CCN 92-14064

PHILADELPHIA ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION
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PEACH BOTTOM--THE POWER OF EXCELLENCE

D. B. Miller, Jr.
Vice President

May 21, 1992

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station Units 2 and 3, 1991 Annual Radiological Environmental Operating Report, Report No. 9

Gentlemen:

Attached is the 1991 Annual Radiological Environmental Operating Report No. 9, for the Peach Bottom Atomic Power Station for the period January 1, 1991 through December 31, 1991. This report is submitted in compliance with Appendix A of the Peach Bottom Atomic Power Station Operating License, Section 6.9.2.

The Radiological Environmental Monitoring Program found that Peach Bottom's effects on the environment were not measurable in any sample media except for a small amount of Co-60 activity in one sediment sample. Trace concentrations of Cs-137 were found in the sediment consistent with levels observed in preoperational years.

The 1991 Radiological Environmental Monitoring Program confirmed that the environmental effects from radioactive releases were well below Peach Bottom Technical Specifications and applicable regulatory limits.

Sincerely,

DBM/AAF/DPL/MJB:dlt

Attachment

AREop.wp5

IE25
1/1

cc:

D. M. Smith	w/o attachment
J. W. Durham	w/o attachment
D. R. Helwig	w/o attachment
R. N. Charles	w/o attachment
D. B. Miller	w/o attachment
J. A. Basilio	w/ attachment
D. P. LeQuia	w/ attachment
R. A. Burricelli	w/ attachment
T. M. Gerusky	w/ attachment
J. J. Lyash	w/ attachment
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INPO Records Center	
PBNR	

Docket No. 50-277
50-278

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 and 3

ANNUAL RADIOLOGICAL
ENVIRONMENTAL OPERATING REPORT

Prepared by

PHILADELPHIA ELECTRIC COMPANY

Nuclear Group Headquarters

955 Chesterbrook Blvd.

Wayne, PA 19087-5691

Radiological Analyses Performed

By

TELEDYNE ISOTOPES

50 Van Buren Avenue

Westwood, NJ 07675

And

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

Research and Testing Laboratory

200 Boyden Avenue

Maplewood, NJ 07040

Docket No: 50-277
50-278

PEACH BOTTOM ATOMIC POWER STATION

Units 2 and 3

Annual Radiological Environmental Operating Report Report #49

1 January 1991 through 31 December 1991

Prepared by

Philadelphia Electric Company
Nuclear Group Headquarters
955-65 Chesterbrook Blvd.
Wayne, PA 19087-5691

Radiological Analyses Performed

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50 Van Buren Avenue
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May 1992

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Units 2 and 3

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May 1992

Table of Contents

I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program (REMP) conducted at the Peach Bottom Atomic Power Station (PBAPS) by Philadelphia Electric Company (PECo) covers the period 1 January 1991 through 31 December 1991. This report combines the results of the programs conducted by Teledyne Isotopes (TI) and Public Service Electric and Gas Company (PSE&G) laboratories. During this period 2,266 analyses were performed on 1,999 samples.

Surface water and drinking (potable) water samples were analyzed for concentrations of gross beta, gamma spectrometry, and tritium. Additionally, drinking water samples were analyzed for concentrations of Iodine-131. Results of these analyses showed no significant differences between control locations and potentially-affected stations. The values observed were within the ranges noted in the preoperational report.

The remaining sample media representing the aquatic environment included fish and sediment samples. These media were analyzed for concentrations of gamma emitters. Fish samples showed no measurable effects from the operation of PBAPS. One silt sample located below the discharge showed Co-60 slightly above the detection limit.

The atmospheric environment was divided into two parts for examination: airborne and terrestrial. Sample media for determining airborne effects include air particulates and air iodine samples. Analyses performed on air particulate samples included gross beta and gamma spectrometry. The results from both analyses were generally consistent with results from the previous years. Furthermore, no notable differences among results from on-site, intermediate, and distant locations in either analysis were observed. These findings indicate no measurable effects from the operation of PBAPS.

High sensitivity Iodine-131 analyses were performed on weekly air samples. All results were less than the minimum detectable level.

Examination of the terrestrial environment was accomplished by analyzing milk samples for concentrations of Iodine-131 and gamma emitters. Results from all analyses were consistent with those from previous years and no indication of PBAPS effect.

Ambient gamma radiation levels were measured monthly and quarterly throughout the year. Most monthly and quarterly measurements were below 10 mR/std. month. These results were consistent with those from previous years.

The operation of the Station had no measurable effect on the environs surrounding Peach Bottom.

II. Introduction

Peach Bottom Atomic Power Station (PBAPS) is located along the Susquehanna River between Holtwood and Conowingo Dams in Peach Bottom Town-ship, York County, Pennsylvania. The initial loading of fuel into Unit 1, a 40 MWe (net) high temperature, gas-cooled reactor, began on 5 February 1966, and initial criticality was achieved on 3 March 1966. Shutdown of Peach Bottom Unit 1 for decommissioning was on 31 October 1974. For the purposes of the monitoring program, the beginning of the operational period for Unit 1 was considered to be 5 February 1966. A summary of the Unit 1 preoperational monitoring program was presented in a previous report [1]. PBAPS Units 2 and 3 are boiling water reactors each with a power output of approximately 1050 MWe (net). The first fuel was loaded into Peach Bottom Unit 2 on 9 August 1973. Criticality was achieved on 16 September 1973, and full power was reached on 16 June 1974. The first fuel was loaded into Peach Bottom Unit 3 on 5 July 1974. Criticality was achieved on 7 August 1974, and full power was first reached on 21 December 1974. Preoperational summary reports [2],[3] for Units 2 and 3 have been previously issued and summarize the results of all analyses performed on samples collected from 5 February 1966 through 8 August 1973.

A. Objectives

The objectives of the REMP are:

1. To identify, measure, and evaluate existing radionuclides in the environs of PBAPS site and any fluctuations in radioactivity levels which may occur.

2. To monitor and evaluate ambient radiation levels.

3. To determine within the scope of the program, any measurable quantity of radioactivity introduced to the environment by the operation of PBAPS.

B. Implementation

Implementation of the stated objectives is accomplished by identifying significant exposure pathways, establishing baseline radiological data of media within those pathways, and monitoring those media during plant operation to assess plant effects (if any) on man and the environment.

In order to achieve the stated objectives, the current programs include the following analyses on samples collected:

1. Concentrations of beta emitters in surface and drinking water, and air particulates.

2. Concentrations of gamma emitters in surface and drinking water, air particulates, milk, sediment, and fish.

3. Concentrations of tritium in surface and drinking water.

4. Concentrations of Iodine-131 in drinking water, air, and milk.

5. Ambient gamma radiation levels at various site environs.

III. Program Description

A. Sample Collection

This section describes the collection methods used to obtain environmental samples for the PBAPS REMP in 1991. Samples for the PBAPS REMP were collected for PECo by RMC Environmental Services, Inc. (RMC).

Aquatic Environment

The aquatic environment was examined by analyzing samples of surface water, drinking water, fish, and sediment. Surface water from two locations (1LL and 1MM) and drinking water from two locations (4L and 6I) were collected weekly from a tank at each location and were composited into a monthly sample for analysis. Two quarts of water are removed from the tank each week and placed into a clean two-gallon polyethylene bottle to form a monthly composite. Two additional surface water locations (13A and 13B) were collected as monthly grab samples. Control locations were 1LL and 6I.

Fish samples comprising the flesh from two groups, catfish (bottom feeder) and smallmouth bass, largemouth bass, or bass (predator) were collected semiannually at two locations: 4 (indicator) and 6 (control) using several methods such as trapnet, seine or electroshocking.

Sediment samples composed of recently deposited substrate were collected at three locations semiannually: 4J, 4T (indicators), and 6F (control) using one of two methods, determined by the depth from which the sediment is obtained. In water greater than 4 feet deep, sediment is collected by either a Ponar or Ekman Grab with a surface area of 81 square inches. In shallow water (1-4 feet), sediment was collected by scooping up mud with a plastic bucket.

Atmospheric Environment

The atmospheric environment was examined by analyzing airborne and terrestrial samples. These consisted of air particulates, airborne iodine, and milk. Air particulate samples were collected and analyzed weekly from fourteen locations (1B, 1Z, 2, 3A, 4A, 5, 6E, 12D, 14, 15, 17, 32, 33A, and 38). Control locations were 4A, 6E, and 12D. Air iodine samples were collected from five locations (1B, 1Z, 2, 3A, and 12D). Control location was 12D. Air particulate and air iodine samples were obtained using a vacuum sampler, glass fiber and charcoal filters, respectively. The filters were replaced weekly and sent to the laboratory for analysis. The vacuum samplers were run continuously at approximately 1 cubic foot per minute.

Milk samples were collected from five locations (A, G, J, N, and O) monthly from December through March and biweekly during the grazing season (April through November). Additionally, samples from six locations (B, C, D, E, L, and M) were collected quarterly. Locations A, B, C, and E were controls. Milk samples were obtained by removing two gallons from the dairyman's bulk tank after mixing. The sample from each location is therefore a composite of all the milk collected from the dairy herd (from 1 to 3 milkings). The milk is scooped from the agitated bulk tank and placed in new plastic containers.

Ambient Gamma Radiation

Direct radiation measurements were made using thermoluminescent dosimeters (TLDs) consisting of calcium sulfate ($CaSO_4$) doped with dysprosium (Dy). Samples were collected from forty-seven locations. The TLD locations were placed on and around the PBAPS site using a "three ring concept":

A site boundary ring consisting of thirteen locations (1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M, 1NN, 2, and 40) near and within the site perimeter, representing fencepost doses (i.e., at locations where the doses will be greater than maximum annual off-site doses) from PBAPS releases;

A middle ring consisting of twenty-five locations (3A, 4K, 5, 6B, 14, 15, 17, 22, 23, 26, 27, 31A, 32, 33A, 38, 42, 43, 44, 45, 46, 47, 48, 49, 50, and 51) extending to approximately ten miles from the site, designed to measure possible exposures to close-in population;

An outer ring consisting of seven locations (12D, 1E, 18, 19, 20, 21B, and 24) extending from approximately 10 to 60 miles from the site, and considered to be unaffected by station releases.

Two on-site locations (1A and 1I), designated as plant complex locations, are not included in any of the three rings.

The specific TLD locations were determined by the following criteria:

1. The presence of relatively dense population;

2. Site meteorological data taking into account distance and elevation for each of the 36 ten-degree sectors around the site, where estimated annual dose from PBAPS, if any, would be more significant;

3. On hills free from local obstructions and within sight of the vents (where practical);

4. Near the dwelling closest to the main stack in the prevailing down wind direction.

A TLD set was placed at each location in a locked formica "birdhouse" or polyethylene jar located approximately six feet above ground level. The TLD sets were exchanged monthly and quarterly, then sent to the laboratory for analysis.

B. Data Interpretation

Several factors are important for interpretation of the data presented in this report. These factors are discussed here to avoid unnecessary repetition in the discussion of the results.

The minimum detectable level (MDL) for Teledyne Isotopes was defined as the 2 sigma counting statistic and for PSE&G the MDL was defined as the 1.96 sigma. Both definitions represent the range of values into which 95% of repeated counts of the same aliquot would fall. All analyses were designed to achieve the required PBAPS detection capabilities for environmental sample analysis. For a more detailed description of the results calculation, see Appendix E.

For the analyses gross beta, tritium, and iodine-131 (when analyzed by beta counting), the activity was reported plus/minus the counting statistic (MDL). This includes calculated negative activity.. For the analyses gamma and iodine-131 (when analyzed by gamma spectroscopy), an activity that was greater than or equal to the MDL was reported as "activity plus/minus the two sigma counting statistic". When an activity was less than the MDL, the result was reported as "< the MDL value".

Data received from the laboratory were reported using the convention of rounding the result to the same number of significant places as the first significant digit in the error term (i.e., 3.62 ± 1.23 rounds to 4 ± 1; 10.93 ± 0.96 rounds to 10.9 ± 1.0; -0.01 ± 0.1 rounds to -0.0 ± 0.1). Results for each type of sample were grouped according to the analyses performed. For gamma analyses, at least those nuclides required for each sample media and nuclides which had a positive occurrence were reported. Means and standard deviations of these results were calculated. These standard deviations represent the variability of measured results for different samples rather than single analysis uncertainty. For these calculations, all results reported as < MDL were considered to be at the MDL.

C. Program Exceptions

For 1991 the PBAPS REMP had a sample collection recovery rate of approximately 98%. The exceptions to this program are listed below:

1. Surface water sampler at location 1MM was out of service from 03/21 to 03/25 due to pump malfunction; from 08/01 to 09/26 due to low river elevation and from 9/26 to 01/02/92 due to pump malfunctions. Daily grab samples were taken.

2. Surface water sampler at location 1LL was out of service from 05/28 to 06/20 due to a clogged line; from 08/30 tho 09/26 due to low river elevation and from 09/26 to 01/02/92 due to pump malfunctions. Daily grab samples were taken.

3. Surface water collections for location 13B was not performed for March because no water usage was recorded.

4. Drinking water sampler at location 4L was out of service from 05/03 to 05/17 due to pump maintenance, from 09/21 to 09/27 due to oil in the tank and from 10/18 to 10/25 due to pump malfunction. Weekly grab samples were taken.

5. Drinking water sampler at location 6I was out of service from 01/12 to 01/18, 03/08 to 03/16, and 11/28 to 01/04/92 due to pump malfunctions. Weekly grab samples were taken.

6. Air particulate samples were not available from locations 4A and 4B during the weeks of 04/26 to 05/04, 05/04 to 05/10 due to loss of power. And at location 4A from 07/07 to 07/13, 07/13 to 07/19, 07/19 to 07/26 and 08/15 to 08/23 and location 4B from 11/29 to 12/08 due to out-of-service equipment.

7. Air particulate samples were not available from location 6E during the week of 11/08 to 11/15 due to out-of-service equipment.

8. Milk Farm M went out of business as of 11/18/91.

9. Milk sample from Farm G was not analyzed for 06/14/91 collection due to mislabelling of the bottle by the sample collector.

10. The MDLs for Ba-140 and La-140 for milk samples collected 06/03/91 for the primary laboratory were not met because the required gamma analysis was not assigned at sample receipt.

11. The MDL for La-140 for water samples collected in May for the quality control laboratory were not met because the laboratory counted the samples after several half-lives had passed.

Each program exception was reviewed to understand the causes of the program exception. Sampling and maintenance errors were reviewed with the personnel involved to prevent a recurrence. Occasional equipment breakdowns and power outages were unavoidable. The overall sample recovery rate indicates that the appropriate procedures and equipment are in place to assure reliable program implementation.

D. Program Changes

The following are the changes for the 1991 PBAPS REMP:

1. Clean Harbors Analytical discontinued REMP services beginning in 1991. Public Services Electric and Gas Company's laboratory in Maplewood, NJ became the QC laboratory for air particulates, surface water and milk beginning with the second quarter samples.

2. Air particulate location 33A was discontinued.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were collected from four locations monthly (1LL, 1MM, 13A and 13B). 1LL served as the control location. The following analyses were performed.

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta in both soluble and insoluble fractions (Table C-I.1 and C-I.2 and Figures C-1 and C-2). The results for the soluble fraction ranged from 0.1 to 27 pCi/l. The mean for the three indicator locations was 3.9 pCi/l, compared to the mean value of 3.4 pCi/l from the control location. The value of 27 pCi/l occurred at location 13B in November. The result was confirmed by recounting. The insoluble fraction of this sample also showed higher activity as compared to the other samples collected during November. The insoluble fraction showed a larger amount of solids on the planchet than the other samples. Gamma analysis showed no Plant related nuclides present. The results from analysis of the insoluble portion of all samples from the surface water locations ranged from -0.3 to 13 pCi/l. The mean of the indicator and control locations were 1.9 pCi/l and 0.8 pCi/l, respectively.

Tritium

Samples from three locations (1LL, 1MM, 13A) were analyzed for concentrations of aqueous tritium (Table C-I.3). Results ranged from 0 to 240 pCi/l and were within the range found during the preoperational period. Means from indicator and control locations compared well, with values of 80 pCi/l and 100 pCi/l, respectively.

Gamma Spectrometry

Samples from all locations were analyzed for concentrations of gamma emitters (Table C-I.4). The nuclides searched for were below the minimum detectable level with the exception of naturally occurring K-40. Potassium-40 was found at all locations and ranged from <4 to 14 pCi/l.

2. Drinking (Potable) Water

Samples were collected from two locations monthly (4L and 6I). 6I served as the control location. The following analyses were performed.

Gross Beta

Samples from both locations were analyzed for concentrations of gross beta activity in soluble and insoluble fractions (Tables C-II.1 and C-II.2 and Figures C-3 and C-4). Gross beta activity in the soluble fraction ranged from 0 to 5 pCi/l. The values in the insoluble fraction ranged from -0.3 to 2.1 pCi/l. Only slight differences were observed between the means of the control and indicator stations. The values were generally below those seen in the preoperational period.

Iodine-131

Samples from both locations were analyzed monthly for I-131 concentrations (Table C-II.3). The values ranged from -0.09 to 0.05 for the indicator location and from -0.02 to 0.23 for the control location.

Tritium

Samples from both locations were analyzed for tritium concentration quarterly (Table C-II.4). The values for the indicator location ranged from 30 to 130 pCi/l with a mean of 90 pCi/l. Control location values ranged from 40 to 90 pCi/l with a mean of 70 pCi/l. The concentrations were within the range found during the preoperational period.

Gamma Spectrometry

Samples from both locations were analyzed for concentrations of gamma emitters (Table C-II.5). The nuclides searched for were below the minimum detectable level, except for K-40 which was found in two samples at location 4L. The values for K-40 ranged from <4 to <20 pCi/l.

3. Fish

Samples were collected from two locations semi-annually (4 and 6). The control location was 6. The following analyses were performed.

Gamma Spectrometry

Positive activity was observed only for the nuclides K-40 which ranged from 1.8 to 3.2 pCi/g (wet). All other nuclides searched for were below the minimum detectable level (Table C-III.2). No Plant related nuclides were detected. Figure C-5 illustrates the Cs-137 activity for indicator and control locations from the beginning of the operational period through the present.

4. Sediment

Samples were collected from three locations semi-annually (4J, 4T and 6F). The control location was 6F. The following analyses were performed.

Gamma Spectrometry

Samples from all locations were analyzed for concentrations of gamma emitters (Table C-IV.1). Potassium-40 was found in all samples ranging from 10 to 23 pCi/g (dry). Plant related nuclide Co-60 was found in one sample near the discharge. The result (0.10 pCi/gram dry) was slightly above the detection limit. Positive activity from Cs-137 was found at all locations with a mean value of .18 pCi/g (dry) for the indicator locations and .33 pCi/g (dry) for the control location. Radium-226 and Th-228 activity was found at all locations. The results were consistent with those from previous years. Figure C-6 illustrates the comparison of activities of Cs-137 detected at the control location and indicator locations from the preoperational period through the present.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Samples were collected from fourteen locations (1B, 1Z, 2, 3A, 4A, 5, 6E, 12D, 14, 15, 17, 32, 33A, and 38). Control locations were 4A, 6E, and 12D. The following analyses were performed.

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta (Tables C-V.1 and C-V.2 and Figures C-7 and C-8). Air particulate locations were divided into three groups: Group I, consisting of 1B, 1Z, and 2, located on site at PBAPS; Group II, comprised of 3A, 5, 14, 15, 17, 32, 33A and 38, located at intermediate distances from PBAPS; and Group III, consisting of 4A, 6E and 12D, located at remote distance from PBAPS. Comparison of results among these three groups aids in determining the effects, if any, resulting from the operation of PBAPS. The results from site location samples ranged from 5 to 39 E-3 pCi/m^3, with a mean of 17 E-3 pCi/m^3. The results from intermediate locations ranged from 2 to 47 E-3 pCi/m^3, with a mean of 17 E-3 pCi/m^3. The results from distant

locations ranged from 7 to 40 E-3 pCi/m^3, with a mean of 18 E-3 pCi/m^3. Comparison of the mean values indicate no notable difference among the three groups suggesting no effects from operation of PBAPS.

