases Report No. 23," January 1, 1987, through June 30, 1987.

5. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Semi-Annual Effluent Releases Report No. 24," July 1, 1987, through December 31, 1987.

6. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safetv Analysis Report Page 2.4-9.

7. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report," Section 2.4.3.3.

8. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report," Tables 2.4.8, 2.4.9, and 2.4.10.

9. U. S. Nuclear Regulatory Commission, Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routing Releases of Reactor Effluent for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977.

10. Cooper, R. E. (1967), RADOS, A Code to Estimate Gamma Dose from a Cloud of Radioactive Gases, Savannah River Laboratory, DP-1098.

11. Cooper, R. E. and Rusche, B. C. "The SRL Meteorological Program and Off Site Dose Calculations", DP1163 Appendix F. 1968.

12. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Environmental Report--Operating License Stage," Supplement No. 3, Page 19.

PART 2

METEOROLOGICAL DATA

TABLE OF CONTENTS

I. INTRODUCTION

II. METEOROLOGICAL DATA

III. DATA FROM 33-FOOT LEVEL

IV. DATA FROM 75-FOOT LEVEL

V. DATA FROM 320-FOOT LEVEL

REFERENCES

I. INTRODUCTION

Peach Bottom Atomic Power Station (PBAPS) 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 (1). Information pertainting to the meteorological conditions during 1986 at PBAPS is presented.

II. 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[1]. In accordance with the PBAPS Offsite Dose Calculation Manual[2] all data are summarized using the Brookhaven Stability Class System. The following three tables present the annual summary of hourly meteorological data joint frequency distributions of wind speed, wind direction, and atmospheric stability.

III. DATA FROM 33-FOOT LEVEL

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/87

LOCATION 33FT TURBULENCE CLASS 1

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
202.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
292.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
315.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
337.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	^ 0	0	0.0
	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

MEAN WIND SPEED 0.0

MBER OF UNINTERPRETABLE HOURS 0

ALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 33FT TURBULENCE CLASS 2

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	113	1.3	59	0.7	2	0.0	0	0.0	0	0.0	0	0.0	174	2.0
45.0	96	1.1	12	0.1	0	0.0	0	0.0	0	0.0	0	0.0	108	1.3
67.5	101	1.2	10	0.1	0	0.0	0	0.0	0	0.0	0	0.0	111	1.3
90.0	107	1.2	20	0.2	0	0.0	0	0.0	0	0.0	0	0.0	127	1.5
112.5	112	1.3	58	0.7	0	0.0	0	0.0	0	0.0	0	0.0	170	2.0
135.0	70	0.8	146	1.7	4	0.0	0	0.0	0	0.0	0	0.0	220	2.6
157.5	31	0.4	105	1.2	12	0.1	2	0.0	0	0.0	0	0.0	150	1.7
180.0	23	0.3	74	0.9	51	0.6	3	0.0	0	0.0	0	0.0	151	1.8
202.5	15	0.2	50	0.6	12	0.1	1	0.0	0	0.0	0	0.0	78	0.9
225.0	21	0.2	66	0.8	24	0.3	1	0.0	0	0.0	0	0.0	112	1.3
247.5	25	0.3	49	0.6	31	0.4	0	0.0	0	0.0	0	0.0	105	1.2
270.0	25	0.3	68	0.8	37	0.4	2	0.0	0	0.0	0	0.0	132	1.5
292.5	30	0.3	64	0.7	45	0.5	7	0.1	0	0.0	0	0.0	146	1.7
315.0	39	0.5	100	1.2	63	0.7	3	0.0	0	0.0	0	0.0	205	2.4
337.5	45	0.5	207	2.4	101	1.2	1	0.0	0	0.0	0	0.0	354	4.1
360.0	69	0.8	164	1.9	38	0.4	3	0.0	0	0.0	0	0.0	274	3.2
	922	10.7	1252	14.6	420	4.9	23	0.3	0	0.0	0	0.0	2617	30.5

MEAN WIND SPEED 4.6

UMBER OF UNINTERPRETABLE HOURS 0
ALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 33FT TURBULENCE CLASS 3

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
IRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
45.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
67.5	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.0
90.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
112.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
135.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
202.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
292.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
315.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
337.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	14	0.2	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	0.2