Gamma Spectrometry

Samples from five locations (1B, 1Z, 2, 3A, and 12D) were analyzed quarterly for the presence of gamma emitters (Table C-V.3). Naturally occurring Be-7 was found in all samples with activity values similar to those from the preoperational years. Potassium-40 was found in approximately half of the samples at or slightly above the detection limit. No Plant related nuclides were detected.

b. Airborne Iodine

Continuous air samples were collected weekly at five locations (1B, 1Z, 2, 3A, and 12D) and analyzed for I-131 (Table C-VI.1). All results were less than the minimum detectable level.

2. Terrestrial

a. Milk

Samples were collected from eleven locations (A, B, C, D, E, G, J, L, M, N, and O). Farms A, B, C, and E were control locations. The following analyses were performed.

Iodine-131

Samples from all locations were analyzed for concentrations of I-131 (Tables C-VII.1). The values ranged from -0.34 to 0.1 pCi/l. All results were at or below the minimum detectable level. Indicator and Control farms had an average value of -0.01 and -0.02 pCi/l, respectively.

Gamma Spectrometry

Samples from five locations were analyzed quarterly for concentrations for gamma emitters (Table C-VII.2 and Figure C-9). Naturally occurring K-40 was found in all samples with values ranging from 1,100 to 1,500 pCi/l. All other nuclides searched for were less than the minimum detectable level.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured at forty-seven locations (as described in the program description section) using $CaSO_4$:Dy thermoluminescent dosimeters (Tables C-VIII.1 through C-VIII.4 and Figures C-10 and C-11). Most monthly and quarterly TLD readings were below 10 mR/std. month with a range of 3.1 to 12.3 mR/std. month for the monthly's and 2.4 to 8.5 mR/std. month for the quarterly's. No notable differences were observed among site-boundary, middle, and outer ring measurements. The data indicated that operation of PBAPS did not affect the existing ambient gamma radiation levels.

V. References

1. Preoperational Environs Radioactivity Survey Summary Report, March, 1960 through January, 1966. (September 1967).

2. Interex Corporation, Peach Bottom Atomic Power Station Regional Environs Radiation Monitoring Program Preoperational Summary Report, Units 2 and 3, 5 February 1966 through 8 August 1973, June 1977, Natick, Massachusetts.

3. Radiation Management Corporation Publication, Peach Bottom Atomic Power Station Preoperational Radiological Monitoring Report for Unit 2 and 3, January, 1974, Philadelphia, Pennsylvania.

RADIOLOGICAL ENVIRONMENTAL

MONITORING REPORT SUMMARY

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION — DOCKET NO.: 50-277 & 50-278
LOCATION OF FACILITY: YORK COUNTY, PA — REPORTING PERIOD: 1991

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED MINIMUM DETECTABLE LEVEL (MDL)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GROSS BETA SOLUBLE	47	2.5	3.9 (35/35) (0.1-27.0)	3.4 (12/12) (0.5-7.6)	5.1 (11/11) (0.2-27.0)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	GROSS BETA INSOLUBLE	47	2.5	1.9 (35/35) (-0.3-13.3)	0.8 (12/12) (0.1-2.5)	4.1 (11/11) (0.0-13.3)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	H-3 AQUEOUS LIQ. SCINT. W/ENR	12	1200	80 (8/8) (20-120)	100 (4/4) (0-240)	100 (4/4) (0-240)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE OF SITE	0
	GAMMA	47						
	K-40		N/A	10 (7/35) (6-14)	11 (1/12) (11-11)	12 (2/12) (10-13)	13A (INDICATOR) CHESTER WATER INTAKE POND 2.4 MILES ESE OF SITE	0
	MN-54		9	< MDL	< MDL	< MDL		0
	CO-58		9	< MDL	< MDL	< MDL		0
	FE-59		18	< MDL	< MDL	< MDL		0
	CO-60		9	< MDL	< MDL	< MDL		0
	ZN-65		18	< MDL	< MDL	< MDL		0
	ZR-95		9	< MDL	< MDL	< MDL		0
	NB-95		9	< MDL	< MDL	< MDL		0
	CS-134		9	< MDL	< MDL	< MDL		0
	CS-137		11	< MDL	< MDL	< MDL		0
	BA-140		35	< MDL	< MDL	< MDL		0
	LA-140		9	< MDL	< MDL	< MDL		0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY. FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES. (F)

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION — DOCKET NO.: 50-277 & 50-278
LOCATION OF FACILITY: YORK COUNTY, PA — REPORTING PERIOD: 1991

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED MINIMUM DETECTABLE LEVEL (MDL)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	GROSS BETA SOLUBLE	24	2.5	2.8 (12/12) (0.5-5.3)	2.8 (12/12) (0.0-5.0)	2.8 (12/12) (0.5-5.3)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	GROSS BETA INSOLUBLE	24	2.5	0.6 (12/12) (-0.3-2.1)	0.5 (12/12) (0.0-2.0)	0.6 (12/12) (-0.3-2.1)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	H-3 AQUEOUS LIQ. SCINT. W/ENR	8	1200	80 (4/4) (30-130)	70 (4/4) (40-90)	80 (4/4) (30-130)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	I-131 BY RADIOCHEMISTY	24	N/A	0.00 (12/12) (-0.09-0.05)	0.08 (12/12) (-0.02-0.23)	0.08 (12/12) (-0.02-0.23)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	GAMMA K-40	24	N/A	10 (2/12) (7-13)	< MDL	10 (2/12) (7-13)	4L (INDICATOR) CONOWINGO DAM EL. 33' MSL 8.6 MILES SE OF SITE	0
	MN-54		9	< MDL	< MDL	< MDL		0
	CO-58		9	< MDL	< MDL	< MDL		0
	FE-59		18	< MDL	< MDL	< MDL		0
	CO-60		9	< MDL	< MDL	< MDL		0
	ZN-65		18	< MDL	< MDL	< MDL		0
	ZR-95		9	< MDL	< MDL	< MDL		0
	NB-95		9	< MDL	< MDL	< MDL		0
	CS-134		9	< MDL	< MDL	< MDL		0
	CS-137		11	< MDL	< MDL	< MDL		0
	BA-140		35	< MDL	< MDL	< MDL		0
	LA-140		9	< MDL	< MDL	< MDL		0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY. FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES. (F)

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION — DOCKET NO.: 50-277 & 50-278

LOCATION OF FACILITY: YORK COUNTY, PA — REPORTING PERIOD: 1991

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED MINIMUM DETECTABLE LEVEL (MDL)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
FISH BOTTOM FEEDER (PCI/GRAM WET)	GAMMA	4						
	K-40		N/A	2.7 (2/2) (2.5-2.8)	2.4 (2/2) (1.8-3.0)	2.7 (2/2) (2.5-2.8)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARGE DOWNSTREAM OF DISCHARGE	0
	MN-54		.08	< MDL	< MDL	< MDL		0
	CO-58		.08	< MDL	< MDL	< MDL		0
	FE-59		.16	< MDL	< MDL	< MDL		0
	CO-60		.08	< MDL	< MDL	< MDL		0
	ZN-65		.16	< MDL	< MDL	< MDL		0
	CS-134		.09	< MDL	< MDL	< MDL		0
	CS-137		.09	< MDL	< MDL	< MDL		0
FISH PREDATOR (PCI/GRAM WET)	GAMMA	5						
	K-40		N/A	3.1 (3/3) (3.1-3.2)	2.7 (2/2) (2.1-3.2)	3.1 (3/3) (3.1-3.2)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARGE DOWNSTREAM OF DISCHARGE	0
	MN-54		.08	< MDL	< MDL	< MDL		0
	CO-58		.08	< MDL	< MDL	< MDL		0
	FE-59		.16	< MDL	< MDL	< MDL		0
	CO-60		.08	< MDL	< MDL	< MDL		0
	ZN-65		.16	< MDL	< MDL	< MDL		0
	CS-134		.09	< MDL	< MDL	< MDL		0
	CS-137		.09	< MDL	< MDL	< MDL		0
SILT (PCI/GRAM DRY)	GAMMA	6						
	K-40		N/A	14 (4/4) (10-20)	18 (2/2) (14-23)	18 (2/2) (14-23)	6F (CONTROL) HOLTWOOD DAM EAST SHORE UPSTREAM 5.8 MILES NW OF SITE	0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY. FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES. (F)

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION — DOCKET NO.: 50-277 & 50-278
LOCATION OF FACILITY: YORK COUNTY, PA — REPORTING PERIOD: 1991

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED MINIMUM DETECTABLE LEVEL (MDL)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SILT (PCI/GRAM DRY)	GAMMA CO-60		N/A	0.10 (1/4) (0.10-0.10)	< MDL	0.10 (1/2) (0.10-0.10)	4J (INDICATOR) CONOWINGO POND W. SHORE DOWNSTREAM 1.4 MILES SE OF SITE	0
	CS-134		.10	< MDL	< MDL	< MDL		0
	CS-137		.10	0.18 (4/4) (0.09-0.36)	0.33 (2/2) (0.22-0.44)	0.33 (2/2) (0.22-0.44)	6F (CONTROL) HOLTWOOD DAM EAST SHORE UPSTREAM 5.8 MILES NW OF SITE	0
	RA-226		N/A	1.6 (4/4) (0.9-2.3)	2.4 (2/2) (1.8-3.1)	2.4 (2/2) (1.8-3.1)	6F (CONTROL) HOLTWOOD DAM EAST SHORE UPSTREAM 5.8 MILES NW OF SITE	0
	TH-228		N/A	1.02 (4/4) (0.49-1.8)	1.4 (2/2) (1.2-1.6)	1.4 (2/2) (1.1-1.8)	4I (INDICATOR) CONOWINGO POND NEAR CONOWINGO DAM 8.1 MILES SE OF SITE	0
AIR PARTICULATE (E-3 PCI/CU. METER)	GROSS BETA	703	.006	17 (552/552) (5-47)	18 (151/151) (7-40)	19 (52/52) (7-30)	12D (CONTROL) 2301 MARKET ST., PHILA 62.0 MILES ENE OF SITE	0
	GAMMA BE-7	2[n]	N/A	55 (16/16) (45-69)	59 (4/4) (43-77)	59 (4/4) (43-77)	12D (CONTROL) 2301 MARKET ST., PHILADELPHIA, PA 62 MILES ENE OF SITE	0
	K-40		N/A	13 (4/16) (5-32)	5 (1/4) (5-5)	32 (1/4) (32-32)	1B (INDICATOR) WEATHER STATION NO. 2 0.5 MILES NW OF SITE	0
	CS-134		.04	< MDL	< MDL	< MDL		0
	CS-137		.04	< MDL	< MDL	< MDL		0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY. FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES. (F)

APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION — DOCKET NO.: 50-277 & 50-278
LOCATION OF FACILITY: YORK COUNTY, PA — REPORTING PERIOD: 1991

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE OF ANALYSES PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED MINIMUM DETECTABLE LEVEL (MDL)	INDICATOR LOCATIONS MEAN (F) RANGE	CONTROL LOCATIONS MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN STATION # NAME DISTANCE & DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR IODINE (E-3 PCI/CU. METER)	I-131 BY GAMMA SPECTROSCOPY	264	.04	< MDL	< MDL	< MDL		0
MILK (PCI/LITER)	I-131 BY RADIOCHEMISTY	127	0.6	-0.01 (94/94) (-0.34-0.13)	-0.02 (33/33) (-0.14-0.07)	0.03 (3/3) (0.03-0.03)	M (INDICATOR) INTERMEDIATE DISTANCE FARM M 2.7 MILES ENE OF SITE	0
	GAMMA	20						
	K-40		N/A	1300 (16/16) (1100-1500)	1300 (4/4) (1200-1400)	1300 (4/4) (1300-1400)	G (INDICATOR) NEAR SITE FARM WEST OF CONOWINGO POND	0
	CS-134		10	< MDL	< MDL	< MDL		0
	CS-137		10	< MDL	< MDL	< MDL		0
	BA-140		35	< MDL	< MDL	< MDL		0
	LA-140		9	< MDL	< MDL	< MDL		0
DIRECT RADIATION (MILLI-ROENTGEN / STD. MONTH)	TLD-MONTHLY	540	N/A	6.98 (456/456) (3.10-12.30)	6.64 (84/84) (4.40-10.30)	8.43 (12/12) (7.10-10.50)	50 (INDICATOR) TRANSCO PUMPING STATION 4.9 MILES W OF SITE	0
	TLD-QUARTERLY	180	N/A	5.85 (152/152) (2.40-8.50)	5.74 (28/28) (4.10-7.30)	7.13 (4/4) (6.50-8.50)	40 (INDICATOR) PEACH BOTTOM SITE AREA 1.5 MILES SW OF SITE	0

MEAN AND RANGE BASED UPON DETECTABLE MEASUREMENTS ONLY. FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES. (F)

SAMPLE DESIGNATION

AND LOCATIONS

APPENDIX B: SAMPLE DESIGNATION AND LOCATIONS

LIST OF TABLES AND FIGURES

TABLES

FIGURES

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
A. Surface Water				
1LL	Peach Bottom Units 2 and 3 Intake - Composite (Control)	0.2 miles ENE	Water is continuously collected in a 190 gallon tank. Each week 2 quarts are withdrawn from the tank prior to draining the tank and placed in a 2 gallon polyethylene bottle to form a monthly composite sample	Gross Beta (S&I) - monthly - TI Gamma Spec - monthly - TI Tritium - quarterly - TI Gross Beta (S&I) -quarterly - PSE&G* Gamma Spec - quarterly - PSE&G*
1MM	Peach Bottom Canal Discharge -Composite	1.0 miles SE	Same as location 1LL	Same as location 1LL
13A	Chester Water Intake (raw)	2.4 miles ESE	A 2 gallon grab sample is collected monthly from Conowingo Pond and placed in a polyethylene bottle	Gross Beta (S&I) - monthly - TI Gamma Spec - monthly - TI Tritium - quarterly - TI
13B	Chester Water Intake	2.4 miles ESE	At same location as 13A but sample is collected from intake header and only when water is used by the Chester County Water Authority.	Same as location 13A except no tritium analysis
B. Drinking (Potable) Water				
4L	Conowingo Dam EL 33' MSL - Composite	8.6 miles SE	Water is continuously sampled from a header which draws pond water from elevation 33' MSL and is collected in a 175 gallon tank. Each week 2 quarts are withdrawn from the tank prior to fraining the tank and placed in a 2 gallon polyethylene bottle to form a monthly composite sample.	Gross Beta (S&I) - monthly - TI Gamma Spec - monthly - TI Tritium - quarterly - TI Gross Beta (S&I)- quarterly - PSE&G* Gamma Spec - quarterly - PSE&G*

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
6I	Holtwood Dam Hydroelectric Station - Composite (Control)	5.8 miles NW	Water is continuously sampled from the Holtwood Hydroelectric Station Intake and is collected in a 175 gallon tank. Each week 2 quarts are withdrawn from the tank and placed in a 2 gallon polyethene bottle to form a monthly composite.	Same as location 4L
C.	Fish			
4	Conowingo Pond	Located in Conowingo Pond below the discharge	Fish from two groups representing predator and bottom feeder species collected by electrofishing or other fishery gear semiannually	Gamma Spec - semiannually - TI
6	Holtwood Pond (Control)	Located in Holtwood Pond	Same as location 4	Same as location 4
D.	Sediment			
4J	Conowingo Pond near Berkins Run	1.4 miles SE	Recently deposited sediment collected below the waterline, semi-annually	Gamma Spec - semiannually - TI
4T	Conowingo Pond near Conowingo Dam	8.1 miles SE	Same as location 4D	Same as location 4D
6F	Holtwood Dam (Control)	5.8 miles NW	Same as location 4D	Same as location 4D

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
E.	Air Particulate - Air Iodine			
1A	Weather Station #1	0.3 miles SE	About 1 cim continuous flow through glass fiber filter (approx. 2" diameter) which is installed for a week and replaced	Gross beta - [illegible]y - PSE&G* Gamma Spec - quarterly - PSE&G*
1B	Weather Station #2	0.5 miles NW	About 1 cfm continuous flow through glass fiber and charcoal filters (approx. 2" diameter) which are installed for a week and replaced	Gross beta - weekly - TI Gamma Spec - quarterly - TI I-131 - weekly - T[illegible]
1Z	Weather Station #1	0.3 miles SE	Same as location 1B	Same as location 1B
2	On-site - 130° Sector Hill	0.9 miles SE	Same as location 1B	Same as location 1B
3A	Delta, PA - Substation	3.6 miles SW	Same as location 1B	Same as location 1B
4A	Conowingo Dam - Power House Roof (Control)	8.6 miles SE	Same as location 1A	Gross Beta - weekly - TI Gamma Spec - quarterly - TI
4B	Conowingo Dam - Power House Roof	[illegible]6 miles SE	Same as location 1A	Same as location 4A
5	Lakefield, PA	4.6 miles E	Same as location 1A	Same as location 4A
6E	Holtwood Dam - Power House Roof (Control)	5.8 miles NW	Same as location 1A	Same as location 4A
12D	2301 Market Stree Phila., PA - (Control)	62 miles ENE	Same as location 1B	Same as location 1B
14	Peters Creek	1.9 miles ESE	Same as location 1A	Same as location 4A

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
15	Silver Spring Rd	3.6 miles N	Same as location 1A	Same as location 4A
17	Riverview Rd	4.0 miles ESE	Same as location 1A	Same as location 4A
32	Slate Hill Rd	2.7 miles ENE	Same as location 1A	Same as location 4A
33A	Fulton Weather Station	1.7 miles ENE	Same as location 1A	Same as location 4A
38	Peach Bottom Rd	3.0 miles E	Same as location 1A	Same as location 4A
F. Milk				
A	(Control)	6.0 miles WSW	Two gallon grab sample is collected at each farm from a bulk tank containing milk biweekly while cows are on pasture, monthly other times	I-131 - biweekly, monthly** - TI Gamma Spec - quarterly - TI I-131 - quarterly - PSE&G* Gamma Spec - quarterly - PSE&G*
B	(Control)	9.2 miles S	Same as Farm A	I-131 - quarterly - TI
C	(Control)	10.0 miles NW	Same as Farm A	Same as Farm B
D		3.5 miles NE	Same as Farm A	Same as Farm B
E	(Control)	8.2 miles N	Same as Farm A	Same as Farm B
G		1.3 miles SSW	Same as Farm A	I-131 - biweekly, monthly** - TI Gamma Spec - quarterly - TI
J		1.1 miles W	Same as Farm A	Same as Farm A
L		2.1 miles NE	Same as Farm A	Same as Farm B
M		2.7 miles ENE	Same as Farm A	Same as Farm B
N		3.2 miles ESE	Same as Farm A	Same as Farm A

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
0		2.2 miles SW	Same as Farm A	Same as Farm B

G. Environmental Dosimetry - TLD

At each of the following locations there are two environmental dosimeters ; ackets with four (4) TLD phosphors per package. One packet is relplaced monthly, and one quarterly.

1A	Weather Station #1	0.3 miles SE	Procedure for collection is described in the placement procedure in Section III, A	TLD - monthly and quarterly - TI
1B	Weather Station #2	0.5 miles NW		Same as location 1A
1C	Peach Bottom South Substation	0.9 miles SSE		Same as location 1A
1D	Peach Bottom 140° Sector Site Boundary	0.7 miles SE		Same as location 1A
1E	Peach Bottom 350° Sector Hill	0.6 miles NNW		Same as location 1A
1F	Peach Bottom 200° Sector Hill	0.6 miles SSW		Same as location 1A
1G	Peach Bottom North Subs`ation	0.7 miles WNW		Same as location 1A
1H	Peach Bottom 270° Sector Hill	0.6 miles W		Same as location 1A
1I	Peach Bottom South Substation	0.6 miles SSE		Same as location 1A
1J	Peach Bottom 180° Sectir Hill	0.7 miles S		Same as location 1A

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bo' t Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
1L	Peach Bottom Unit 3 Intake	0.2 miles ENE		Same as location 1A
1M	Peach Bottom Canal Discharge	1.4 miles SE		Same as location 1A
1NN	Peach Bottom Site	0.5 miles WSW		Same as location 1A
2	Peach Bottom 130° Sector Hill	0.2 miles SE		Same as location 1A
3A	Delta, PA Substation	3.6 miles SW		Same as location 1A
4K	Conowing Dam Power House Roof	8.6 miles SE		Same as location 1A
5	Wakefield, PA	4.6 miles E		Same as location 1A
6B	Holtwood Dam Power House Roof	5.8 miles NW		Same as location 1A
12D	Philadelphia, PA 2301 Market St. (control)	62 miles ENE		Same as location 1A
14	Peters Creek	1.9 miles ESE		Same as location 1A
15	Silver Spring Rd	3.6 miles N		Same as location 1A
16	Nottingham, PA Substation (Control)	12.8 miles E		Same as location 1A
17	Riverview Rd	4.0 miles ESE		Same as location 1A
18	Town Grove, PA	10.0 miles W		Same as location 1A
19	Red Lion, PA (Control)	20.6 miles WNW		Same as location 1A

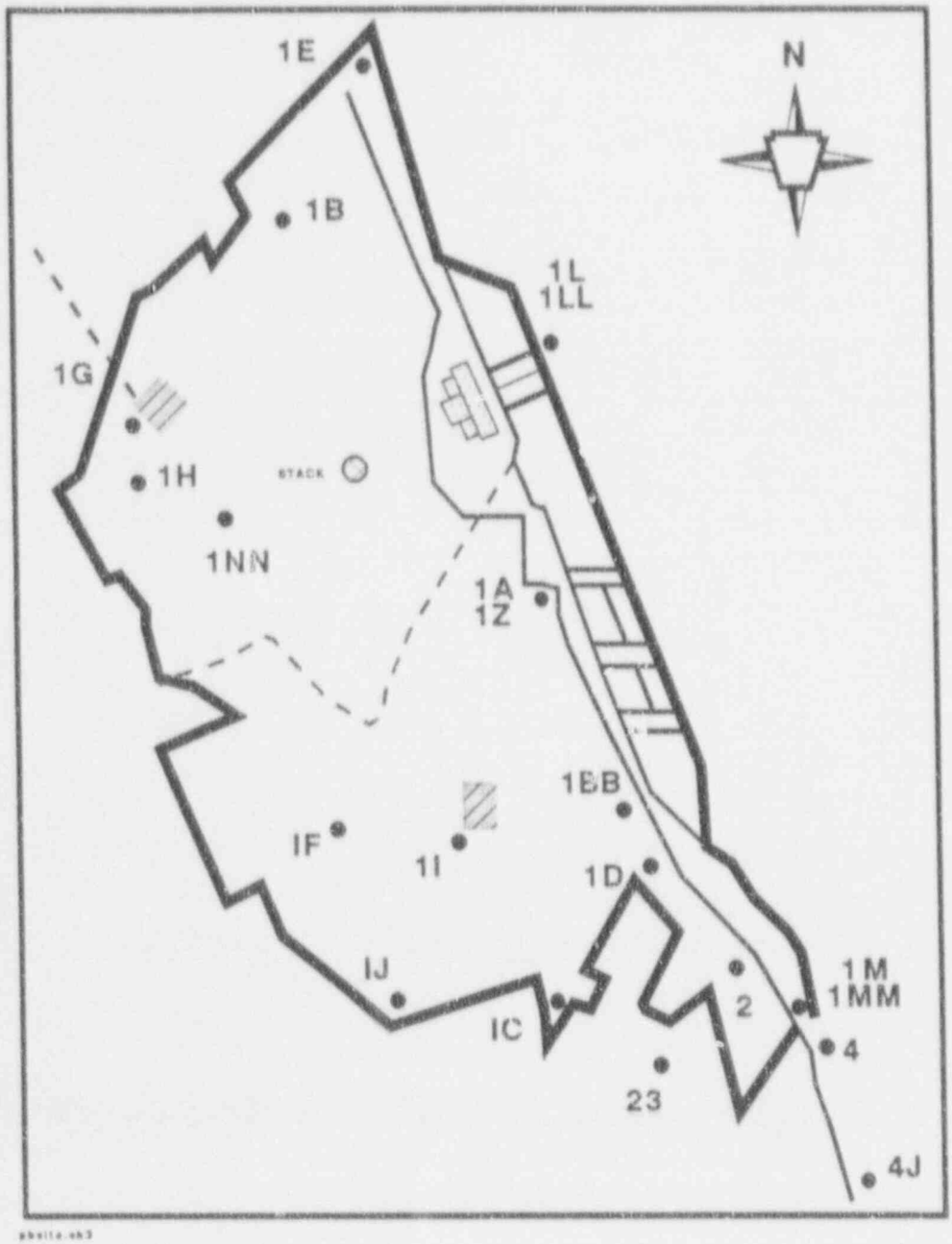
TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
20	Bel Air, MD Area (Control)	15.1 miles SSW		Same as location 1A
21B	Lancaster, PA Area (Control)	19.0 miles NNW		Same as location 1A
22	Eagle Road	2.4 miles NNE		Same as location 1A
23	Peach Bottom 150° Sector Hill	1.0 miles SSE		Same as location 1A
24	Harrisville, MD Substation (Control)	10.9 miles ESE		Same as location 1A
27	Slab Road	4.2 miles NW		Same as location 1A
27	Mt. Cooper Road	2.6 miles S		Same as location 1A
31A	Eckman Rd	4.8 miles SE		Same as location 1A
32	Slate Hill Rd	2.7 miles ENE		Same as location 1A
33A	Fulton Weather Station	1.7 miles ENE		Same as location 1A
38	Peach Bottom Rd	3.0 miles E		Same as location 1A
40	Peach Bottom Site Area	1.5 miles SW		Same as location 1A
42	Muddy Run Envir. Laboratory	4.2 miles NNW		Same as location 1A
43	Drumore Township School	5.0 miles NNE		Same as location 1A
44	Goshen Mill Rd	5.1 miles NE		Same as location 1A
45	PB-Keeney Line	3.3 miles ENE		Same as location 1A

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1991

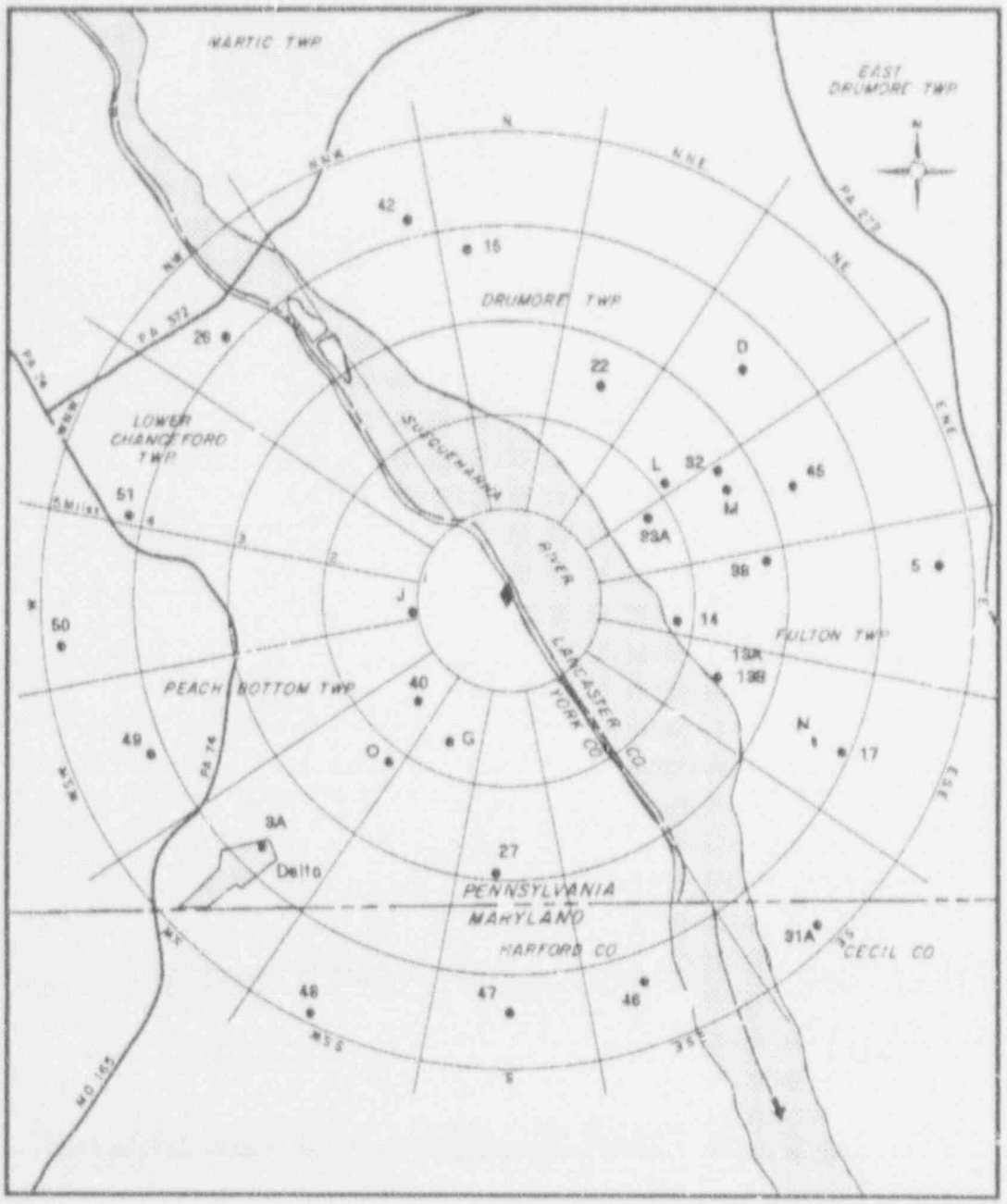
Location	Location Description	Distance and Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
46	Broad Creek	4.5 miles SSE		Same as location 1A
47	Broad Creek Scout Camp	4.3 miles S		Same as location 1A
48	Macton Substation	5.0 miles SSW		Same as location 1A
49	PB-Conastone Line	4.1 miles WSW		Same as location 1A
50	TRANSCO Pumping Station	4.9 miles W		Same as location 1A
51	Fin Substation	4.0 miles WNW		Same as location 1A

* QC Laboratory
** Monthly from December through March when cows are off pasture.



1A APT, TLD
1B APT/AIO, TLD
1C TLD
1D TLD
1E TLD
1F TLD
1G TLD
1H TLD
1I TLD
1J TLD
1L TLD
1LL WATER
1M TLD
1MM WATER
1NN TLD
1Z APT/AIO, TLD
2 APT, TLD
4 FISH
4J SEDIMENT
23 TLD

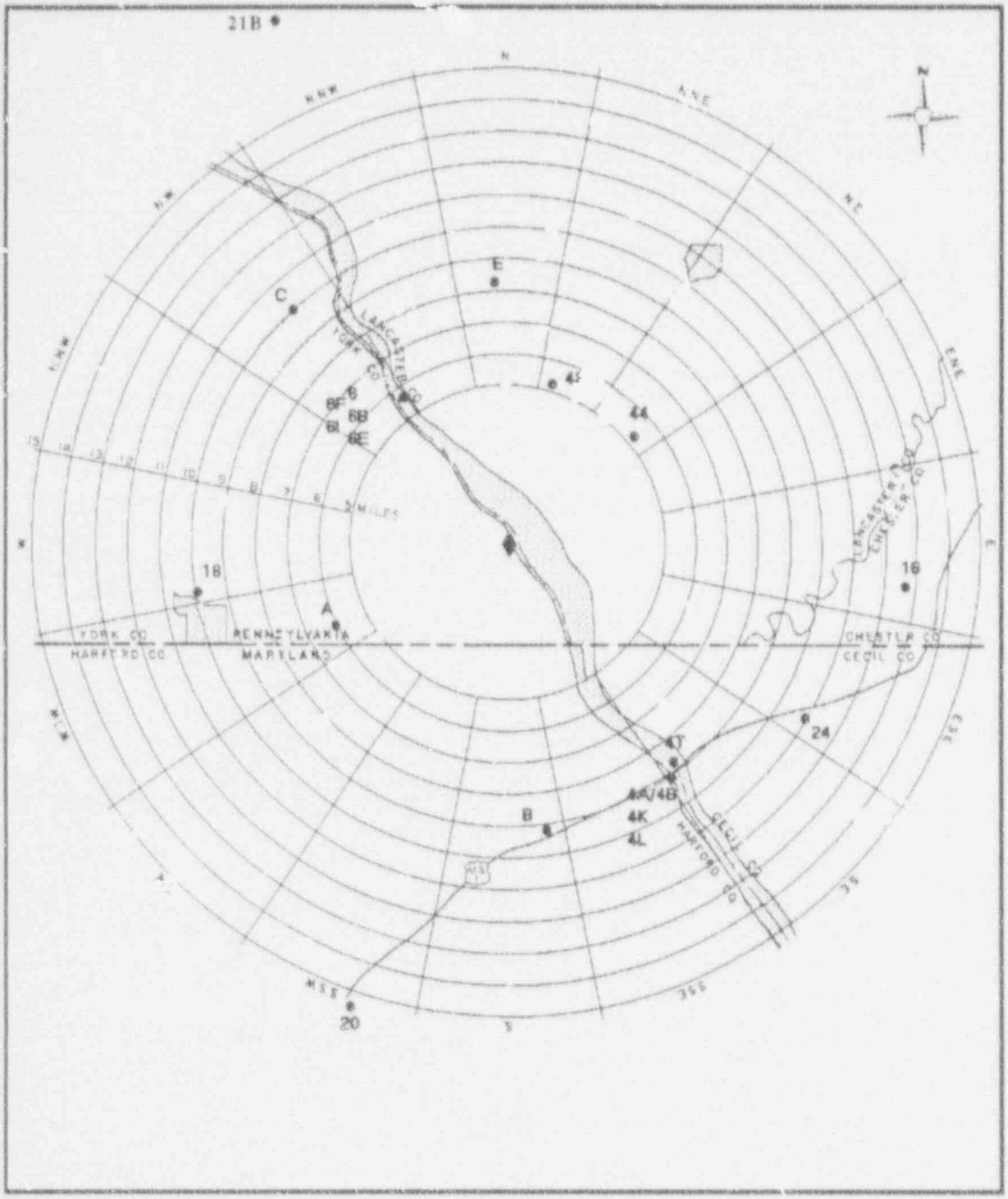
Figure B-1
Environmental Sampling Locations
On Or Near The Peach Bottom
Atomic Power Station Site



pbexp5.cn3

D	MILK
G	MILK
J	MILK
L	MILK
M	MILK
N	MILK
O	MILK
13A	WATER
13B	WATER
3A	APT/AIO, TLD
5	APT, TLD
14	APT, TLD
15	APT, TLD
17	APT, TLD
22	TLD
26	TLD
27	TLD
31A	TLD
32	APT,TLD
33A	APT,TLD
38	APT, TLD
40	TLD
42	TLD
45	TLD
46	TLD
47	TLD
48	TLD
49	TLD
50	TLD
51	TLD

F: . . B-2
Environmenta. Sampling Locations
Within A Five Mile Distance Of
Peach Bottom Atomic Power Station



A	MILK
B	MILK
C	MILK
E	MILK
4A	AP[illegible]
4B	APT
4K	TLD
4L	WATER
4T	SILT
6	FISH
6B	TLD
6E	APT
6F	SILT
6I	WATER
16	TLD
18	TLD
20	TLD
21B	TL[illegible]
24	T[illegible]
43	TLD
44	TLD

Figure B-3
Environmental Sampling Locations At A Distance Of Five To Fifteen Miles From The Peach Bottom Atomic Power Station

DATA TABLES AND FIGURES

PRIMARY LABORATORY

APPENDIX C: DATA TABLES AND FIGURES - PRIMARY LABORATORY

TABLES

FIGURES

TABLE C-I.1 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN 91	2.3	± 0.8	3.3	± 0.9	2.3	± 0.7	2.3	± 0.7
FEB 91	1.6	± 0.7	1.6	± 0.7	2.1	± 0.8	1.6	± 0.7
MAR 91	2.0	± 0.8	(1)		2.5	± 0.8	1.7	± 0.8
APR 91	2.1	± 0.8	2.9	± 0.9	1.8	± 0.8	1.6	± 0.8
MAY 91	3.5	± 0.9	1.4	± 0.7	1.9	± 0.8	1.9	± 0.8
JUN 91	5	± 1	4	± 1	3.1	± 0.9	2.9	± 0.9
JUL 91	0.1	± 0.8	0.2	± 0.8	0.5	± 0.8	1.0	± 0.8
AUG 91	3.8	± 0.9	3.9	± 1.0	4.0	± 1.0	5	± 1
SEP 91	6	± 1	3.5	± 1.0	5	± 1	3.9	± 0.9
OCT 91	4	± 1	4	± 1	4	± 1	6	± 1
NOV 91	8	± 2	27	± 3	8	± 2	7	± 2
DEC 91	3.0	± 1.0	4	± 1	5	± 1	4	± 1
MEAN	3.5	± 4.3	5.1	± 14.8	3.4	± 4.0	3.2	± 3.9

TABLE C-I.2 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN 91	0.5	± 0.4	8.6	± 0.9	0.8	± 0.4	1.2	± 0.5
FEB 91	0.3	± 0.4	0.0	± 0.4	0.3	± 0.4	0.5	± 0.4
MAR 91	1.1	± 0.5	(1)		1.5	± 0.5	1.0	± 0.5
APR 91	0.4	± 0.4	5.7	± 0.8	1.4	± 0.5	0.9	± 0.4
MAY 91	0.6	± 0.4	0.5	± 0.4	1.2	± 0.4	1.4	± 0.5
JUN 91	1.2	± 0.6	1.0	± 0.6	0.2	± 0.5	1.4	± 0.6
JUL 91	2.3	± 0.5	1.9	± 0.5	2.5	± 0.6	2.4	± 0.5
AUG 91	0.4	± 0.3	0.6	± 0.3	0.7	± 0.3	0.6	± 0.3
SEP 91	1.8	± 0.7	4.2	± 1.0	0.4	± 0.4	0.5	± 0.5
OCT 91	0.8	± 0.5	8.9	± 1.0	0.1	± 0.4	0.6	± 0.4
NOV 91	1	± 1	13	± 2	1	± 1	0	± 1
DEC 91	-0.3	± 0.5	0.7	± 0.6	0.1	± 0.6	-0.3	± 0.5
MEAN	0.8	± 1.4	4.1	± 8.8	0.8	± 1.4	0.9	± 1.4

TABLE C-I.3 CONCENTRATIONS OF H-3 AQUEOUS LIQ. SCINT. W/ENR IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN-MAR 91	20	± 40			0	± 70	20	± 50
APR-JUN 91	90	± 40			60	± 50	80	± 60
JUL-SEP 91	100	± 50			240	± 50	120	± 50
OCT-DEC 91	100	± 30			90	± 30	110	± 40
MEAN	80	± 80			100	± 210	80	± 90

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
1LL	JAN 91	< 6	< 0.4	< 0.3	< 0.8	< 0.4	< 0.8	< 0.7	< 0.4	< 0.4	< 0.4	< 2	< 1.0
	FEB 91	< 10	< 0.4	< 0.4	< 0.8	< 0.5	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.7
	MAR 91	< 5	< 0.4	< 0.4	< 0.9	< 0.5	< 0.8	< 0.9	< 0.4	< 0.4	< 0.5	< 3	< 2
	APR 91	< 6	< 0.4	< 0.4	< 1	< 0.4	< 0.7	< 0.9	< 0.5	< 0.4	< 0.4	< 5	< 3
	MAY 91	< 5	< 0.2	< 0.3	< 0.6	< 0.3	< 0.5	< 0.6	< 0.3	< 0.3	< 0.3	< 3	< 1.0
	JUN 91	11 ± 7	< 0.4	< 0.5	< 1	< 0.4	< 1.0	< 1	< 0.5	< 0.5	< 0.4	< 6	< 2
	JUL 91	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 6	< 2
	AUG 91	< 9	< 0.3	< 0.3	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 3	< 0.9
	SEP 91	< 6	< 0.3	< 0.4	< 1	< 0.3	< 0.7	< 0.9	< 0.4	< 0.3	< 0.4	< 6	< 3
	OCT 91	< 6	< 0.3	< 0.3	< 0.9	< 0.3	< 0.8	< 0.8	< 0.4	< 0.3	< 0.3	< 4	< 1
	NOV 91	< 7	< 0.4	< 0.4	< 0.9	< 0.4	< 0.9	< 0.9	< 0.4	< 0.4	< 0.4	< 2	< 1
	DEC 91	< 7	< 0.3	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.3	< 0.4	< 3	< 1
	MEAN	7 ± 4	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 4	< 1.6
1MH	JAN 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.4	< 2	< 0.9
	FEB 91	7 ± 6	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.5	< 0.3	< 0.3	< 0.3	< 1	< 0.6
	MAR 91	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 3	< 1
	APR 91	< 5	< 0.3	< 0.3	< 0.7	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.9
	MAY 91	< 10	< 0.4	< 0.4	< 1	< 0.4	< 0.8	< 0.9	< 0.5	< 0.4	< 0.4	< 4	< 1
	JUN 91	< 6	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	JUL 91	< 6	< 0.4	< 0.4	< 1.0	< 0.4	< 0.8	< 1	< 0.5	< 0.4	< 0.4	< 5	< 2
	AUG 91	10 ± 4	< 0.2	< 0.2	< 0.5	< 0.2	< 0.5	< 0.5	< 0.3	< 0.2	< 0.2	< 2	< 0.8
	SEP 91	< 10	< 0.4	< 0.4	< 1	< 0.4	< 0.8	< 1.0	< 0.5	< 0.4	< 0.4	< 7	< 2
	OCT 91	6 ± 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 4	< 1
	NOV 91	14 ± 7	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.8
	DEC 91	< 10	< 0.5	< 0.5	< 1	< 0.4	< 1.0	< 1	< 0.6	< 0.5	< 0.5	< 4	< 2
	MEAN	8 ± 6	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 3	< 1.2