EAN WIND SPEED 2.3

MBER OF UNINTERPRETABLE HOURS 0
ALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 33FT TURBULENCE CLASS 4

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
IRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	52	0.6	63	0.7	10	0.1	0	0.0	0	0.0	0	0.0	125	1.5
45.0	64	0.7	35	0.4	0	0.0	0	0.0	0	0.0	0	0.0	99	1.2
67.5	38	0.4	28	0.3	0	0.0	0	0.0	0	0.0	0	0.0	66	0.8
90.0	33	0.4	37	0.4	7	0.1	0	0.0	0	0.0	0	0.0	77	0.9
112.5	41	0.5	50	0.6	10	0.1	0	0.0	0	0.0	0	0.0	101	1.2
135.0	33	0.4	133	1.6	39	0.5	1	0.0	0	0.0	0	0.0	206	2.4
157.5	36	0.4	116	1.4	35	0.4	12	0.1	0	0.0	0	0.0	199	2.3
180.0	38	0.4	108	1.3	58	0.7	21	0.2	0	0.0	0	0.0	225	2.6
202.5	24	0.3	56	0.7	12	0.1	0	0.0	0	0.0	0	0.0	92	1.1
225.0	15	0.2	44	0.5	19	0.2	4	0.0	0	0.0	0	0.0	82	1.0
247.5	22	0.3	106	1.2	27	0.3	0	0.0	0	0.0	0	0.0	155	1.8
270.0	19	0.2	190	2.2	78	0.9	21	0.2	0	0.0	0	0.0	308	3.6
292.5	33	0.4	218	2.5	173	2.0	16	0.2	0	0.0	0	0.0	440	5.1
315.0	23	0.3	207	2.4	282	3.3	64	0.7	1	0.0	0	0.0	577	6.7
337.5	28	0.3	161	1.9	233	2.7	30	0.3	10	0.1	0	0.0	462	5.4
360.0	31	0.4	149	1.7	94	1.1	18	0.2	0	0.0	0	0.0	292	3.4
	530	6.2	1701	19.8	1077	12.6	187	2.2	11	0.1	0	0.0	3506	40.9

MEAN WIND SPEED 6.5

UMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01 87 - 2400, 12/31/8

LOCATION 33FT TURBULENCE CLASS 5

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	61	0.7	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	65	0.8
45.0	68	0.8	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	69	0.8
67.5	95	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	95	1.1
90.0	145	1.7	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	149	1.7
112.5	131	1.5	12	0.1	0	0.0	0	0.0	0	0.0	0	0.0	143	1.7
135.0	125	1.5	13	0.2	0	0.0	0	0.0	0	0.0	0	0.0	138	1.6
157.5	86	1.0	43	0.5	0	0.0	0	0.0	0	0.0	0	0.0	129	1.5
180.0	90	1.0	44	0.5	0	0.0	0	0.0	0	0.0	0	0.0	134	1.6
202.5	83	1.0	29	0.3	0	0.0	0	0.0	0	0.0	0	0.0	112	1.3
225.0	111	1.3	53	0.6	0	0.0	0	0.0	0	0.0	0	0.0	164	1.9
247.5	231	2.7	122	1.4	1	0.0	0	0.0	0	0.0	0	0.0	354	4.1
270.0	236	2.8	71	0.8	0	0.0	0	0.0	0	0.0	0	0.0	307	3.6
292.5	184	2.1	54	0.6	0	0.0	0	0.0	0	0.0	0	0.0	238	2.8
315.0	113	1.3	35	0.4	0	0.0	0	0.0	0	0.0	0	0.0	148	1.7
337.5	65	0.8	22	0.3	4	0.0	0	0.0	0	0.0	0	0.0	91	1.1
360.0	95	1.1	10	0.1	0	0.0	0	0.0	0	0.0	0	0.0	105	1.2
	1919	22.4	517	6.0	5	0.1	0	0.0	0	0.0	0	0.0	2441	28.5

MEAN WIND SPEED 2.3

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 33FT ALL STABILITIES

	SPEEDS(MI/HR) .6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	228	2.7	126	1.5	12	0.1	0	0.0	0	0.0	0	0.0	366	4.3
45.0	230	2.7	48	0.6	0	0.0	0	0.0	0	0.0	0	0.0	278	3.2
67.5	238	2.8	38	0.4	0	0.0	0	0.0	0	0.0	0	0.0	276	3.2
90.0	287	3.3	61	0.7	7	0.1	0	0.0	0	0.0	0	0.0	355	4.1
112.5	285	3.3	120	1.4	10	0.1	0	0.0	0	0.0	0	0.0	415	4.8
135.0	229	2.7	292	3.4	43	0.5	1	0.0	0	0.0	0	0.0	565	6.6
157.5	153	1.8	264	3.1	47	0.5	14	0.2	0	0.0	0	0.0	478	5.6
180.0	152	1.8	226	2.6	109	1.3	24	0.3	0	0.0	0	0.0	511	6.0
202.5	122	1.4	136	1.6	24	0.3	1	0.0	0	0.0	0	0.0	283	3.3
225.0	147	1.7	163	1.9	43	0.5	5	0.1	0	0.0	0	0.0	358	4.2
247.5	278	3.2	277	3.2	59	0.7	0	0.0	0	0.0	0	0.0	614	7.2
270.0	280	3.3	329	3.8	115	1.3	23	0.3	0	0.0	0	0.0	747	8.7
292.5	247	2.9	336	3.9	218	2.5	23	0.3	0	0.0	0	0.0	824	9.6
315.0	175	2.0	342	4.0	345	4.0	67	0.8	1	0.0	0	0.0	930	10.8
337.5	139	1.6	390	4.5	338	3.9	31	0.4	10	0.1	0	0.0	908	10.6
360.0	195	2.3	323	3.8	132	1.5	21	0.2	0	0.0	0	0.0	671	7.8
	3385	39.5	3471	40.5	1502	17.5	210	2.4	11	0.1	0	0.0	8579	100.0