TABLE C-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
13A	JAN 91	< 4	< 0.2	< 0.2	< 0.5	< 0.2	< 0.5	< 0.5	< 0.3	< 0.2	< 0.2	< 2	< 0.8
	FEB 91	< 7	< 0.3	< 0.3	< 0.8	< 0.3	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 2	< 0.9
	MAR 91	< 20	< 0.6	< 0.7	< 1	< 0.8	< 2	< 1	< 0.7	< 0.7	< 0.7	< 3	< 1
	APR 91	10 ± 5	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.4	< 2	< 0.8
	MAY 91	< 6	< 0.4	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	JUN 91	13 ± 6	< 0.4	< 0.5	< 1	< 0.4	< 1.0	< 1	< 0.5	< 0.4	< 0.4	< 5	< 2
	JUL 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 3	< 1
	AUG 91	< 9	< 0.3	< 0.4	< 0.8	< 0.3	< 0.7	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	SEP 91	< 6	< 0.3	< 0.4	< 1.0	< 0.3	< 0.7	< 0.8	< 0.5	< 0.4	< 0.4	< 5	< 2
	OCT 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 3	< 1
	NOV 91	< 6	< 0.3	< 0.3	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.3	< 0.3	< 2	< 0.7
	DEC 91	< 6	< 0.3	< 0.3	< 0.7	< 0.4	< 0.8	< 0.8	< 0.4	< 0.3	< 0.4	< 3	< 1
	MEAN	8 ± 9	< 0.3	< 0.4	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 3	< 1.1
13B	JAN 91	< 5	< 0.4	< 0.5	< 1	< 0.4	< 0.8	< 1.0	< 0.5	< 0.4	< 0.4	< 8	< 3
	FEB 91	< 10	< 0.4	< 0.4	< 0.8	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 3	< 0.8
	MAR 91 (1)												
	APR 91	< 4	< 0.2	< 0.3	< 0.6	< 0.2	< 0.5	< 0.6	< 0.3	< 0.2	< 0.2	< 4	< 2
	MAY 91	< 10	< 0.4	< 0.5	< 1	< 0.5	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 6	< 2
	JUN 91	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.9	< 1	< 0.6	< 0.4	< 0.4	< 9	< 4
	JUL 91	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 6	< 2
	AUG 91	< 9	< 0.3	< 0.4	< 0.9	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 4	< 2
	SEP 91	9 ± 6	< 0.3	< 0.4	< 1	< 0.3	< 0.7	< 1.0	< 0.5	< 0.3	< 0.3	< 10	< 6
	OCT 91	< 6	< 0.3	< 0.4	< 1	< 0.3	< 0.8	< 0.9	< 0.5	< 0.4	< 0.3	< 8	< 3
	NOV 91	7 ± 6	< 0.3	< 0.3	< 0.7	< 0.4	< 0.7	< 0.7	< 0.3	< 0.3	< 0.3	< 2	< 0.8
	DEC 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.3	< 0.3	< 0.3	< 5	< 2
	MEAN	8 ± 5	< 0.3	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.3	< 0.3	< 6	< 2.5
MEAN ALL STATIONS		8 ± 6	< 0.3	< 0.4	< 0.9	< 0.4	< 0.8	< 0.8	< 0.4	< 0.4	< 0.4	< 4	< 1.6

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-II.1 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 91	2.2	± 0.7	2.9	± 0.8
FEB 91	2.6	± 0.8	1.7	± 0.8
MAR 91	1.8	± 0.8	1.7	± 0.8
APR 91	1.3	± 0.7	1.7	± 0.8
MAY 91	2.3	± 0.8	2.4	± 0.8
JUN 91	3.8	± 1.0	4	± 1
JUL 91	0.5	± 0.8	0.0	± 0.7
AUG 91	3.9	± 1.0	5	± 1
SEP 91	3.7	± 0.9	3.9	± 0.9
OCT 91	5	± 1	5	± 1
NOV 91	4	± 1	2	± 1
DEC 91	3.0	± 1.0	4	± 1
MEAN	2.8	± 2.6	2.9	± 3.1

TABLE C-II.2 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 91	0.6	± 0.4	0.7	± 0.4
FEB 91	0.5	± 0.4	0.4	± 0.4
MAR 91	0.6	± 0.4	0.4	± 0.4
APP 91	1.1	± 0.6	0.9	± 0.6
MAY 91	0.5	± 0.4	0.4	± 0.4
JUN 91	1.3	± 0.6	0.0	± 0.5
JUL 91	2.1	± 0.5	2.0	± 0.5
AUG 91	0.6	± 0.3	0.6	± 0.3
SEP 91	0.2	± 0.4	0.4	± 0.4
OCT 91	0.3	± 0.4	0.1	± 0.4
NOV 91	0.2	± 0.5	0.3	± 0.5
DEC 91	-0.3	± 0.5	0.2	± 0.6
MEAN	0.6	± 1.2	0.5	± 1.0

TABLE C-II.3 CONCENTRATIONS OF I-131 BY RADIOCHEMISTRY IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 91	-0.1	± 0.4	0.0	± 0.1
FEB 91	-0.01	± 0.07	-0.02	± 0.07
MAR 91	0.01	± 0.07	0.01	± 0.07
APR 91	-0.03	± 0.10	0.2	± 0.1
MAY 91	0.04	± 0.07	0.06	± 0.07
JUN 91	0.02	± 0.05	0.03	± 0.05
JUL 91	-0.05	± 0.05	0.23	± 0.07
AUG 91	-0.09	± 0.09	0.2	± 0.2
SEP 91	0.0	± 0.1	0.1	± 0.1
OCT 91	0.04	± 0.10	0.1	± 0.1
NOV 91	0.05	± 0.06	0.0	± 0.2
DEC 91	0.05	± 0.08	-0.01	± 0.06
MEAN	0.00	± 0.10	0.08	± 0.17

TABLE C-II.4 CONCENTRATIONS OF H-3 AQUEOUS LIQ. SCINT. W/ENR IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN-MAR 91	110	± 50	90	± 40
APR-JUN 91	70	± 50	80	± 40
JUL-SEP 91	130	± 60	80	± 40
OCT-DEC 91	30	± 20	40	± 20
MEAN	90	± 90	70	± 40

TABLE C-II.5 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
4L	JAN 91	< 6	< 0.4	< 0.5	< 0.9	< 0.5	< 0.8	< 0.9	< 0.5	< 0.4	< 0.5	< 4	< 2
	FEB 91	< 6	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.7	< 0.4	< 0.3	< 0.4	< 2	< 0.9
	MAR 91	< 20	< 0.6	< 0.7	< 2	< 0.7	< 2	< 2	< 0.7	< 0.8	< 0.7	< 5	< 2
	APR 91	< 9	< 0.3	< 0.3	< 0.7	< 0.4	< 0.7	< 0.7	< 0.4	< 0.3	< 0.4	< 2	< 0.9
	MAY 91	< 6	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.4	< 0.4	< 3	< 1
	JUN 91	< 10	< 0.9	< 0.9	< 3	< 1	< 2	< 2	< 1	< 1.0	< 1.0	< 9	< 5
	JUL 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 4	< 2
	AUG 91	7 ± 4	< 0.2	< 0.2	< 0.5	< 0.3	< 0.4	< 0.5	< 0.2	< 0.2	< 0.2	< 2	< 0.8
	SEP 91	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 7	< 3
	OCT 91	13 ± 6	< 0.3	< 0.3	< 0.9	< 0.3	< 0.7	< 0.8	< 0.4	< 0.3	< 0.3	< 4	< 1
	NOV 91	< 5	< 0.3	< 0.3	< 0.6	< 0.3	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 1	< 0.6
	DEC 91	< 10	< 0.4	< 0.4	< 1.0	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 3	< 1
	MEAN	9 ± 9	< 0.4	< 0.4	< 1.1	< 0.4	< 0.9	< 1.0	< 0.5	< 0.4	< 0.4	< 4	< 1.7
6I	JAN 91	< 10	< 0.4	< 0.5	< 1	< 0.4	< 0.8	< 0.9	< 0.5	< 0.4	< 0.5	< 4	< 1
	FEB 91	< 4	< 0.3	< 0.3	< 0.6	< 0.4	< 0.6	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 0.7
	MAR 91	< 10	< 0.4	< 0.4	< 1	< 0.4	< 0.8	< 1.0	< 0.4	< 0.4	< 0.4	< 4	< 1
	APR 91	< 4	< 0.2	< 0.2	< 0.5	< 0.2	< 0.4	< 0.5	< 0.3	< 0.2	< 0.2	< 2	< 0.8
	MAY 91	< 4	< 0.3	< 0.3	< 0.7	< 0.3	< 0.7	< 0.6	< 0.3	< 0.3	< 0.3	< 2	< 1
	JUN 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.6	< 0.4	< 0.3	< 0.3	< 3	< 1
	JUL 91	< 5	< 0.3	< 0.3	< 0.8	< 0.3	< 0.6	< 0.7	< 0.4	< 0.3	< 0.3	< 4	< 1
	AUG 91	< 9	< 0.3	< 0.4	< 0.9	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	SEP 91	< 6	< 0.4	< 0.4	< 1	< 0.4	< 0.8	< 1	< 0.5	< 0.4	< 0.4	< 7	< 3
	OCT 91	< 5	< 0.3	< 0.3	< 0.9	< 0.3	< 0.6	< 0.8	< 0.4	< 0.3	< 0.4	< 4	< 2
	NOV 91	< 10	< 0.4	< 0.4	< 0.8	< 0.4	< 0.9	< 1	< 0.5	< 0.4	< 0.4	< 2	< 0.8
	DEC 91	< 10	< 0.4	< 0.4	< 0.1	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 3	< 1
	MEAN	< 7	< 0.3	< 0.4	< 0.8	< 0.4	< 0.7	< 0.8	< 0.4	< 0.3	< 0.4	< 3	< 1.2
MEAN ALL STATIONS		8 ± 7	< 0.4	< 0.4	< 1.0	< 0.4	< 0.8	< 0.9	< 0.4	< 0.4	< 0.4	< 4	< 1.4

TABLE C-III.1 CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/GRAM (WET) ± 2 SIGMA

STATION CODE	MEDIA	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	CS-134	CS-137
4	PREDATOR	06/04-06/04	3.1 ± 0.4	< 0.01	< 0.01	< 0.03	< 0.01	< 0.02	< 0.01	< 0.01
		10/08-10/08	3.2 ± 0.6	< 0.02	< 0.02	< 0.06	< 0.02	< 0.05	< 0.02	< 0.02
		10/09-10/09	3.1 ± 0.4	< 0.01	< 0.01	< 0.02	< 0.01	< 0.03	< 0.01	< 0.01
		MEAN	3.1 ± 0.1	< 0.01	< 0.01	< 0.04	< 0.01	< 0.03	< 0.01	< 0.01
	BOTTOM FEEDER	06/04-06/04	2.8 ± 0.5	< 0.01	< 0.01	< 0.03	< 0.01	< 0.03	< 0.02	< 0.01
		10/09-10/09	2.5 ± 0.3	< 0.008	< 0.009	< 0.02	< 0.009	< 0.02	< 0.008	< 0.009
		MEAN	2.7 ± 0.4	< 0.009	< 0.010	< 0.03	< 0.010	< 0.03	< 0.014	< 0.010
6	PREDATOR	06/03-06/03	2.1 ± 0.3	< 0.010	< 0.01	< 0.02	< 0.01	< 0.02	< 0.01	< 0.01
		10/10-10/10	3.2 ± 0.4	< 0.009	< 0.01	< 0.03	< 0.01	< 0.02	< 0.009	< 0.010
		MEAN	2.7 ± 1.6	< 0.010	< 0.01	< 0.03	< 0.01	< 0.02	< 0.010	< 0.010
	BOTTOM FEEDER	06/03-06/03	1.8 ± 0.4	< 0.01	< 0.01	< 0.02	< 0.01	< 0.02	< 0.01	< 0.01
		10/10-10/10	3.0 ± 0.4	< 0.01	< 0.02	< 0.04	< 0.01	< 0.03	< 0.02	< 0.01
		MEAN	2.4 ± 1.7	< 0.01	< 0.02	< 0.03	< 0.01	< 0.03	< 0.02	< 0.01
MEAN ALL STATIONS	PREDATOR		2.9 ± 0.9	< 0.012	< 0.01	< 0.03	< 0.01	< 0.03	< 0.012	< 0.012
	BOTTOM FEEDER		2.5 ± 1.1	< 0.010	< 0.012	< 0.03	< 0.010	< 0.03	< 0.015	< 0.010

TABLE C-IV CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/GRAM (DRY) ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	CO-60	CS-134	CS-137	RA-226	TH-228
4J	06/24-06/24	12 ± 1	< 0.01	< 0.01	0.09 ± 0.03	0.9 ± 0.4	0.49 ± 0.05
	10/08-10/08	14 ± 1	0.10 ± 0.04	< 0.02	0.16 ± 0.03	1.5 ± 0.6	0.73 ± 0.07
	MEAN	13 ± 3	0.06 ± 0.13	< 0.02	0.13 ± 0.10	1.2 ± 0.8	0.61 ± 0.34
4T	06/24-06/24	20 ± 2	< 0.03	< 0.04	0.36 ± 0.07	2.3 ± 0.9	1.8 ± 0.2
	10/08-10/08	10 ± 1	< 0.02	< 0.02	0.11 ± 0.02	1.9 ± 0.5	1.1 ± 0.1
	MEAN	15 ± 14	< 0.03	< 0.03	0.24 ± 0.35	2.1 ± 0.6	1.5 ± 1.0
6F	06/24-06/24	14 ± 1	< 0.02	< 0.03	0.22 ± 0.06	1.8 ± 1.0	1.2 ± 0.1
	10/08-10/08	23 ± 2	< 0.03	< 0.03	0.44 ± 0.06	3.1 ± 0.8	1.6 ± 0.2
	MEAN	19 ± 13	< 0.03	< 0.03	0.33 ± 0.31	2.5 ± 1.8	1.4 ± 0.6
MEAN ALL STATIONS		16 ± 10	0.04 ± 0.07	< 0.03	0.23 ± 0.28	1.9 ± 1.5	1.15 ± 1.00

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

GROUP 1 - ON-SITE LOCATIONS

WEEK	1B		1Z		2	
01	22	± 3	23	± 3	20	± 3
02	18	± 3	9	± 2	16	± 2
03	14	± 4	15	± 4	14	± 4
04	21	± 3	18	± 3	24	± 3
05	21	± 3	27	± 4	21	± 3
06	20	± 3	20	± 3	24	± 3
07	17	± 3	10	± 2	17	± 3
08	12	± 3	7	± 3	11	± 3
09	18	± 3	16	± 3	16	± 3
10	14	± 3	5	± 3	11	± 3
11	10	± 3	11	± 3	11	± 3
12	12	± 2	11	± 2	13	± 2
13	12	± 3	10	± 3	14	± 3
14	14	± 3	18	± 4	13	± 3
15	24	± 4	22	± 3	21	± 3
16	16	± 3	10	± 3	15	± 3
17	11	± 3	10	± 2	11	± 3
18	16	± 3	16	± 3	17	± 3
19	12	± 3	10	± 3	13	± 3
20	22	± 3	19	± 3	19	± 3
21	14	± 3	16	± 3	12	± 3
22	17	± 3	11	± 3	17	± 3
23	9	± 3	13	± 3	10	± 3
24	16	± 3	13	± 3	14	± 3
25	16	± 3	17	± 3	15	± 3
26	15	± 4	10	± 3	9	± 3
27	14	± 2	12	± 2	16	± 2
28	19	± 4	18	± 4	20	± 4
29	16	± 3	17	± 3	18	± 3
30	26	± 4	28	± 4	26	± 4
31	17	± 3	13	± 3	15	± 3
32	19	± 3	14	± 3	20	± 3
33	13	± 3	13	± 3	13	± 3
34	24	± 3	23	± 3	22	± 3
35	20	± 3	16	± 3	18	± 3
36	17	± 3	14	± 2	15	± 3
37	19	± 3	15	± 3	17	± 3
38	18	± 4	15	± 4	14	± 4
39	17	± 3	19	± 3	16	± 3
40	21	± 3	15	± 3	18	± 3
41	18	± 3	21	± 4	20	± 4
42	15	± 3	16	± 3	15	± 3
43	22	± 3	23	± 3	24	± 3
44	17	± 3	16	± 3	13	± 2
45	39	± 4	38	± 4	38	± 4
46	20	± 3	18	± 3	17	± 3
47	20	± 3	18	± 3	20	± 3
48	20	± 3	20	± 3	21	± 3
49	21	± 3	18	± 3	16	± 3
50	23	± 4	23	± 4	22	± 4
51	20	± 3	16	± 3	18	± 3
52	17	± 3	11	± 3	18	± 3
53	20	± 3	23	± 3	20	± 3
MEAN	18	± 10	16	± 12	17	± 10

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	3A		5		14		15		17	
01	24	± 3	23	± 3	26	± 3	23	± 3	24	± 3
02	15	± 2	16	± 3	20	± 3	19	± 3	14	± 3
03	13	± 4	16	± 3	15	± 3	12	± 3	14	± 3
04	18	± 3	22	± 3	21	± 3	20	± 3	21	± 3
05	20	± 3	21	± 3	23	± 3	22	± 3	21	± 3
06	21	± 3	23	± 4	27	± 4	19	± 3	21	± 3
07	16	± 3	17	± 3	20	± 3	16	± 3	19	± 3
08	10	± 3	11	± 3	13	± 3	12	± 3	11	± 3
09	17	± 3	16	± 3	17	± 3	15	± 3	17	± 3
10	11	± 3	14	± 3	10	± 3	10	± 3	13	± 3
11	13	± 3	12	± 3	13	± 3	13	± 3	11	± 2
12	12	± 2	16	± 3	17	± 3	16	± 3	15	± 3
13	13	± 3	12	± 3	9	± 2	11	± 3	11	± 3
14	16	± 4	15	± 3	13	± 3	14	± 3	13	± 3
15	21	± 3	21	± 4	20	± 4	18	± 4	23	± 4
16	17	± 3	14	± 3	15	± 3	15	± 3	13	± 3
17	11	± 3	10	± 3	11	± 3	11	± 3	10	± 3
18	19	± 3	17	± 3	16	± 3	16	± 3	14	± 3
19	12	± 3	14	± 3	13	± 3	11	± 3	14	± 3
20	21	± 3	19	± 3	19	± 3	19	± 3	18	± 3
21	14	± 3	14	± 3	16	± 3	13	± 3	13	± 3
22	16	± 3	13	± 3	15	± 3	16	± 3	16	± 3
23	8	± 3	8	± 3	8	± 3	8	± 3	9	± 3
24	15	± 3	17	± 3	19	± 3	16	± 3	16	± 3
25	16	± 3	16	± 3	16	± 3	15	± 3	14	± 3
26	13	± 4	12	± 3	11	± 3	12	± 3	14	± 4
27	13	± 2	15	± 2	16	± 2	15	± 2	14	± 2
28	20	± 4	17	± 4	18	± 4	16	± 4	17	± 4
29	19	± 4	20	± 4	17	± 3	20	± 4	19	± 4
30	26	± 4	23	± 3	26	± 4	25	± 3	25	± 4
31	12	± 3	17	± 3	17	± 3	14	± 3	13	± 3
32	20	± 3	19	± 4	17	± 3	14	± 3	18	± 3
33	17	± 4	17	± 4	15	± 3	16	± 4	17	± 4
34	23	± 3	22	± 3	22	± 3	24	± 3	21	± 3
35	19	± 3	20	± 3	24	± 3	15	± 3	20	± 3
36	14	± 2	16	± 3	15	± 3	14	± 3	13	± 3
37	19	± 3	21	± 3	19	± 3	17	± 3	19	± 3
38	20	± 4	15	± 4	15	± 4	13	± 4	13	± 4
39	18	± 3	15	± 3	19	± 3	15	± 3	18	± 3
40	14	± 3	18	± 3	23	± 3	19	± 3	20	± 3
41	17	± 3	19	± 4	17	± 4	15	± 4	19	± 4
42	14	± 3	15	± 3	18	± 3	15	± 3	16	± 3
43	23	± 3	24	± 3	23	± 3	20	± 3	21	± 3
44	15	± 3	18	± 3	15	± 3	17	± 3	15	± 3
45	39	± 4	45	± 5	47	± 5	44	± 5	40	± 4
46	17	± 3	20	± 3	19	± 3	20	± 3	17	± 3
47	19	± 3	18	± 3	22	± 3	18	± 3	18	± 3
48	16	± 3	16	± 3	17	± 3	18	± 3	17	± 3
49	17	± 3	21	± 3	22	± 3	19	± 2	20	± 2
50	22	± 4	20	± 4	23	± 4	24	± 4	19	± 4
51	21	± 3	20	± 3	18	± 3	22	± 3	21	± 3
52	18	± 3	18	± 3	21	± 3	18	± 3	19	± 3
53	21	± 3	16	± 3	17	± 3	12	± 3	16	± 3
MEAN	17	± 10	18	± 10	18	± 12	17	± 11	17	± 10