MISSING HOURS 181

EAN WIND SPEED 4.7

OTAL NUMBER OF UNINTERPRETABLE HOURS 0
TOTAL NUMBER OF CALM HOURS 0 PERCENT 0.0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 33FT DIRECTION VS SPEED

	SPEEDS(MI/HR)													
	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	236	2.7	132	1.5	12	0.1	0	0.0	0	0.0	0	0.0	380	4.3
45.0	237	2.7	48	0.5	0	0.0	0	0.0	0	0.0	0	0.0	285	3.3
67.5	241	2.8	38	0.4	0	0.0	0	0.0	0	0.0	0	0.0	279	3.2
90.0	290	3.3	61	0.7	7	0.1	0	0.0	0	0.0	0	0.0	358	4.1
112.5	290	3.3	122	1.4	10	0.1	0	0.0	0	0.0	0	0.0	422	4.8
135.0	232	2.7	298	3.4	43	0.5	1	0.0	0	0.0	0	0.0	574	6.6
157.5	162	1.9	271	3.1	47	0.5	14	0.2	0	0.0	0	0.0	494	5.7
180.0	163	1.9	228	2.6	109	1.2	24	0.3	0	0.0	0	0.0	524	6.0
202.5	125	1.4	139	1.6	24	0.3	1	0.0	0	0.0	0	0.0	289	3.3
225.0	151	1.7	164	1.9	43	0.5	5	0.1	0	0.0	0	0.0	363	4.2
247.5	286	3.3	281	3.2	59	0.7	0	0.0	0	0.0	0	0.0	626	7.2
270.0	283	3.2	333	3.8	115	1.3	23	0.3	0	0.0	0	0.0	754	8.6
292.5	252	2.9	341	3.9	221	2.5	23	0.3	0	0.0	0	0.0	837	9.6
315.0	178	2.0	352	4.0	346	4.0	68	0.8	1	0.0	0	0.0	945	10.8
337.5	140	1.6	399	4.6	338	3.9	31	0.4	10	0.1	0	0.0	918	10.5
360.0	196	2.2	329	3.8	142	1.6	22	0.3	0	0.0	0	0.0	689	7.9
	3462	39.6	3536	40.5	1516	17.4	212	2.4	11	0.1	0	0.0	8737	100.0

MISSING HOURS 23

MEAN WIND SPEED 4.7

TOTAL NUMBER OF UNINTERPRETABLE HOURS 0
TOTAL NUMBER OF CALM HOURS 0 PERCENT 0.0

IV. DATA FROM 75-FOOT LEVEL

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT TURBULENCE CLASS 1

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
202.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
292.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
315.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
337.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

MEAN WIND SPEED 0.0

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT TURBULENCE CLASS 2

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	44	0.5	146	1.7	33	0.4	6	0.1	0	0.0	0	0.0	229	2.7
45.0	84	1.0	81	1.0	1	0.0	0	0.0	0	0.0	0	0.0	166	2.0
67.5	65	1.0	56	0.7	0	0.0	0	0.0	0	0.0	0	0.0	141	1.7
90.0	74	0.9	85	1.0	0	0.0	0	0.0	0	0.0	0	0.0	159	1.9
112.5	50	0.6	166	2.0	17	0.2	0	0.0	0	0.0	0	0.0	233	2.7
135.0	23	0.3	125	1.5	18	0.2	0	0.0	0	0.0	0	0.0	166	2.0
157.5	18	0.2	74	0.9	22	0.3	3	0.0	0	0.0	0	0.0	117	1.4
180.0	18	0.2	72	0.8	62	0.7	8	0.1	0	0.0	0	0.0	160	1.9
202.5	9	0.1	37	0.4	26	0.3	0	0.0	1	0.0	0	0.0	73	0.9
225.0	13	0.2	61	0.7	40	0.5	1	0.0	0	0.0	0	0.0	115	1.4
247.5	11	0.1	43	0.5	38	0.4	14	0.2	0	0.0	0	0.0	106	1.3
270.0	14	0.2	56	0.7	56	0.7	17	0.2	1	0.0	0	0.0	144	1.7
292.5	9	0.1	49	0.6	60	0.7	20	0.2	1	0.0	0	0.0	139	1.6
315.0	11	0.1	80	0.9	91	1.1	5	0.1	0	0.0	0	0.0	187	2.2
337.5	12	0.1	126	1.5	146	1.7	8	0.1	0	0.0	0	0.0	292	3.4
360.0	23	0.3	106	1.3	49	0.6	2	0.0	0	0.0	0	0.0	180	2.1
	498	5.9	1363	16.1	659	7.8	84	1.0	3	0.0	0	0.0	2607	30.8