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

GROUP II - INTERMEDIATE DISTANCE LOCATIONS

WEEK	32		33A		38	
01	22	± 3	24	± 3	25	± 3
02	19	± 3	17	± 3	18	± 3
03	12	± 3	12	± 3	15	± 3
04	13	± 3	2	± 3	21	± 3
05	21	± 4	25	± 3	23	± 3
06	18	± 5	16	± 3	26	± 4
07	16	± 3	18	± 3	18	± 3
08	11	± 3	11	± 3	14	± 3
09	18	± 3	17	± 3	18	± 3
10	11	± 3	11	± 3	11	± 3
11	8	± 2	13	± 3	12	± 3
12	13	± 3	14	± 3	18	± 3
13	8	± 2	11	± 3	12	± 3
14	12	± 3	14	± 3	14	± 3
15	20	± 4	22	± 4	22	± 4
16	17	± 3	15	± 3	15	± 3
17	12	± 3	12	± 3	12	± 3
18	15	± 3	17	± 3	17	± 3
19	13	± 3	14	± 3	13	± 3
20	20	± 3	20	± 3	20	± 3
21	16	± 3	13	± 3	13	± 3
22	16	± 3	18	± 3	16	± 3
23	7	± 3			10	± 3
24	17	± 3	(1)		20	± 3
25	15	± 3			14	± 3
26	12	± 3			12	± 3
27	13	± 2			15	± 2
28	18	± 4			20	± 4
29	18	± 3			19	± 3
30	24	± 3			24	± 3
31	14	± 3			14	± 3
32	15	± 3			16	± 3
33	15	± 3			17	± 4
34	18	± 3			22	± 3
35	18	± 3			21	± 3
36	13	± 3			19	± 3
37	16	± 3			19	± 3
38	15	± 4			18	± 4
39	15	± 3			15	± 3
40	18	± 3			22	± 3
41	17	± 4			18	± 4
42	16	± 3			17	± 3
43	22	± 3			25	± 3
44	17	± 3			17	± 3
45	40	± 4			47	± 5
46	14	± 3			20	± 3
47	19	± 3			20	± 3
48	17	± 3			19	± 3
49	20	± 2			15	± 4
50	17	± 4			21	± 4
51	21	± 3			20	± 3
52	17	± 3			21	± 3
53	17	± 3			18	± 3
MEAN	16	± 10	15	± 10	18	± 11

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

GROUP III - CONTROL LOCATIONS

WEEK	4A		6E		12D	
01	24	± 3	23	± 3	24	± 3
02	16	± 3	15	± 3	15	± 2
03	13	± 3	16	± 3	19	± 3
04	23	± 3	20	± 3	26	± 3
05	23	± 3	24	± 3	25	± 3
06	22	± 3	27	± 4	24	± 3
07	18	± 3	21	± 3	17	± 2
08	12	± 3	12	± 3	16	± 3
09	16	± 3	17	± 3	15	± 2
10	10	± 3	12	± 3	25	± 3
11	14	± 3	13	± 3	11	± 2
12	16	± 3	17	± 3	7	± 3
13	10	± 2	11	± 3	17	± 3
14	15	± 3	20	± 3	20	± 3
15	17	± 3	20	± 4	17	± 3
16	17	± 3	14	± 3	13	± 2
17	11	± 3	12	± 3	16	± 3
18		(1)	18	± 3	14	± 2
19		(1)	14	± 3	18	± 3
20	21	± 3	20	± 3	18	± 3
21	15	± 3	13	± 3	17	± 2
22	16	± 3	17	± 3	19	± 3
23	10	± 3	7	± 3	16	± 3
24	16	± 3	16	± 3	23	± 3
25	14	± 3	15	± 3	12	± 3
26	11	± 3	12	± 4	17	± 3
27	12	± 2	15	± 2	18	± 3
28		(1)	17	± 4	18	± 3
29		(1)	16	± 3	27	± 3
30		(1)	26	± 4	21	± 3
31	12	± 3	16	± 3	21	± 3
32	18	± 3	18	± 3	18	± 3
33	12	± 3	15	± 4	18	± 3
34		(1)	21	± 3	20	± 3
35	16	± 3	20	± 3	20	± 3
36	14	± 2	15	± 3	15	± 4
37	18	± 3	17	± 3	24	± 3
38	17	± 4	19	± 4	21	± 3
39	18	± 3	18	± 3	17	± 3
40	20	± 3	17	± 3	18	± 3
41	18	± 3	20	± 4	20	± 3
42	16	± 3	15	± 3	21	± 3
43	25	± 3	22	± 3	29	± 3
44	20	± 3	16	± 3	21	± 3
45	40	± 4	39	± 4	29	± 3
46	19	± 3		(1)	23	± 3
47	22	± 6	20	± 3	16	± 3
48	19	± 3	18	± 3	24	± 3
49	19	± 3	22	± 3	24	± 3
50	21	± 4	24	± 5	24	± 4
51	19	± 3	21	± 3	19	± 3
52	17	± 3	22	± 3	18	± 3
53	19	± 3	19	± 3		
MEAN	17	± 10	18	± 10	19	± 9

(1) PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-V.2 MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS (E-3 PCI/CU. METER) IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

GROUP I - ON-SITE LOCATIONS				GROUP II - INTERMEDIATE DISTANCE LOCATIONS				GROUP III - CONTROL LOCATIONS			
COLLECTION PERIOD	MIN.	MAX.	MEAN ± 2 SD	COLLECTION PERIOD	MIN.	MAX.	MEAN ± 2 SD	COLLECTION PERIOD	MIN.	MAX.	MEAN ± 2 SD
12/28/90-02/01/91	9	27	19 ± 9	12/28/90-01/04/92	2	26	19 ± 10	12/28/90-01/04/92	13	26	20 ± 8
02/01/91-03/01/91	7	24	16 ± 10	02/01/91-03/02/91	10	27	17 ± 8	01/25/91-03/02/91	12	27	19 ± 10
03/01/91-03/30/91	5	14	11 ± 5	03/01/91-03/30/91	8	18	12 ± 5	02/25/91-04/01/91	7	25	14 ± 9
03/30/91-05/03/91	10	24	16 ± 9	03/30/91-05/04/91	10	23	15 ± 7	03/30/91-05/04/91	11	20	16 ± 6
05/03/91-05/31/91	10	22	15 ± 7	05/03/91-06/01/91	11	21	16 ± 6	04/29/91-06/03/91	13	21	17 ± 5
05/31/91-06/28/91	9	17	13 ± 6	05/31/91-06/28/91	7	20	13 ± 7	05/31/91-07/01/91	7	23	14 ± 8
06/28/91-08/02/91	12	28	18 ± 10	06/28/91-08/03/91	12	26	18 ± 8	06/28/91-08/03/91	12	27	18 ± 10
08/02/91-08/30/91	13	24	18 ± 8	08/02/91-08/31/91	14	24	19 ± 6	07/29/91-09/03/91	12	21	18 ± 5
08/30/91-09/27/91	14	19	16 ± 4	08/30/91-09/27/91	13	21	16 ± 5	08/30/91-09/30/91	14	24	18 ± 5
09/27/91-11/01/91	13	24	18 ± 7	09/27/91-11/02/91	14	25	18 ± 6	09/27/91-11/02/91	15	29	20 ± 8
11/01/91-11/29/91	17	39	24 ± 17	11/01/91-11/29/91	14	47	24 ± 23	10/28/91-12/02/91	16	40	24 ± 16
11/29/91-01/03/92	11	23	19 ± 7	11/29/91-01/04/92	15	24	20 ± 4	11/29/91-01/03/92	17	24	21 ± 5
12/28/90-01/03/92	5	39	17 ± 10	12/28/90-01/04/92	2	47	17 ± 11	12/28/90-01/04/92	7	40	18 ± 10

NOTE:

GROUP I CONSISTS OF LOCATIONS 1B, 1Z, 2.
GROUP II CONSISTS OF LOCATIONS 3A, 5, 14, 15, 17, 31, 33A, 38.
GROUP III CONSISTS OF LOCATIONS 4B, 6E, 12D.

TABLE C-V.3 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137
1B	12/28-03/30	55 ± 7	< 7	< 0.3	< 0.3
	03/30-06/28	62 ± 9	< 8	< 0.3	< 0.3
	06/28-09/27	52 ± 7	< 3	< 0.2	< 0.2
	09/27-01/03	55 ± 6	32 ± 7	< 0.2	< 0.2
	MEAN	56 ± 8	13 ± 26	< 0.3	< 0.3
1Z	12/28-03/30	47 ± 6	8 ± 4	< 0.2	< 0.2
	03/30-06/28	54 ± 8	9 ± 6	< 0.2	< 0.3
	06/28-09/27	50 ± 6	< 4	< 0.2	< 0.2
	09/27-01/03	45 ± 6	< 4	< 0.2	< 0.2
	MEAN	49 ± 8	6 ± 5	< 0.2	< 0.2
2	12/28-03/30	60 ± 6	< 3	< 0.2	< 0.3
	03/30-06/28	67 ± 9	5 ± 4	< 0.2	< 0.2
	06/28-09/27	53 ± 6	< 4	< 0.1	< 0.2
	09/27-01/03	49 ± 6	< 4	< 0.2	< 0.2
	MEAN	57 ± 16	4 ± 2	< 0.2	< 0.2
3A	12/28-03/30	55 ± 6	5 ± 4	< 0.2	< 0.2
	03/30-06/28	69 ± 8	< 4	< 0.2	< 0.3
	06/28-09/27	51 ± 6	< 8	< 0.3	< 0.3
	09/27-01/03	52 ± 5	< 3	< 0.2	< 0.2
	MEAN	57 ± 17	< 5	< 0.2	< 0.3
12D	12/31-04/01	57 ± 6	4 ± 3	< 0.2	< 0.2
	04/01-07/01	77 ± 8	5 ± 5	< 0.2	< 0.2
	07/01-09/30	58 ± 6	< 3	< 0.2	< 0.2
	09/30-12/30	43 ± 5	5 ± 3	< 0.2	< 0.2
	MEAN	59 ± 28	± 2	< 0.2	< 0.2

TABLE C-VI.1 CONCENTRATIONS OF I-131 BY GAMMA SPECTROSCOPY IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER 2 SIGMA

	GROUP I			GROUP II	GROUP III
WEEK	1B	1Z	2	3A	12D
01	< 10	< 10	< 10	< 10	< 20
02	< 9	< 9	< 9	< 9	< 10
03	< 20	< 20	< 20	< 20	< 10
04	< 20	< 20	< 20	< 20	< 20
05	< 10	< 10	< 10	< 10	< 8
06	< 10	< 10	< 10	< 10	< 7
07	< 8	< 8	< 8	< 8	< 7
08	< 10	< 10	< 10	< 10	< 8
09	< 9	< 10	< 9	< 10	< 8
10	< 10	< 10	< 10	< 10	< 8
11	< 9	< 9	< 9	< 9	< 9
12	< 10	< 10	< 10	< 10	< 6
13	< 9	< 9	< 9	< 8	< 10
14	< 10	< 10	< 10	< 10	< 10
15	< 10	< 10	< 10	< 10	< 6
16	< 10	< 10	< 10	< 10	< 6
17	< 10	< 10	< 10	< 10	< 4
18	< 10	< 10	< 10	< 10	< 7
19	< 10	< 10	< 10	< 10	< 7
20	< 10	< 10	< 10	< 10	< 6
21	< 10	< 10	< 10	< 10	< 9
22	< 10	< 10	< 10	< 10	< 10
23	< 10	< 10	< 10	< 10	< 7
24	< 10	< 10	< 10	< 10	< 10
25	< 8	< 8	< 8	< 8	< 9
26	< 10	< 10	< 10	< 10	< 10
27	< 8	< 7	< 8	< 8	< 7
28	< 9	< 9	< 9	< 9	< 8
29	< 20	< 20	< 20	< 20	< 10
30	< 10	< 10	< 10	< 9	< 10
31	< 8	< 8	< 9	< 9	< 6
32	< 10	< 10	< 10	< 10	< 20
33	< 10	< 10	< 10	< 10	< 10
34	< 10	< 10	< 10	< 10	< 10
35	< 10	< 10	< 10	< 10	< 9
36	< 8	< 8	< 8	< 8	< 10
37	< 8	< 8	< 8	< 8	< 20
38	< 20	< 20	< 20	< 20	< 8
39	< 20	< 20	< 20	< 20	< 6
40	< 10	< 10	< 10	< 10	< 10
41	< 10	< 10	< 10	< 10	< 10
42	< 10	< 10	< 10	< 10	< 20
43	< 10	< 10	< 10	< 10	< 10
44	< 20	< 20	< 20	< 20	< 7
45	< 10	< 10	< 10	< 10	< 6
46	< 9	< 9	< 10	< 9	< 10
47	< 10	< 10	< 10	< 10	< 10
48	< 20	< 20	< 20	< 20	< 7
49	< 8	< 8	< 9	< 8	< 5
50	< 10	< 10	< 10	< 10	< 50
51	< 20	< 20	< 20	< 20	< 20
52	< 20	< 20	< 20	< 20	< 10
53	< 10	< 10	< 10	< 10	
MEAN	< 11	< 11	< 11	< 11	< 10

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED
IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	NEARBY FARMS			INTERMEDIATE FARMS				DISTANT FARMS			
COLLECTION DATE	G	J	O	D	L	M	N	A	B	C	E
01/14/91	0.00 ± 0.05	0.0 ± 0.1	0.01 ± 0.06				-0.01 ± 0.06	-0.01 ± 0.06			
02/18/91	0.01 ± 0.04	0.04 ± 0.06	-0.03 ± 0.06				-0.01 ± 0.07	-0.02 ± 0.05			
03/18/91	0.02 ± 0.06	0.0 ± 0.1	-0.03 ± 0.08	-0.01 ± 0.06	-0.06 ± 0.06	0.03 ± 0.09	-0.01 ± 0.08	-0.02 ± 0.06	-0.04 ± 0.10	0.04 ± 0.07	0.00 ± 0.05
04/08/91	-0.04 ± 0.06	0.0 ± 0.1	0.04 ± 0.07				0.01 ± 0.07	-0.05 ± 0.06			
04/22/91	-0.03 ± 0.07	0.0 ± 0.2	-0.04 ± 0.07				0.02 ± 0.08	-0.05 ± 0.09			
05/05/91	0.04 ± 0.08	0.07 ± 0.09	-0.07 ± 0.08				-0.1 ± 0.1	0.00 ± 0.09			
05/20/91	0.00 ± 0.04	0.03 ± 0.04	0.00 ± 0.04				-0.02 ± 0.04	-0.02 ± 0.05			
06/03/91	0.00 ± 0.04	-0.06 ± 0.04	0.00 ± 0.04	-0.03 ± 0.05	-0.04 ± 0.05	0.03 ± 0.05	-0.03 ± 0.04	-0.01 ± 0.04	-0.04 ± 0.04	-0.14 ± 0.07	-0.02 ± 0.06
06/14/91	(1)	0.1 ± 0.1	-0.03 ± 0.05				-0.01 ± 0.05	-0.03 ± 0.08			
06/28/91	0.00 ± 0.06	-0.08 ± 0.07	0.07 ± 0.08				-0.02 ± 0.06	-0.01 ± 0.08			
07/15/91	0.02 ± 0.03	0.01 ± 0.04	0.01 ± 0.05				0.02 ± 0.03	0.00 ± 0.05			
07/29/91	0.1 ± 0.2	-0.02 ± 0.04	0.1 ± 0.1				0.00 ± 0.04	0.1 ± 0.1			
08/12/91	0.00 ± 0.05	-0.02 ± 0.06	0.02 ± 0.06				0.02 ± 0.05	0.00 ± 0.05			
08/26/91	-0.05 ± 0.07	0.03 ± 0.06	-0.03 ± 0.09	-0.10 ± 0.06	-0.01 ± 0.05	0.03 ± 0.06	0.04 ± 0.05	0.03 ± 0.05	0.02 ± 0.05	-0.02 ± 0.05	-0.07 ± 0.06
09/09/91	-0.09 ± 0.05	-0.01 ± 0.05	-0.02 ± 0.05				0.02 ± 0.04	-0.13 ± 0.07			
09/23/91	-0.05 ± 0.05	0.02 ± 0.04	0.04 ± 0.05				-0.03 ± 0.05	0.02 ± 0.04			
10/07/91	0.01 ± 0.05	-0.10 ± 0.05	0.00 ± 0.05				0.01 ± 0.06	0.02 ± 0.06			
10/21/91	0.00 ± 0.05	-0.01 ± 0.04	-0.01 ± 0.04				-0.03 ± 0.04	0.04 ± 0.04			
11/04/91	-0.01 ± 0.09	-0.02 ± 0.06	-0.08 ± 0.06				-0.05 ± 0.06	0.0 ± 0.1			
11/18/91	-0.05 ± 0.06	-0.05 ± 0.05	0.05 ± 0.06	-0.3 ± 0.1	-0.08 ± 0.07	(1)	-0.05 ± 0.05	-0.02 ± 0.05	-0.02 ± 0.05	-0.03 ± 0.07	-0.1 ± 0.1
12/09/91	0.04 ± 0.06	-0.10 ± 0.08	-0.1 ± 0.1				-0.17 ± 0.05	-0.06 ± 0.08			
MEAN	0.00 ± 0.09	-0.01 ± 0.10	0.00 ± 0.09	-0.12 ± 0.30	-0.05 ± 0.05	0.03 ± 0.01	-0.02 ± 0.09	-0.01 ± 0.08	-0.02 ± 0.05	-0.04 ± 0.15	-0.04 ± 0.07