MEAN WIND SPEED 5.8

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 1

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT TURBULENCE CLASS 3

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
45.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
67.5	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.0
90.0	2	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0
112.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
202.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
292.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
315.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
337.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	12	0.1	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	0.2

MEAN WIND SPEED 2.5

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT TURBULENCE CLASS 4

SPEEDS(MI/HR)

DIRECTION	.6-3.5 SUM	.6-3.5 PERCENT	3.6-7.5 SUM	3.6-7.5 PERCENT	7.6-12.5 SUM	7.6-12.5 PERCENT	12.6-18.5 SUM	12.6-18.5 PERCENT	18.6-24.5 SUM	18.6-24.5 PERCENT	>=24.6 SUM	>=24.6 PERCENT	SUM	PERCENT
22.5	10	0.1	56	0.7	73	0.9	28	0.3	4	0.0	0	0.0	171	2.0
45.0	16	0.2	67	1.0	8	0.1	0	0.0	0	0.0	0	0.0	111	1.3
67.5	14	0.2	71	0.8	2	0.0	0	0.0	0	0.0	0	0.0	87	1.0
90.0	11	0.1	48	0.6	16	0.2	2	0.0	0	0.0	0	0.0	77	0.9
112.5	14	0.2	55	0.6	53	0.6	5	0.1	0	0.0	0	0.0	127	1.5
135.0	22	0.3	82	1.0	66	0.8	6	0.1	0	0.0	0	0.0	176	2.1
157.5	24	0.3	89	1.1	62	0.7	17	0.2	1	0.0	0	0.0	193	2.3
180.0	29	0.3	92	1.1	87	1.0	26	0.3	6	0.1	0	0.0	240	2.8
202.5	6	0.1	70	0.8	29	0.3	1	0.0	0	0.0	0	0.0	106	1.3
225.0	11	0.1	39	0.5	33	0.4	6	0.1	3	0.0	0	0.0	92	1.1
247.5	5	0.1	54	0.6	82	1.0	8	0.1	0	0.0	0	0.0	149	1.8
270.0	4	0.0	78	0.9	157	1.9	48	0.6	6	0.1	0	0.0	293	3.5
292.5	3	0.0	105	1.2	250	3.0	104	1.2	4	0.0	0	0.0	466	5.5
315.0	8	0.1	102	1.2	272	3.2	138	1.6	14	0.2	0	0.0	534	6.3
337.5	4	0.0	82	1.0	221	2.6	76	0.9	5	0.1	0	0.0	388	4.6
360.0	4	0.0	63	0.7	110	1.3	33	0.4	6	0.1	0	0.0	216	2.5
	185	2.2	1173	13.8	1521	18.0	498	5.9	49	0.6	0	0.0	3426	40.4

MEAN WIND SPEED 6.4

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT TURBULENCE CLASS 5

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	64	0.8	17	0.2	0	0.0	0	0.0	0	0.0	0	0.0	81	1.0
45.0	76	0.9	5	0.1	0	0.0	0	0.0	0	0.0	0	0.0	81	1.0
67.5	84	1.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	85	1.0
90.0	115	1.4	22	0.3	1	0.0	0	0.0	0	0.0	0	0.0	138	1.6
112.5	114	1.3	45	0.5	1	0.0	0	0.0	0	0.0	0	0.0	160	1.9
135.0	105	1.2	46	0.5	3	0.0	0	0.0	0	0.0	0	0.0	154	1.8
157.5	84	1.0	60	0.7	1	0.0	0	0.0	0	0.0	0	0.0	145	1.7
180.0	62	0.7	70	0.8	5	0.1	0	0.0	0	0.0	0	0.0	137	1.6
202.5	49	0.6	47	0.6	4	0.0	0	0.0	0	0.0	0	0.0	100	1.2
225.0	43	0.5	55	0.6	5	0.1	0	0.0	0	0.0	0	0.0	103	1.2
247.5	83	1.0	115	1.4	41	0.5	0	0.0	0	0.0	0	0.0	239	2.8
270.0	102	1.2	166	2.0	25	0.3	0	0.0	0	0.0	0	0.0	293	3.5
292.5	102	1.2	151	1.8	10	0.1	0	0.0	0	0.0	0	0.0	263	3.1
315.0	120	1.4	93	1.1	9	0.1	0	0.0	0	0.0	0	0.0	222	2.6
337.5	67	0.8	50	0.6	6	0.1	0	0.0	0	0.0	0	0.0	123	1.5
360.0	62	0.7	34	0.4	0	0.0	0	0.0	0	0.0	0	0.0	96	1.1
	1332	15.7	977	11.5	111	1.3	0	0.0	0	0.0	0	0.0	2420	28.6

MEAN WIND SPEED 3.3

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 4

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT ALL STABILITIES

	SPEEDS(MI/HR)													
	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	120	1.4	219	2.6	106	1.3	34	0.4	4	0.0	0	0.0	483	5.7
45.0	178	2.1	173	2.0	9	0.1	0	0.0	0	0.0	0	0.0	360	4.2
67.5	187	2.2	128	1.5	2	0.0	0	0.0	0	0.0	0	0.0	317	3.7
90.0	202	2.4	156	1.8	17	0.2	2	0.0	0	0.0	0	0.0	377	4.4
112.5	178	2.1	266	3.1	71	0.8	5	0.1	0	0.0	0	0.0	520	6.1
135.0	151	1.8	253	3.0	87	1.0	6	0.1	0	0.0	0	0.0	497	5.9
157.5	126	1.5	223	2.6	85	1.0	20	0.2	1	0.0	0	0.0	455	5.4
180.0	110	1.3	235	2.8	154	1.8	34	0.4	6	0.1	0	0.0	539	6.4
202.5	64	0.8	154	1.8	59	0.7	1	0.0	1	0.0	0	0.0	279	3.3
225.0	67	0.8	155	1.8	79	0.9	7	0.1	3	0.0	0	0.0	310	3.7
247.5	99	1.2	212	2.5	161	1.9	22	0.3	0	0.0	0	0.0	494	5.8
270.0	120	1.4	300	3.5	238	2.8	65	0.8	7	0.1	0	0.0	730	8.6
292.5	114	1.3	305	3.6	320	3.8	124	1.5	5	0.1	0	0.0	868	10.2
315.0	139	1.6	275	3.2	372	4.4	143	1.7	14	0.2	0	0.0	943	11.1
337.5	83	1.0	259	3.1	373	4.4	84	1.0	5	0.1	0	0.0	804	9.5
360.0	89	1.1	203	2.4	159	1.9	35	0.4	6	0.1	0	0.0	492	5.8
	2027	23.9	3516	41.5	2291	27.0	562	6.9	52	0.6	0	0.0	8468	99.9

MISSING HOURS 287

MEAN WIND SPEED 6.1

TOTAL NUMBER OF UNINTERPRETABLE HOURS 0
TOTAL NUMBER OF CALM HOURS 5 PERCENT 0.1

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 75FT DIRECTION VS SPEED

	SPEEDS(MI/HR)													
	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	123	1.4	220	2.5	107	1.2	40	0.5	4	0.0	0	0.0	494	5.7
45.0	183	2.1	181	2.1	11	0.1	0	0.0	0	0.0	0	0.0	375	4.3
67.5	191	2.2	128	1.5	2	0.0	0	0.0	0	0.0	0	0.0	321	3.7
90.0	209	2.4	157	1.8	17	0.2	2	0.0	0	0.0	0	0.0	385	4.5
112.5	180	2.1	269	3.1	71	0.8	5	0.1	0	0.0	0	0.0	525	6.1
135.0	153	1.8	259	3.0	87	1.0	6	0.1	0	0.0	0	0.0	505	5.9
157.5	135	1.6	230	2.7	86	1.0	20	0.2	1	0.0	0	0.0	472	5.5
180.0	120	1.4	238	2.8	154	1.8	34	0.4	6	0.1	0	0.0	552	6.4
202.5	67	0.8	156	1.8	60	0.7	1	0.0	1	0.0	0	0.0	285	3.3
225.0	71	0.8	156	1.8	78	0.9	7	0.1	3	0.0	0	0.0	315	3.6
247.5	99	1.1	217	2.5	161	1.9	22	0.3	0	0.0	0	0.0	499	5.8
270.0	123	1.4	306	3.5	240	2.8	65	0.8	7	0.1	0	0.0	741	8.6
292.5	117	1.4	309	3.6	322	3.7	125	1.4	5	0.1	0	0.0	878	10.2
315.0	142	1.6	281	3.3	379	4.4	144	1.7	14	0.2	0	0.0	960	11.1
337.5	84	1.0	263	3.0	378	4.4	84	1.0	5	0.1	0	0.0	814	9.4
360.0	89	1.0	210	2.4	162	1.9	38	0.4	6	0.1	0	0.0	505	5.9
	2086	24.2	3580	41.5	2315	26.8	593	6.9	52	0.6	0	0.0	8626	99.9