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STATION CODE	COLLECTION PERIOD	K-40	CS-134	CS-137	BA-140	LA-140
G	03/18-03/18	1400 ± 100	< 2	< 2	< 7	< 3
	06/02-06/03	1300 ± 100	< 2	< 2	< 50	< 20
	08/25-08/26	1300 ± 100	< 1	< 2	< 20	< 7
	11/17-11/18	1300 ± 100	< 2	< 2	< 9	< 3
	MEAN	1325 ± 100	< 2	< 2	< 22	< 8
J	03/17-03/18	1300 ± 100	< 2	< 2	< 6	< 2
	06/03-06/03	1500 ± 100	< 1	< 1	< 40	< 10
	08/26-08/26	1300 ± 100	< 1	< 1	< 6	< 2
	11/18-11/18	1300 ± 100	< 2	< 2	< 9	< 4
	MEAN	1330 ± 200	< 2	< 2	< 15	< 5
O	03/18-03/18	1100 ± 100	< 1	< 1	< 6	< 2
	06/02-06/03	1300 ± 100	< 2	< 2	< 40	< 20
	08/25-08/26	1400 ± 100	< 1	< 1	< 6	< 2
	11/17-11/18	1300 ± 100	< 2	< 2	< 9	< 4
	MEAN	1275 ± 252	< 2	< 2	< 15	< 7
N	03/17-03/18	1300 ± 100	< 2	< 2	< 6	< 3
	06/01-06/03	1300 ± 100	< 2	< 2	< 40	< 10
	08/24-08/26	1300 ± 100	< 2	< 2	< 8	< 3
	11/16-11/18	1300 ± 100	< 2	< 2	< 10	< 4
	MEAN	1300 ± 0	< 2	< 2	< 16	< 5
A	03/17-03/18	1400 ± 100	< 2	< 2	< 6	< 2
	06/03-06/03	1400 ± 100	< 1	< 1	< 40	< 10
	08/26-08/26	1300 ± 100	< 1	< 1	< 6	< 3
	11/18-11/18	1200 ± 100	< 2	< 2	< 9	< 4
	MEAN	1325 ± 191	< 2	< 2	< 15	< 5

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1A	6.4 ± 2.7	6.1 ± 0.5	5.4 ± 0.3	5.4 ± 0.5	8.7 ± 0.5	4.7 ± 0.3	4.8 ± 0.8	7.4 ± 0.4	6.4 ± 0.4	5.9 ± 0.3	7.1 ± 0.3	6.1 ± 0.4	8.7 ± 0.6
1B	6.3 ± 2.7	6.1 ± 0.5	5.7 ± 0.3	5.4 ± 0.3	9.4 ± 0.4	4.9 ± 0.3	4.6 ± 0.9	7.1 ± 0.3	6.0 ± 0.6	5.6 ± 0.3	7.7 ± 0.9	5.7 ± 0.2	7.0 ± 0.3
1C	7.3 ± 2.3	6.9 ± 0.6	6.8 ± 0.5	6.4 ± 0.7	9.9 ± 0.5	6.3 ± 0.4	5.8 ± 0.6	8.4 ± 0.9	7.1 ± 0.6	7.0 ± 0.6	6.9 ± 1.2	7.1 ± 0.4	8.4 ± 0.9
1D	6.8 ± 2.3	7.0 ± 0.5	6.1 ± 0.4	6.1 ± 0.2	9.6 ± 0.5	5.6 ± 0.2	5.6 ± 0.5	8.1 ± 0.8	6.8 ± 0.5	6.4 ± 0.5	6.5 ± 0.3	6.5 ± 0.3	7.8 ± 0.8
1E	6.7 ± 2.4	6.7 ± 0.4	6.3 ± 0.5	5.9 ± 0.4	9.7 ± 0.4	5.4 ± 0.3	5.3 ± 0.7	7.9 ± 0.2	6.7 ± 0.5	6.3 ± 0.6	6.3 ± 0.3	6.3 ± 0.3	7.6 ± 0.3
1F	7.9 ± 2.3	7.8 ± 0.7	7.3 ± 0.3	7.5 ± 0.4	10.9 ± 0.7	6.8 ± 0.5	6.5 ± 1.1	8.8 ± 0.9	7.8 ± 0.7	7.5 ± 0.5	7.5 ± 0.5	7.7 ± 0.7	8.6 ± 0.5
1G	5.5 ± 2.4	5.6 ± 0.1	5.0 ± 0.3	4.7 ± 0.3	8.7 ± 0.3	4.6 ± 0.5	4.2 ± 0.4	6.4 ± 0.8	5.3 ± 0.4	4.9 ± 0.2	4.9 ± 0.6	5.1 ± 0.2	6.1 ± 0.4
1H	7.1 ± 2.8	7.0 ± 0.4	6.2 ± 0.5	6.4 ± 0.3	10.8 ± 1.7	5.9 ± 0.5	5.7 ± 0.7	8.3 ± 0.9	7.0 ± 0.4	6.6 ± 0.2	6.6 ± 0.4	6.4 ± 0.3	8.0 ± 0.5
1I	6.0 ± 2.4	6.2 ± 0.4	5.3 ± 0.3	5.3 ± 0.3	8.9 ± 0.3	4.8 ± 0.2	4.4 ± 0.8	7.1 ± 0.4	5.6 ± 0.6	5.3 ± 0.7	6.4 ± 0.4	6.4 ± 0.4	6.7 ± 0.4
1J	7.9 ± 2.4	7.6 ± 0.4	7.2 ± 0.5	7.2 ± 0.7	11.2 ± 0.7	7.0 ± 0.4	6.7 ± 0.6	8.8 ± 1.2	8.0 ± 1.0	7.6 ± 0.8	7.2 ± 0.2	8.0 ± 0.7	8.6 ± 0.3
1L	5.4 ± 2.7	5.4 ± 0.7	4.6 ± 0.1	4.5 ± 0.3	8.5 ± 0.3	3.7 ± 0.2	4.3 ± 0.7	6.9 ± 0.5	6.4 0.4	4.9 ± 0.1	4.5 ± 0.5	5.4 ± 0.2	5.8 ± 0.8
1M	4.6 ± 2.4	4.7 ± 0.1	4.1 ± 0.2	3.7 ± 0.3	7.7 ± 0.4	3.5 ± 0.2	3.1 ± 0.3	5.5 ± 0.6	4.4 0.6	4.0 ± 0.1	4.0 ± 0.1	4.8 ± 0.4	5.3 ± 0.0
2	6.8 ± 2.5	6.7 ± 0.5	6.1 ± 0.4	5.8 ± 0.3	9.6 ± 0.6	5.5 ± 0.5	5.5 ± 1.3	8.4 ± 0.5	6.8 ± 0.5	6.5 ± 0.6	6.4 ± 0.5	6.9 ± 0.1	7.9 ± 1.6
3A	5.4 ± 2.5	5.3 ± 0.2	4.7 ± 0.6	4.5 ± 0.5	8.4 ± 0.3	4.2 ± 0.2	3.9 ± 0.7	6.5 ± 0.2	5.3 ± 0.3	5.2 ± 0.8	4.7 ± 0.3	5.5 ± 0.1	6.3 ± 0.4
4K	5.1 ± 2.4	5.4 ± 0.1	4.7 ± 0.3	4.3 ± 0.1	8.0 ± 0.6	4.1 ± 0.1	3.7 ± 0.3	6.2 ± 0.3	4.9 ± 0.2	4.4 ± 0.2	4.5 ± 0.1	5.3 ± 0.6	6.0 ± 0.7
5	6.7 ± 2.3	6.2 ± 0.8	6.2 ± 0.3	5.5 ± 0.8	9.5 ± 0.4	5.6 ± 0.5	5.4 ± 0.5	7.9 ± 0.6	7.0 ± 0.4	6.4 ± 0.4	6.3 ± 0.3	6.5 ± 0.5	7.4 ± 0.4
6B	6.0 ± 2.4	5.8 ± 0.3	5.8 ± 0.5	4.9 ± 0.5	9.1 ± 0.4	5.3 ± 0.5	4.3 ± 0.7	6.9 ± 0.1	5.9 ± 0.6	5.7 ± 0.1	5.2 ± 0.2	5.8 ± 0.3	6.8 ± 0.4
1NN	7.7 ± 2.7	7.5 ± 0.3	6.8 ± 0.5	6.7 ± 0.5	11.1 ± 0.6	6.5 ± 0.3	6.1 ± 0.7	9.0 ± 0.8	7.9 ± 0.8	7.2 ± 0.9	7.4 ± 0.3	7.8 ± 1.1	8.3 ± 1.6
14	6.9 ± 2.4	6.8 ± 0.6	6.5 ± 0.6	5.8 ± 0.3	9.9 ± 0.7	6.0 ± 0.5	5.6 ± 0.6	8.2 ± 0.9	6.6 ± 0.6	6.6 ± 0.4	6.5 ± 0.5	7.0 ± 0.4	7.6 ± 0.6
12D	5.8 ± 2.5	6.0 ± 1.2	4.9 ± 0.3	5.0 ± 0.4	8.0 ± 0.6	4.5 ± 0.4	6.5 ± 0.5	4.5 ± 0.2	5.4 ± 0.4	6.0 ± 0.5	6.0 ± 0.4	4.6 ± 0.6	8.2 ± 0.5
15	7.2 ± 2.3	7.0 ± 0.7	6.7 ± 0.3	6.2 ± 0.4	10.0 ± 0.8	6.2 ± 0.4	5.8 ± 0.5	8.4 ± 0.6	7.3 ± 0.7	6.8 ± 0.6	6.7 ± 0.4	7.2 ± 0.4	7.7 ± 1.0
16	7.1 ± 2.5	6.9 ± 0.6	6.7 ± 0.7	6.4 ± 0.4	10.3 ± 0.8	6.3 ± 0.5	5.4 ± 0.9	8.0 ± 1.0	7.0 ± 0.5	6.6 ± 0.4	6.5 ± 0.3	6.9 ± 0.2	7.9 ± 1.2
17	7.9 ± 2.8	7.8 ± 0.5	7.6 ± 0.6	6.8 ± 0.4	11.8 ± 1.4	6.8 ± 0.7	6.7 ± 0.8	9.2 ± 1	7.7 ± 0.7	7.2 ± 0.7	7.2 ± 0.5	7.8 ± 0.5	8.2 ± 0.5
18	7.2 ± 2.0	7.5 ± 0.5	6.6 ± 0.4	6.6 ± 0.1	9.7 ± 0.5	6.2 ± 0.4	6.0 ± 0.6	8.3 ± 0.6	6.9 ± 0.3	6.6 ± 0.9	6.9 ± 0.5	7.4 ± 0.2	7.5 ± 0.3

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
19	7.3 ± 2.3	7.3 ± 0.5	6.7 ± 0.5	6.2 ± 0.4	9.7 ± 0.4	6.3 ± 0.3	5.6 ± 0.8	8.9 ± 0.4	7.2 ± 0.2	6.6 ± 0.3	6.9 ± 0.2	7.6 ± 0.8	8.1 ± 0.5
20	6.3 ± 2.6	6.2 ± 0.3	6.2 ± 0.3	5.3 ± 0.2	9.8 ± 0.9	5.3 ± 0.3	5.0 ± 0.7	7.5 ± 0.5	5.6 ± 0.4	5.7 ± 0.3	5.5 ± 0.4	6.5 ± 0.6	6.9 ± 0.2
21B	7.0 ± 2.2	7.3 ± 0.7	6.1 ± 0.4	7.0 ± 0.8	9.8 ± 0.4	5.7 ± 0.4	6.6 ± 1.4	7.6 ± 0.7	6.9 ± 0.5	6.5 ± 0.7	6.4 ± 0.3	6.9 ± 0.4	7.7 ± 0.3
22	7.5 ± 2.3	7.2 ± 0.4	6.7 ± 0.6	6.6 ± 0.5	10.4 ± 0.6	6.2 ± 0.7	7.0 ± 0.9	8.7 ± 0.6	7.6 ± 0.5	7.1 ± 0.6	7.2 ± 0.6	7.4 ± 0.3	8.1 ± 0.4
23	7.5 ± 2.5	7.5 ± 0.4	6.5 ± 0.6	6.6 ± 0.2	10.1 ± 0.5	6.4 ± 0.3	6.0 ± 0.5	8.7 ± 0.4	7.5 ± 0.6	7.4 ± 0.4	6.5 ± 0.3	7.8 ± 0.4	9.3 ± 0.5
24	5.9 ± 2.5	5.9 ± 0.2	5.2 ± 0.3	5.0 ± 0.6	8.7 ± 0.7	4.8 ± 0.2	4.4 ± 0.4	7.5 ± 0.2	5.8 ± 0.4	5.4 ± 0.[illegible]	5.2 ± 0.2	6.1 ± 0.6	6.8 ± 0.8
26	7.9 ± 2.5	7.8 ± 0.3	7.2 ± 0.2	7.0 ± 0.3	10.6 ± 0.6	6.6 ± 0.5	6.4 ± 0.6	9.5 ± 0.6	8.4 ± 0.7	7.5 ± 0.4	7.1 ± 0.2	8.2 ± 0.3	8.6 ± 0.3
27	7.4 ± 2.5	7.0 ± 0.1	6.7 ± 0.5	6.5 ± 0.4	10.4 ± 0.5	6.3 ± 0.3	6.0 ± 0.8	9.0 ± 0.6	7.2 ± 0.5	7.2 ± 0.5	6.9 ± 0.5	7.7 ± 0.4	7.9 ± 0.6
32	7.6 ± 2.7	7.5 ± 0.8	6.3 ± 0.8	6.7 ± 0.6	10.6 ± 0.4	6.6 ± 0.3	5.9 ± 0.7	9.0 ± 0.8	8.0 ± 0.6	6.8 ± 0.7	7.1 ± 0.7	7.8 ± 0.5	8.6 ± 1.0
31A	5.9 ± 2.2	6.1 ± 1.1	5.6 ± 0.7	4.9 ± 0.6	8.6 ± 0.1	4.8 ± 0.1	4.6 ± 0.4	7.0 ± 0.8	6.1 ± 0.2	5.5 ± 0.4	5.2 ± 0.1	6.1 ± 0.5	6.5 ± 0.5
33A	5.9 ± 2.0	5.6 ± 0.5	5.2 ± 0.2	5.0 ± 0.4	8.3 ± 0.3	4.8 ± 0.1	5.6 ± 1.0	6.7 ± 1.1	5.7 ± 0.3	5.3 ± 0.2	5.3 ± 1.0	6.7 ± 0.4	6.3 ± 0.4
38	7.5 ± 2.4	7.4 ± 0.3	6.7 ± 0.4	6.4 ± 0.4	10.3 ± 0.2	6.4 ± 0.5	6.2 ± 0.7	8.7 ± 0.6	7.5 ± 0.5	6.9 ± 0.6	7.0 ± 0.5	8.3 ± 2.1	8.1 ± 0.6
40	8.1 ± 2.3	8.0 ± 0.5	7.1 ± 0.2	6.9 ± 0.5	10.9 ± 0.7	7.1 ± 0.6	7.1 ± 0.4	9.6 ± 1.9	8.2 ± 0.5	7.8 ± 0.7	7.7 ± 0.7	7.9 ± 0.4	8.4 ± 0.3
42	6.2 ± 2.5	6.5 ± 0.6	5.6 ± 0.4	5.3 ± 0.2	9.2 ± 0.4	5.0 ± 0.4	4.8 ± 0.5	7.5 ± 0.4	6.2 ± 0.5	5.5 ± 0.4	5.6 ± 0.3	6.1 ± 0.2	6.8 ± 0.4
43	8.1 ± 2.8	7.5 ± 0.5	7.1 ± 0.3	7.2 ± 0.4	10.9 ± 0.4	6.9 ± 0.6	6.1 ± 0.8	9.5 ± 0.8	9.9 ± 0.2	7.7 ± 0.2	7.6 ± 0.3	8.1 ± 0.9	8.5 ± 0.4
44	7.0 ± 3.3	6.6 ± 0.2	6.3 ± 0.3	5.6 ± 0.9	11.5 ± 1.1	6.0 ± 0.3	5.4 ± 0.7	8.3 ± 0.4	6.8 ± 0.6	6.5 ± 0.6	6.2 ± 0.5	7.1 ± 0.6	7.5 ± 0.4
45	7.6 ± 2.8	7.1 ± 0.5	6.8 ± 0.3	6.5 ± 0.4	10.4 ± 0.6	6.4 ± 0.3	6.2 ± 0.5	10.2 ± 1.0	7.9 ± 0.8	7.1 ± 0.8	7.1 ± 0.5	7.6 ± 0.5	8.4 ± 1.2
46	7.0 ± 2.5	6.6 ± 0.4	6.2 ± 0.6	5.8 ± 0.5	9.6 ± 0.6	5.8 ± 0.3	5.4 ± 0.6	8.7 ± 0.7	7.1 ± 0.8	6.8 ± 0.4	6.7 ± 0.3	7.1 ± 2.1	7.9 ± 1.6
47	8.0 ± 2.1	7.9 ± 0.5	7.1 ± 0.7	6.8 ± 0.7	10.5 ± 1.6	7.0 ± 0.6	7.0 ± 0.6	8.8 ± 0.9	8.2 ± 0.6	7.9 ± 0.7	7.6 ± 0.1	8.3 ± 1.0	8.6 ± 0.7
4P	7.3 ± 2.3	7.2 ± 0.5	6.5 ± 0.4	6.4 ± 0.3	10.0 ± 0.5	6.2 ± 0.4	5.9 ± 0.7	8.7 ± 0.5	7.4 ± 0.7	7.4 ± 0.6	6.8 ± 0.6	7.5 ± 1.4	7.9 ± 0.7
49	7.4 ± 2.1	7.2 ± 0.4	6.8 ± 0.5	6.5 ± 0.4	9.8 ± 1.0	6.4 ± 0.3	6.0 ± 0.5	8.7 ± 0.5	7.4 ± 0.6	7.0 ± 0.5	7.0 ± 0.4	7.4 ± 0.4	8.1 ± 0.8
50	8.4 ± 2.5	7.9 ± 0.5	7.7 ± 0.5	7.2 ± 0.5	10.0 ± 0.8	7.3 ± 0.7	7.1 ± 1.0	10.5 ± 0.5	10.4 ± 0.5	7.9 ± 0.7	7.9 ± 0.4	8.4 ± 0.2	8.8 ± 0.5
51	7.9 ± 3.4	7.4 ± 0.5	6.7 ± 0.5	6.6 ± 0.5	12.3 ± 0.5	6.3 ± 0.3	6.5 ± 0.7	9.1 ± 1.0	9.3 ± 1.1	7.4 ± 0.5	7.3 ± 0.5	7.6 ± 0.5	8.6 ± 0.7

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.

TABLE C-VIII.2 QUARTERLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
1A	5.1 ± 1.7	4.6 ± 0.1	5.9 ± 0.3	5.7 ± 0.7	4.1 ± 0.5
1B	5.0 ± 1.9	4.9 ± 0.0	6.0 ± 0.2	5.3 ± 0.3	4.7 ± 0.2
1C	6.3 ± 1.8	6.3 ± 0.3	7.4 ± 0.5	6.4 ± 0.2	5.2 ± 0.3
1D	5.9 ± 1.3	5.4 ± 1.4	6.8 ± 0.2	5.9 ± 0.3	5.5 ± 0.4
1E	5.8 ± 1.3	5.4 ± 0.1	6.7 ± 0.6	5.8 ± 0.3	5.3 ± 0.5
1F	6.8 ± 0.3	6.7 ± 0.4	6.9 ± 0.3	7.0 ± 0.3	6.7 ± 0.5
1G	4.6 ± 1.7	4.2 ± 0.1	5.8 ± 0.3	4.3 ± 0.4	4.0 ± 0.1
1H	6.0 ± 1.9	5.5 ± 0.3	7.1 ± 0.7	6.4 ± 0.2	4.9 ± 0.5
1I	4.9 ± 0.3	4.7 ± 0.2	5.0 ± 0.3	5.0 ± 0.3	4.8 ± 0.4
1J	7.0 ± 1.5	6.5 ± 0.3	8.1 ± 0.8	6.9 ± 0.3	6.5 ± 1.2
1L	4.1 ± 1.1	3.9 ± 0.2	4.2 ± 0.1	4.9 ± 0.3	3.6 ± 0.1
1M	3.4 ± 1.6	4.3 ± 0.3	3.3 ± 0.1	3.6 ± 0.1	2.4 ± 0.1
2	5.6 ± 2.0	5.4 ± 0.3	6.9 ± 0.4	5.7 ± 0.4	4.5 ± 0.3
3A	4.1 ± 1.7	3.9 ± 0.1	5.2 ± 0.2	4.2 ± 0.3	3.1 ± 0.7
4K	4.1 ± 1.1	3.9 ± 0.1	4.9 ± 0.2	3.8 ± 0.1	3.7 ± 0.1
5	5.8 ± 1.3	5.3 ± 0.2	6.7 ± 0.3	5.5 ± 0.2	5.6 ± 0.2
6B	4.9 ± 1.0	4.5 ± 0.2	5.6 ± 0.2	4.7 ± 0.1	4.8 ± 0.2
1NN	6.3 ± 1.1	6.7 ± 0.3	6.8 ± 0.3	6.3 ± 0.4	5.6 ± 0.1
14	6.0 ± 1.3	5.6 ± 0.3	7.0 ± 0.4	5.7 ± 0.1	5.8 ± 0.1
12D	4.6 ± 1.0	4.7 ± 0.5	4.1 ± 0.3	5.3 ± 0.5	4.5 ± 0.4
15	6.1 ± 1.1	5.9 ± 0.4	7.0 ± 0.4	5.8 ± 0.2	5.9 ± 0.5
16	5.8 ± 0.2	5.7 ± 0.3	5.9 ± 0.4	5.9 ± 0.4	5.9 ± 0.5
17	7.1 ± 1.0	6.6 ± 0.4	6.9 ± 0.6	7.8 ± 0.4	7.0 ± 0.9
18	6.1 ± 0.1	6.1 ± 0.2	6.2 ± 0.3	6.1 ± 0.3	6.2 ± 0.2

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE QUARTERLY RESULTS.