MISSING HOURS 129

MEAN WIND SPEED 6.1

TOTAL NUMBER OF UNINTERPRETABLE HOURS 0
TOTAL NUMBER OF CALM HOURS 5 PERCENT 0.1

V. DATA FROM 320-FOOT LEVEL

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT TURBULENCE CLASS 1

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
45.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
67.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
112.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
135.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
202.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
292.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
315.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
337.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

MEAN WIND SPEED 0.0

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT TURBULENCE CLASS 2

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	7	0.1	53	0.6	82	1.0	9	0.1	3	0.0	0	0.0	154	1.8
45.0	12	0.1	100	1.2	51	0.6	3	0.0	0	0.0	0	0.0	166	2.0
67.5	11	0.1	97	1.2	37	0.4	4	0.0	0	0.0	0	0.0	149	1.8
90.0	5	0.1	97	1.2	33	0.4	5	0.1	0	0.0	0	0.0	140	1.7
112.5	8	0.1	106	1.3	103	1.2	16	0.2	0	0.0	0	0.0	233	2.8
135.0	3	0.0	100	1.2	113	1.3	6	0.1	1	0.0	0	0.0	223	2.7
157.5	3	0.0	32	0.4	36	0.4	6	0.1	0	0.0	0	0.0	77	0.9
180.0	1	0.0	51	0.6	78	0.9	26	0.3	2	0.0	0	0.0	158	1.9
202.5	2	0.0	56	0.7	40	0.5	3	0.0	1	0.0	0	0.0	102	1.2
225.0	1	0.0	56	0.7	71	0.8	13	0.2	1	0.0	0	0.0	142	1.7
247.5	0	0.0	26	0.3	40	0.5	36	0.4	4	0.0	0	0.0	106	1.3
270.0	4	0.0	36	0.4	62	0.7	21	0.3	6	0.1	1	0.0	130	1.6
292.5	2	0.0	23	0.3	58	0.7	54	0.6	20	0.2	2	0.0	159	1.9
315.0	3	0.0	33	0.4	100	1.2	52	0.6	2	0.0	0	0.0	190	2.3
337.5	1	0.0	81	1.0	149	1.8	54	0.6	3	0.0	0	0.0	288	3.4
360.0	2	0.0	64	0.8	66	0.8	22	0.3	3	0.0	0	0.0	157	1.9
	65	0.8	1011	12.1	1119	13.3	330	3.9	46	0.5	3	0.0	2574	30.7

MEAN WIND SPEED 8.4

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT TURBULENCE CLASS 3

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
45.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
67.5	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
90.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0
112.5	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0
135.0	0	0.0	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
157.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
202.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
225.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
247.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
270.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
292.5	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
315.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
337.5	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
360.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		
	8	0.1	7	0.1	0	0.0	0	0.0	0	0.0	0	0.0	15	0.2

MEAN WIND SPEED 2.7

NUMBER OF UNINTERPRETABLE HOURS 0

CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT TURBULENCE CLASS 4

SPEEDS(MI/HR)

	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	0	0.0	4	0.0	70	0.8	62	0.7	18	0.2	4	0.0	158	1.9
45.0	0	0.0	6	0.1	57	0.7	35	0.4	6	0.1	0	0.0	104	1.2
67.5	0	0.0	19	0.2	74	0.9	26	0.3	1	0.0	0	0.0	120	1.4
90.0	0	0.0	7	0.1	38	0.5	19	0.2	1	0.0	0	0.0	65	0.8
112.5	0	0.0	0	0.0	43	0.5	47	0.6	8	0.1	0	0.0	98	1.2
135.0	0	0.0	13	0.2	83	1.0	57	0.7	11	0.1	1	0.0	165	2.0
157.5	0	0.0	11	0.1	78	0.9	37	0.4	10	0.1	1	0.0	137	1.6
180.0	0	0.0	16	0.2	129	1.5	100	1.2	25	0.3	5	0.1	275	3.3
202.5	0	0.0	7	0.1	105	1.3	26	0.3	1	0.0	0	0.0	139	1.7
225.0	0	0.0	10	0.1	69	0.8	54	0.6	7	0.1	3	0.0	143	1.7
247.5	0	0.0	3	0.0	41	0.5	55	0.7	12	0.1	0	0.0	111	1.3
270.0	0	0.0	4	0.0	55	0.7	108	1.3	59	0.7	13	0.2	239	2.9
292.5	0	0.0	8	0.1	41	0.5	202	2.4	126	1.5	7	0.1	384	4.6
315.0	0	0.0	11	0.1	90	1.1	271	3.2	161	1.9	39	0.5	572	6.8
337.5	0	0.0	21	0.3	110	1.3	233	2.8	43	0.5	19	0.2	426	5.1
360.0	0	0.0	16	0.2	114	1.4	102	1.2	33	0.4	6	0.1	271	3.2
	0	0.0	156	1.9	1197	14.3	1434	17.1	522	6.2	98	1.2	3407	40.6

EAN WIND SPEED 13.9

UMBER OF UNINTERPRETABLE HOURS 0

ALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT TURBULENCE CLASS 5

SPEEDS(MI/HR)

DIRECTION	.6-3.5 SUM	.6-3.5 PERCENT	3.6-7.5 SUM	3.6-7.5 PERCENT	7.6-12.5 SUM	7.6-12.5 PERCENT	12.6-18.5 SUM	12.6-18.5 PERCENT	18.6-24.5 SUM	18.6-24.5 PERCENT	>=24.6 SUM	>=24.6 PERCENT	SUM	PERCENT
22.5	25	0.3	52	0.6	13	0.2	0	0.0	0	0.0	0	0.0	90	1.1
45.0	25	0.3	46	0.5	10	0.1	0	0.0	0	0.0	0	0.0	81	1.0
67.5	42	0.5	45	0.5	1	0.0	0	0.0	0	0.0	0	0.0	88	1.0
90.0	40	0.5	58	0.7	8	0.1	0	0.0	0	0.0	0	0.0	106	1.3
112.5	31	0.4	75	0.9	30	0.4	1	0.0	0	0.0	0	0.0	137	1.6
135.0	27	0.3	56	0.7	34	0.4	4	0.0	0	0.0	0	0.0	121	1.4
157.5	13	0.2	56	0.7	52	0.6	3	0.0	0	0.0	0	0.0	124	1.5
180.0	12	0.1	60	1.0	76	0.9	19	0.2	1	0.0	0	0.0	188	2.2
202.5	16	0.2	73	0.9	51	0.6	6	0.1	1	0.0	0	0.0	147	1.8
225.0	22	0.3	68	0.8	56	0.7	8	0.1	0	0.0	0	0.0	154	1.8
247.5	19	0.2	57	0.7	111	1.3	54	0.6	6	0.1	0	0.0	247	2.9
270.0	22	0.3	60	0.7	97	1.2	61	0.7	5	0.1	0	0.0	245	2.9
292.5	16	0.2	36	0.4	82	1.0	35	0.4	4	0.0	0	0.0	173	2.1
315.0	16	0.2	70	0.8	97	1.2	18	0.2	0	0.0	0	0.0	201	2.4
337.5	24	0.3	53	0.6	60	0.7	23	0.3	0	0.0	0	0.0	160	1.9
360.0	33	0.4	66	0.8	28	0.3	0	0.0	0	0.0	0	0.0	127	1.5
	383	4.6	951	11.3	806	9.6	232	2.8	17	0.2	0	0.0	2389	28.5

MEAN WIND SPEED 7.0

NUMBER OF UNINTERPRETABLE HOURS 0
CALM HOURS 0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 310FT ALL STABILITIES

DIRECTION	SPEEDS(MI/HR) .6-3.5 SUM	PERCENT	3.6-7.5 SUM	PERCENT	7.6-12.5 SUM	PERCENT	12.6-18.5 SUM	PERCENT	18.6-24.5 SUM	PERCENT	>=24.6 SUM	PERCENT	SUM	PERCENT
22.5	33	0.4	109	1.3	165	2.0	71	0.8	21	0.3	4	0.0	403	4.8
45.0	37	0.4	153	1.8	118	1.4	38	0.5	6	0.1	0	0.0	352	4.2
67.5	54	0.6	161	1.9	112	1.3	30	0.4	1	0.0	0	0.0	358	4.3
90.0	46	0.5	162	1.9	79	0.9	24	0.3	1	0.0	0	0.0	312	3.7
112.5	42	0.5	181	2.2	176	2.1	64	0.8	8	0.1	0	0.0	471	5.6
135.0	30	0.4	172	2.1	230	2.7	67	0.8	12	0.1	1	0.0	512	6.1
157.5	16	0.2	99	1.2	166	2.0	46	0.5	10	0.1	1	0.0	338	4.0
180.0	13	0.2	147	1.8	283	3.4	145	1.7	28	0.3	5	0.1	621	7.4
202.5	18	0.2	137	1.6	196	2.3	35	0.4	3	0.0	0	0.0	389	4.6
225.0	23	0.3	134	1.6	196	2.3	75	0.9	8	0.1	3	0.0	439	5.2
247.5	19	0.2	86	1.0	192	2.3	145	1.7	22	0.3	0	0.0	464	5.5
270.0	26	0.3	100	1.2	214	2.6	190	2.3	70	0.8	14	0.2	614	7.3
292.5	19	0.2	68	0.8	181	2.2	291	3.5	150	1.8	9	0.1	718	8.6
315.0	20	0.2	114	1.4	287	3.4	341	4.1	163	1.9	39	0.5	964	11.5
337.5	25	0.3	156	1.9	319	3.8	310	3.7	46	0.5	19	0.2	875	10.4
360.0	30	0.4	146	1.7	206	2.5	124	1.5	36	0.4	6	0.1	555	6.6
	456	5.4	2125	25.3	3122	37.2	1996	23.8	585	7.0	101	1.2	8385	100.0