TABLE C-VIII.2 QUARTERLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 S.D.

STATION CODE	MEAN ± 2 S.D. (1)	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
19	6.3 ± 1.3	6.1 ± 0.3	7.2 ± 0.4	6.2 ± 0.2	5.7 ± 0.2
20	5.8 ± 1.5	6.4 ± 0.3	6.5 ± 0.6	5.1 ± 0.3	5.2 ± 0.5
21B	6.3 ± 1.7	7.3 ± 0.4	6.8 ± 0.2	5.7 ± 0.4	5.6 ± 0.4
22	6.6 ± 1.1	6.7 ± 0.3	7.3 ± 0.7	6.1 ± 0.5	6.3 ± 1.1
23	6.3 ± 0.7	6.6 ± 0.4	6.5 ± 0.3	5.9 ± 0.2	6.0 ± 0.1
24	5.0 ± 1.2	5.1 ± 0.2	4.9 ± 0.1	5.8 ± 0.4	4.4 ± 0.4
26	6.8 ± 1.8	7.0 ± 0.3	7.0 ± 0.4	7.8 ± 0.4	5.6 ± 0.3
27	6.2 ± 2.5	6.3 ± 0.1	7.8 ± 0.8	5.8 ± 0.3	4.8 ± 0.3
32	6.8 ± 1.3	6.7 ± 0.3	7.8 ± 0.7	6.3 ± 0.4	6.5 ± 0.6
31A	4.8 ± 0.4	4.9 ± 0.1	5.0 ± 0.3	4.5 ± 0.3	4.9 ± 0.3
33A	4.6 ± 0.8	4.9 ± 0.1	4.9 ± 0.2	4.1 ± 0.3	4.4 ± 0.3
38	6.3 ± 0.6	6.5 ± 0.3	6.6 ± 0.4	5.9 ± 0.3	6.2 ± 0.6
40	7.1 ± 1.9	7.0 ± 0.4	8.5 ± 0.6	6.5 ± 0.5	6.5 ± 0.3
42	4.8 ± 1.4	5.4 ± 0.1	5.3 ± 0.4	4.7 ± 0.2	3.9 ± 0.3
43	6.9 ± 1.0	6.9 ± 0.5	7.6 ± 0.7	6.4 ± 0.5	6.8 ± 0.6
44	5.4 ± 1.4	5.9 ± 0.2	6.0 ± 0.4	5.1 ± 0.3	4.5 ± 0.2
45	6.4 ± 1.9	6.4 ± 0.3	7.7 ± 1.0	6.2 ± 0.7	5.4 ± 0.3
46	5.7 ± 1.9	5.7 ± 0.3	6.9 ± 0.7	5.5 ± 0.3	4.6 ± 0.3
47	7.1 ± 1.5	6.9 ± 0.4	8.2 ± 0.3	6.4 ± 0.4	6.9 ± 0.9
48	6.1 ± 2.0	6.1 ± 0.2	7.4 ± 0.5	5.9 ± 0.3	5.0 ± 0.4
49	6.0 ± 0.7	6.4 ± 0.4	6.3 ± 0.7	5.8 ± 0.3	5.7 ± 0.1
50	6.8 ± 1.3	7.3 ± 0.5	7.4 ± 0.4	6.7 ± 0.5	6.0 ± 0.4
51	6.4 ± 1.9	6.6 ± 0.3	7.6 ± 0.6	6.1 ± 0.5	5.3 ± 0.3

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE QUARTERLY RESULTS.

TABLE C-VIII.3 1991 MEAN TLD RESULTS FROM PEACH BOTTOM ATOMIC POWER STATION FOR THE SITE BOUNDARY, MIDDLE, AND OUTER RINGS

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO. ± 2 STANDARD DEVIATIONS OF THE STATION DATA

SAMPLE TYPE	EXPOSURE PERIOD	SITE	MIDDLE RING	OUTER RING
MONTHLY	JAN 1991	6.7 ± 2.0	6.9 ± 1.6	6.7 ± 1.4
	FEB 1991	6.1 ± 2.0	6.4 ± 1.6	6.1 ± 1.5
	MAR 1991	5.9 ± 2.2	6.1 ± 1.7	5.8 ± 1.3
	APR 1991	9.8 ± 2.2	10.0 ± 2.1	9.4 ± 1.6
	MAY 1991	5.6 ± 2.4	6.0 ± 1.7	5.6 ± 1.5
	JUN 1991	5.4 ± 2.2	5.7 ± 1.8	5.6 ± 1.6
	JUL 1991	7.9 ± 2.3	8.4 ± 2.2	7.5 ± 2.8
	AUG 1991	6.8 ± 2.2	7.3 ± 2.6	6.4 ± 1.5
	SEP 1991	6.3 ± 2.3	6.7 ± 1.8	6.2 ± 1.0
	OCT 1991	6.4 ± 2.5	6.5 ± 1.9	6.2 ± 1.3
	NOV 1991	6.6 ± 2.2	7.2 ± 1.8	6.6 ± 2.0
	DEC 1991	7.5 ± 2.2	7.8 ± 1.8	7.6 ± 1.1
QUARTERLY	JAN-MAR 1991	5.6 ± 2.1	6.0 ± 1.9	5.9 ± 1.7
	APR-JUN 1991	6.5 ± 2.9	6.7 ± 2.0	5.9 ± 2.2
	JUL-SEP 1991	5.8 ± 2.0	5.7 ± 2.0	5.7 ± 0.8
	OCT-DEC 1991	5.0 ± 2.4	5.4 ± 2.0	5.4 ± 1.4

TABLE C-VIII.4 SUMMARY OF THE 1991 AMBIENT DOSIMETRY PROGRAM FOR PEACH BOTTOM ATOMIC POWER STATION

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MO.

SAMPLE TYPE	LOCATION	NO. OF SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.	PRE-OP MEAN ± 2 S.D. (1)
MONTHLY	SITE	156	3.1	11.2	6.8 ± 3.2	5.3 ± 2.2
	MIDDLE RING	300	3.7	12.3	7.1 ± 3.0	6.0 ± 2.0
	OUTER RING	84	4.4	10.3	6.6 ± 2.6	6.2 ± 1.4
QUARTERLY	SITE	52	2.4	8.5	5.7 ± 2.6	5.4 ± 1.7
	MIDDLE RING	100	3.1	8.2	5.9 ± 2.2	5.3 ± 1..
	OUTER RING	28	4.1	7.3	5.7 ± 1.6	5.7 ± 1.6

(1) THE PRE-OPERATIONAL MEAN WAS CALCULATED FROM TLD READINGS 1/07/73 TO 8/05/73. STATIONS 1M, 31 AND 32 WERE ADDED TO THE PROGRAM 7/06/73 AND STATIONS 33A AND 38 WERE NOT IN THE PRE-OPERATIONAL PROGRAM. STATIONS 1NN AND 40 THROUGH 51 WERE ADDED TO THE PROGRAM ON 07/12/80.

SITE BOUNDARY RING STATIONS - 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1L, 1M, 1NN, 2, AND 40.

MIDDLE RING STATIONS - 3A, 4K, 5, 6B, 14, 15, 17, 22, 23, 26, 27, 31, 31A, 32, 33A, 38, 42, 43, 44, 45, 46,47, 48, 49, 50, 51.

OUTER RING STATIONS - 12D, 16, 18, 19, 20, 21B, 24.

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

SURFACE WATER (GROSS BETA AND GAMMA)

COLLECTION PERIOD	13A	13B	1LL	1MM
JAN 91	02/02-02/02	01/18-01/18	01/04-02/01	01/04-02/01
FEB 91	03/02-03/02	02/28-02/28	02/01-02/28	02/01-02/28
MAR 91	04/06-04/06		02/28-04/04	02/28-04/04
APR 91	05/04-05/04	04/19-04/19	04/04-05/02	04/04-05/02
MAY 91	06/01-06/01	05/22-05/22	05/02-05/30	05/02-05/30
JUN 91	07/08-07/08	06/28-06/28	05/30-07/04	05/30-07/04
JUL 91	08/03-08/03	08/02-08/02	07/04-08/01	07/04-08/01
AUG 91	08/31-08/31	08/23-08/23	08/01-08/29	08/01-08/29
SEP 91	10/05-10/05	09/13-09/13	08/30-10/03	08/30-10/03
OCT 91	11/02-11/02	10/18-10/18	10/03-10/31	10/03-10/31
NOV 91	12/09-12/09	11/08-11/08	10/31-12/05	10/31-12/05
DEC 91	01/04-01/04	12/19-12/19	12/05-01/02	12/05-01/02

SURFACE WATER (TRITIUM)

COLLECTION PERIOD	13A	13B	1LL	1MM
JAN-MAR 91	02/02-04/06		01/04-04/04	01/04-04/04
APR-JUN 91	05/04-07/08		04/04-07/04	04/04-07/04
JUL-SEP 91	08/03-10/05		07/04-10/03	07/04-10/03
OCT-DEC 91	10/05-01/04		10/03-01/02	10/03-01/02

DRINKING WATER (GROSS BETA AND GAMMA) (IODINE - 131)

COLLECTION PERIOD	4L	6I	4L	6I
JAN 91	01/04-02/01	01/05-02/02	01/25-02/01	01/25-02/02
FEB 91	02/01-03/01	02/02-03/02	02/22-03/01	02/22-03/02
MAR 91	03/01-04/05	03/02-04/06	03/30-04/05	03/30-04/06
APR 91	04/05-05/03	04/06-05/04	04/26-05/03	04/26-05/04
MAY 91	05/03-05/31	05/04-06/01	05/24-05/31	05/24-06/01
JUN 91	05/31-07/07	06/01-07/07	06/28-07/07	06/28-07/08
JUL 91	07/07-08/02	07/08-08/02	07/26-08/02	07/26-08/03
AUG 91	08/02-08/30	08/03-08/31	08/23-08/30	08/23-08/31
SEP 91	08/30-10/04	08/31-10/04	09/27-10/04	09/27-10/05
OCT 91	10/04-11/01	10/05-11/02	10/25-11/01	10/25-11/02
NOV 91	11/01-12/08	11/02-12/09	11/29-12/08	12/02-12/09
DEC 91	12/08-01/03	12/04-01/04	12/27-01/03	12/14-01/04

DRINKING WATER (TRITIUM)

JAN-MAR 91	01/04-04/05	01/05-04/06
APR-JUN 91	04/05-07/07	04/06-07/07
JUL-SEP 91	07/07-10/04	07/08-10/05
OCT-DEC 91	10/04-01/03	10/05-01/04

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

AIR PARTICULATE AND AIR IODINE

	GROUP 1 - ON-SITE LOCATIONS		
WEEK	18	12	2
01	12/28-01/04	12/28-01/04	12/28-01/04
02	01/04-01/13	01/04-01/13	01/04-01/13
03	01/13-01/18	01/13-01/18	01/13-01/18
04	01/18-01/25	01/18-01/25	01/18-01/25
05	01/25-02/01	01/25-02/01	01/25-02/01
06	02/01-02/08	02/01-02/08	02/01-02/08
07	02/08-02/16	02/08-02/16	02/08-02/16
08	02/16-02/23	02/16-02/23	02/16-02/23
09	02/23-03/01	02/23-03/01	02/23-03/01
10	03/01-03/08	03/01-03/08	03/01-03/08
11	03/08-03/15	03/08-03/15	03/08-03/15
12	03/15-03/24	03/15-03/24	03/15-03/24
13	03/24-03/30	03/24-03/30	03/24-03/30
14	03/30-04/06	03/30-04/05	03/30-04/05
15	04/06-04/12	04/05-04/12	04/05-04/12
16	04/12-04/19	04/12-04/19	04/12-04/19
17	04/19-04/26	04/19-04/26	04/19-04/26
18	04/26-05/03	04/26-05/03	04/26-05/03
19	05/03-05/10	05/03-05/10	05/03-05/10
20	05/10-05/17	05/10-05/17	05/10-05/17
21	05/17-05/24	05/17-05/24	05/17-05/24
22	05/24-05/31	05/24-05/31	05/24-05/31
23	05/31-06/07	05/31-06/07	05/31-06/07
24	06/07-06/14	06/07-06/14	06/07-06/14
25	06/14-06/22	06/14-06/22	06/14-06/22
26	06/22-06/28	06/22-06/28	06/22-06/28
27	06/28-07/07	06/28-07/07	06/28-07/07
28	07/07-07/13	07/07-07/13	07/07-07/13
29	07/13-07/19	07/13-07/19	07/13-07/19
30	07/19-07/26	07/19-07/26	07/19-07/26
31	07/26-08/02	07/26-08/02	07/26-08/02
32	08/02-08/09	08/02-08/09	08/02-08/09
33	08/09-08/15	08/09-08/15	08/09-08/15
34	08/15-08/23	08/15-08/23	08/15-08/23
35	08/23-08/30	08/23-08/30	08/23-08/30
36	08/30-09/08	08/30-09/08	08/30-09/08
37	09/08-09/16	09/08-09/16	09/08-09/16
38	09/16-09/21	09/16-09/21	09/16-09/21
39	09/21-09/27	09/21-09/27	09/21-09/27
40	09/27-10/04	09/27-10/04	09/27-10/04
41	10/04-10/11	10/04-10/11	10/04-10/11
42	10/11-10/18	10/11-10/18	10/11-10/18
43	10/18-10/26	10/18-10/26	10/18-10/26
44	10/26-11/01	10/26-11/01	10/26-11/01
45	11/01-11/08	11/01-11/08	11/01-11/08
46	11/08-11/15	11/08-11/15	11/08-11/15
47	11/15-11/22	11/15-11/22	11/15-11/22
48	11/22-11/29	11/22-11/29	11/22-11/29
49	11/29-12/08	11/29-12/08	11/29-12/08
50	12/08-12/14	12/08-12/14	12/08-12/14
51	12/14-12/21	12/14-12/21	12/14-12/21
52	12/21-12/27	12/21-12/27	12/21-12/27
53	12/27-01/03	12/27-01/03	12/27-01/03

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

AIR PARTICULATE AND AIR IODINE

	GROUP II - INTERMEDIATE DISTANCE LOCATIONS				
WEEK	3A	5	14	15	17
01	12/28-01/04	12/29-01/05	12/29-01/05	12/29-01/05	12/29-01/05
02	01/04-01/13	01/05-01/12	01/05-01/12	01/05-01/12	01/05-01/12
03	01/13-01/18	01/12-01/18	01/12-01/18	01/12-01/18	01/12-01/18
04	01/18-01/25	01/18-01/25	01/18-01/25	01/18-01/25	01/18-01/25
05	01/25-02/01	01/25-02/02	01/25-02/02	01/25-02/02	01/25-02/02
06	02/01-02/08	02/02-02/08	02/02-02/08	02/02-02/08	02/02-02/08
07	02/08-02/16	02/08-02/15	02/08-02/15	02/08-02/15	02/08-02/15
08	02/16-02/23	02/15-02/22	02/15-02/23	02/15-02/23	02/15-02/22
09	02/23-03/01	02/22-03/02	02/23-03/02	02/23-03/02	02/22-03/02
10	03/01-03/08	03/02-03/08	03/02-03/08	03/02-03/08	03/02-03/08
11	03/08-03/15	03/08-03/16	03/08-03/16	03/08-03/16	03/08-03/16
12	03/15-03/24	03/16-03/23	03/16-03/23	03/16-03/23	03/16-03/23
13	03/24-03/30	03/23-03/30	03/23-03/30	03/23-03/30	03/23-03/30
14	03/30-04/05	03/30-04/06	03/30-04/06	03/30-04/06	03/30-04/06
15	04/05-04/12	04/06-04/12	04/06-04/12	04/06-04/12	04/06-04/12
16	04/12-04/19	04/12-04/19	04/12-04/19	04/12-04/19	04/12-04/19
17	04/19-04/26	04/19-04/26	04/19-04/26	04/19-04/26	04/19-04/26
18	04/26-05/03	04/26-05/04	04/26-05/04	04/26-05/04	04/26-05/04
19	05/03-05/10	05/04-05/10	05/04-05/10	05/04-05/10	05/04-05/10
20	05/10-05/17	05/10-05/17	05/10-05/17	05/10-05/17	05/10-05/17
21	05/17-05/24	05/17-05/24	05/17-05/24	05/17-05/24	05/17-05/24
22	05/24-05/31	05/24-06/01	05/24-06/01	05/24-06/01	05/24-06/01
23	05/31-06/07	06/01-06/07	06/01-06/07	06/01-06/07	06/01-06/07
24	06/07-06/14	06/07-06/14	06/07-06/14	06/07-06/14	06/07-06/14
25	06/14-06/22	06/14-06/22	06/14-06/22	06/14-06/22	06/14-06/22
26	06/22-06/28	06/22-06/28	06/22-06/28	06/22-06/28	06/22-06/28
27	06/28-07/07	06/28-07/08	06/28-07/08	06/28-07/08	06/28-07/08
28	07/07-07/13	07/08-07/13	07/08-07/13	07/08-07/13	07/08-07/13
29	07/13-07/19	07/13-07/19	07/13-07/19	07/13-07/19	07/13-07/19
30	07/19-07/26	07/19-07/26	07/19-07/26	07/19-07/26	07/19-07/26
31	07/26-08/02	07/26-08/03	07/26-08/03	07/26-08/03	07/26-08/03
32	08/02-08/09	08/03-08/09	08/03-08/09	08/03-08/09	08/03-08/09
33	08/09-08/15	08/09-08/15	08/09-08/15	08/09-08/15	08/09-08/15
34	08/15-08/23	08/15-08/23	08/15-08/23	08/15-08/23	08/15-08/23
35	08/23-08/30	08/23-08/31	08/23-08/31	08/23-08/31	08/23-08/31
36	08/30-09/08	08/31-09/08	08/31-09/08	08/31-09/08	08/31-09/08
37	09/08-09/16	09/08-09/16	09/08-09/16	09/08-09/16	09/08-09/16
38	09/16-09/21	09/16-09/21	09/16-09/21	09/16-09/21	09/16-09/21
39	09/21-09/27	09/21-09/27	09/21-09/27	09/21-09/27	09/21-09/27
40	09/27-10/04	09/27-10/05	09/27-10/05	09/27-10/05	09/27-10/05
41	10/04-10/11	10/05-10/11	10/05-10/11	10/05-10/11	10/05-10/11
42	10/11-10/18	10/11-10/18	10/11-10/18	10/11-10/18	10/11-10/18
43	10/18-10/26	10/18-10/25	10/18-10/25	10/18-10/25	10/18-10/25
44	10/26-11/01	10/25-11/02	10/25-11/02	10/25-11/02	10/25-11/02
45	11/01-11/08	11/01-11/08	11/02-11/08	11/02-11/08	11/02-11/08
46	11/08-11/15	11/08-11/15	11/08-11/15	11/08-11/15	11/08-11/15
47	11/15-11/22	11/15-11/22	11/15-11/22	11/15-11/22	11/15-11/22
48	11/22-11/29	11/22-11/29	11/22-11/29	11/22-11/29	11/22-11/29
49	11/29-12/08	11/29-12/09	11/29-12/09	11/29-12/09	11/29-12/09
50	12/08-12/14	12/09-12/14	12/09-12/14	12/09-12/14	12/09-12/14
51	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21	12/14-12/21
52	12/21-12/27	12/21-12/27	12/21-12/28	12/21-12/28	12/21-12/27
53	12/27-01/03	12/27-01/04	12/28-01/04	12/28-01/04	12/27-01/04