MISSING HOURS 375

EAN WIND SPEED 10.2

OTAL NUMBER OF UNINTERPRETABLE HOURS 0
OTAL NUMBER OF CALM HOURS 0 PERCENT 0.0

PEACH BOTTOM TOWER 2 0100, 01/01/87 - 2400, 12/31/8

LOCATION 320FT DIRECTION VS SPEED

	SPEEDS(MI/HR)													
	.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		>=24.6		SUM	PERCENT
RECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT,	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
22.5	34	0.4	113	1.3	167	2.0	74	0.9	22	0.3	4	0.0	414	4.8
45.0	39	0.5	155	1.8	123	1.4	39	0.5	6	0.1	0	0.0	362	4.2
67.5	56	0.7	163	1.9	112	1.3	30	0.4	1	0.0	0	0.0	362	4.2
90.0	48	0.6	165	1.9	79	0.9	24	0.3	1	0.0	0	0.0	317	3.7
112.5	46	0.5	186	2.2	178	2.1	64	0.7	8	0.1	0	0.0	482	5.6
135.0	30	0.4	175	2.0	234	2.7	67	0.8	12	0.1	1	0.0	519	6.1
157.5	20	0.2	101	1.2	174	2.0	47	0.6	10	0.1	1	0.0	353	4.1
180.0	14	0.2	154	1.8	291	3.4	145	1.7	28	0.3	5	0.1	637	7.5
202.5	18	0.2	138	1.6	199	2.3	35	0.4	3	0.0	0	0.0	393	4.6
225.0	23	0.3	135	1.6	199	2.3	75	0.9	8	0.1	3	0.0	443	5.2
247.5	19	0.2	88	1.0	197	2.3	145	1.7	22	0.3	0	0.0	471	5.5
270.0	26	0.3	105	1.2	216	2.5	190	2.2	70	0.8	14	0.2	621	7.3
292.5	19	0.2	70	0.8	182	2.1	295	3.5	151	1.8	9	0.1	726	8.5
315.0	20	0.2	118	1.4	288	3.4	346	4.1	164	1.9	39	0.5	975	11.4
337.5	26	0.3	159	1.9	329	3.9	315	3.7	46	0.5	19	0.2	894	10.5
360.0	36	0.4	149	1.7	214	2.5	125	1.5	43	0.5	6	0.1	573	6.7
	474	5.5	2174	25.5	3182	37.3	2016	23.6	595	7.0	101	1.2	8542	100.0

MISSING HOURS 218

EAN WIND SPEED 10.2

TOTAL NUMBER OF UNINTERPRETABLE HOURS 0
OTAL NUMBER OF CALM HOURS 0 PERCENT 0.0

REFERENCES

1. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Updated Final Safety Analysis Report".

2. Philadelphia Electric Company, "Peach Bottom Atomic Power Station Units 2 and 3, Offsite Dose Calculation Manual", Revision 1.

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

April 28, 1988

Docket Nos. 50-277
50-278

Mr. William T. Russell, Administrator
Region I
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

SUBJECT: Annual Radiation Dose Assessment Report No. 3
Peach Bottom Atomic Power Station

Dear Mr. Russell:

Enclosed is a copy of the Annual Radiation Dose Assessment Report No. 3, January 1, 1987 through December 31, 1987, Peach Bottom Atomic Power Station. This report is being submitted in accordance with Technical Specification 6.9.3.h(3) of Operating Licenses DPR-44 and DPR-56.

The report includes the annual summary of hourly meteorological data radiation dose assessment due to radioactive liquid and gaseous effluents and the 40 CFR 190 uranium fuel cycle evaluation.

Very truly yours,

W. M. Alden

Director
Licensing Section
Nuclear Support Division

Enclosure

cc: Addressee
T. P. Johnson, PBAPS Resident Site Inspector
T. E. Magette, State of Maryland

IE48
1/1