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

AIR PARTICULATE AND AIR IODINE

WEEK	32	33A	38
01	12/29-01/05	12/29-01/05	12/29-01/05
02	01/05-01/12	01/05-01/12	01/05-01/12
03	01/12-01/18	01/12-01/18	01/12-01/18
04	01/18-01/25	01/18-01/25	01/18-01/25
05	01/25-02/02	01/25-02/02	01/25-02/02
06	02/02-02/08	02/02-02/08	02/02-02/08
07	02/08-02/15	02/08-02/15	02/08-02/15
08	02/15-02/23	02/15-02/23	02/15-02/22
09	02/23-03/02	02/23-03/02	02/22-03/02
10	03/02-03/08	03/02-03/08	03/02-03/08
11	03/08-03/16	03/08-03/16	03/08-03/16
12	03/16-03/23	03/16-03/23	03/16-03/23
13	03/23-03/30	03/23-03/30	03/23-03/30
14	03/30-04/06	03/30-04/06	03/30-04/06
15	04/06-04/12	04/06-04/12	04/06-04/12
16	04/12-04/19	04/12-04/19	04/12-04/19
17	04/19-04/26	04/19-04/26	04/19-04/26
18	04/26-05/04	04/26-05/04	04/26-05/04
19	05/04-05/10	05/04-05/10	05/04-05/10
20	05/10-05/17	05/10-05/17	05/10-05/17
21	05/17-05/24	05/17-05/24	05/17-05/24
22	05/24-06/01	05/24-06/01	05/24-06/01
23	06/01-06/07		06/01-06/07
24	06/07-06/14		06/07-06/14
25	06/14-06/22		06/14-06/22
26	06/22-06/28		06/22-06/28
27	06/28-07/08		06/28-07/08
28	07/08-07/13		07/08-07/13
29	07/13-07/19		07/13-07/19
30	07/19-07/26		07/19-07/26
31	07/26-08/03		07/26-08/03
32	08/03-08/09		08/03-08/09
33	08/09-08/15		08/09-08/15
34	08/15-08/23		08/15-08/23
35	08/23-08/31		08/23-08/31
36	08/31-09/08		08/31-09/08
37	09/08-09/16		09/08-09/16
38	09/16-09/21		09/16-09/21
39	09/21-09/27		09/21-09/27
40	09/27-10/05		09/27-10/05
41	10/05-10/11		10/05-10/11
42	10/11-10/18		10/11-10/18
43	10/18-10/25		10/18-10/25
44	10/25-11/02		10/25-11/02
45	11/02-11/08		11/02-11/08
46	11/08-11/15		11/08-11/15
47	11/15-11/22		11/15-11/22
48	11/22-11/29		11/22-11/29
49	11/29-12/09		11/29-12/09
50	12/09-12/14		12/09-12/14
51	12/14-12/21		12/14-12/21
52	12/21-12/28		12/21-12/27
53	12/28-01/04		12/27-01/04

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

AIR PARTICULATE AND AIR IODINE

	GROUP III - CONTROL LOCATIONS		
WEEK	4A	6E	12D
01	12/29-01/04	12/29-01/05	12/31-01/07
02	01/04-01/08	01/05-01/12	01/07-01/14
03	01/08-01/15	01/12-01/18	01/14-01/22
04	01/15-01/22	01/18-01/25	01/22-01/28
05	01/22-01/29	01/25-02/02	01/28-02/04
06	02/01-02/08	02/02-02/08	02/04-02/11
07	02/08-02/15	02/08-02/15	02/11-02/19
08	02/15-02/22	02/15-02/22	02/19-02/25
09	02/22-03/01	02/22-03/02	02/25-03/05
10	03/01-03/08	03/02-03/08	03/05-03/11
11	03/08-03/15	03/08-03/16	03/11-03/18
12	03/15-03/23	03/16-03/23	03/18-03/25
13	03/23-03/30	03/23-03/30	03/25-04/01
14	03/30-04/05	03/30-04/06	04/01-04/08
15	04/05-04/12	04/06-04/12	04/08-04/15
16	04/12-04/19	04/12-04/19	04/15-04/22
17	04/19-04/26	04/19-04/26	04/22-04/29
18		04/26-05/04	04/29-05/06
19		05/04-05/10	05/06-05/13
20	05/10-05/17	05/10-05/17	05/13-05/20
21	05/17-05/24	05/17-05/24	05/20-05/28
22	05/24-05/31	05/24-06/01	05/28-06/03
23	05/31-06/07	06/01-06/07	06/03-06/10
24	06/07-06/14	06/07-06/14	06/10-06/17
25	06/14-06/22	06/14-06/22	06/17-06/24
26	06/22-06/28	06/22-06/28	06/24-07/01
27	06/28-07/07	06/28-07/08	07/01-07/08
28		07/08-07/13	07/08-07/15
29		07/13-07/19	07/15-07/22
30		07/19-07/26	07/22-07/29
31	07/26-08/02	07/26-08/03	07/29-08/05
32	08/02-08/09	08/03-08/09	08/05-08/12
33	08/09-08/15	08/09-08/15	08/12-08/19
34		08/15-08/23	08/19-08/26
35	08/23-08/30	08/23-08/31	08/26-09/03
36	08/30-09/08	08/31-09/08	09/03-09/09
37	09/08-09/16	09/08-09/16	09/09-09/16
38	09/16-09/21	09/16-09/21	09/16-09/23
39	09/21-09/27	09/21-09/27	09/23-09/30
40	09/27-10/04	09/27-10/05	09/30-10/07
41	10/04-10/11	10/05-10/11	10/07-10/15
42	10/11-10/18	10/11-10/18	10/15-10/21
43	10/18-10/25	10/18-10/25	10/21-10/28
44	10/25-11/01	10/25-11/02	10/28-11/05
45	11/01-11/08	11/01-11/08	11/05-11/12
46	11/08-11/15		11/12-11/18
47	11/15-11/22	11/15-11/22	11/18-11/25
48	11/22-11/29	11/22-11/29	11/25-12/02
49	11/29-12/08	11/29-12/09	12/02-12/10
50	12/08-12/14	12/09-12/14	12/10-12/16
51	12/14-12/21	12/14-12/21	12/16-12/23
52	12/21-12/27	12/21-12/28	12/23-12/30
53	12/27-01/03	12/28-01/04	

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

TLD - MONTHLY

STATION CODE	JAN 1991	FEB 1991	MAR 1991	APR 1991	MAY 1991	JUN 1991	JUL 1991	AUG 1991	SEP 1991	OCT 1991	NOV 1991	DEC 1991
1A	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1B	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1C	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1D	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1E	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1F	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1G	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1H	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1I	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1J	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1L	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
1M	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
2	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
3A	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
4K	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
5	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
6B	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
1NN	01/04-02/01	02/01-03/01	03/01-04/06	04/06-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
14	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
12D	01/07-02/11	02/11-03/11	03/11-04/08	04/08-05/06	05/06-06/03	06/03-07/08	07/09-08/05	08/05-09/09	09/09-09/30	09/30-11/05	11/05-12/10	12/10-01/06
15	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
16	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
17	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
18	01/05-02/02	02/02-03/02	03/02-04/05	04/05-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
19	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
20	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
21B	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
22	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
23	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
24	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
26	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
27	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
32	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
31A	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
33A	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
38	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
40	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
42	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
43	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
44	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
45	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04
46	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
47	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
48	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
49	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
50	01/04-02/01	02/01-03/01	03/01-04/05	04/05-05/03	05/03-05/31	05/31-07/07	07/07-08/02	08/02-08/30	08/30-10/04	10/04-11/01	11/01-12/08	12/08-01/03
51	01/05-02/02	02/02-03/02	03/02-04/06	04/06-05/04	05/04-06/01	06/01-07/08	07/08-08/03	08/03-08/31	08/31-10/05	10/05-11/02	11/02-12/09	12/09-01/04

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

TLD - QUARTERLY

STATION CODE	JAN-MAR 1991	APR-JUN 1991	JUL-SEP 1991	OCT-DEC 1991
1A	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1B	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
1C	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1D	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1E	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
1F	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1G	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
1H	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
1I	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1J	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
1L	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
1M	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
2	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
3A	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
4K	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
5	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
6B	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
1NN	01/04-04/06	04/06-07/07	07/07-10/04	10/04-01/03
14	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
12D	01/07-04/08	04/08-07/08	07/08-09/30	09/30-01/06
15	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
16	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
17	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
18	01/05-04/05	04/05-07/08	07/08-10/05	10/05-01/04
19	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
20	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
21B	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
22	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
23	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
24	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
26	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
27	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
32	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
31A	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
33A	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
38	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
40	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
42	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
43	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
44	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
45	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04
46	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
47	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
48	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
49	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
50	01/04-04/05	04/05-07/07	07/07-10/04	10/04-01/03
51	01/05-04/06	04/06-07/08	07/08-10/05	10/05-01/04

FIGURE C-1
MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1991

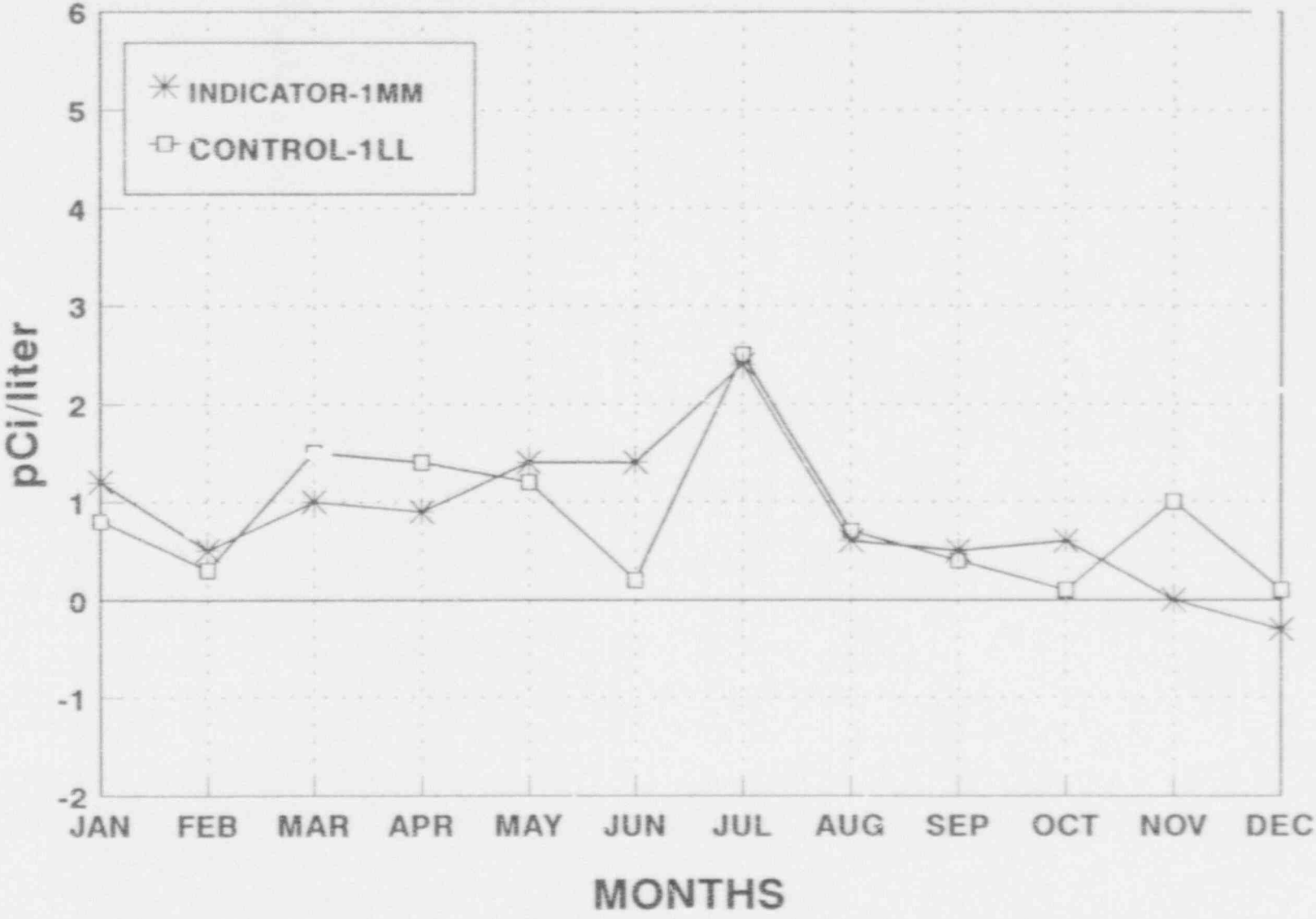


FIGURE C-2
MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1991

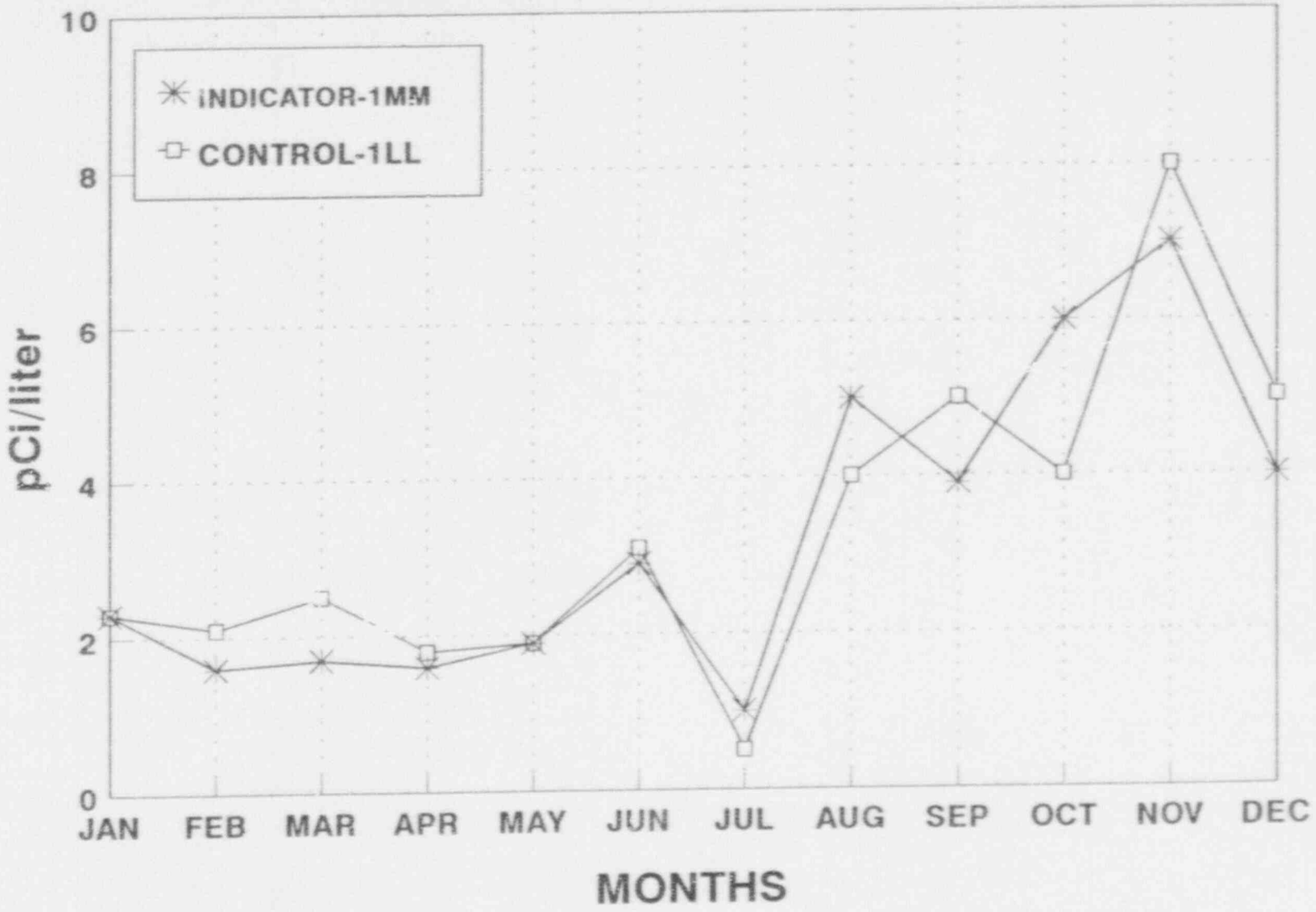


FIGURE C-3
MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1991

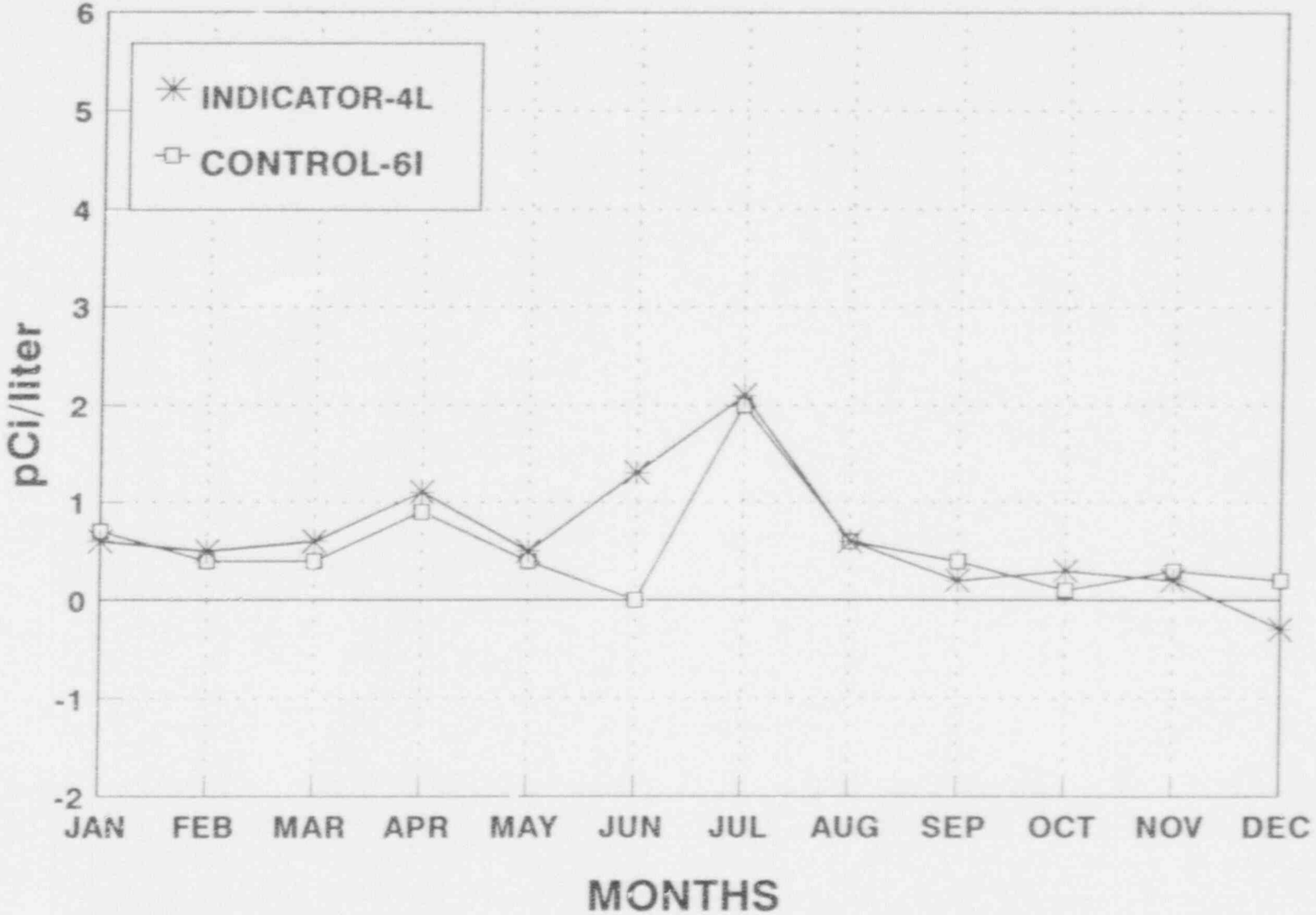


FIGURE C-4
MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1991

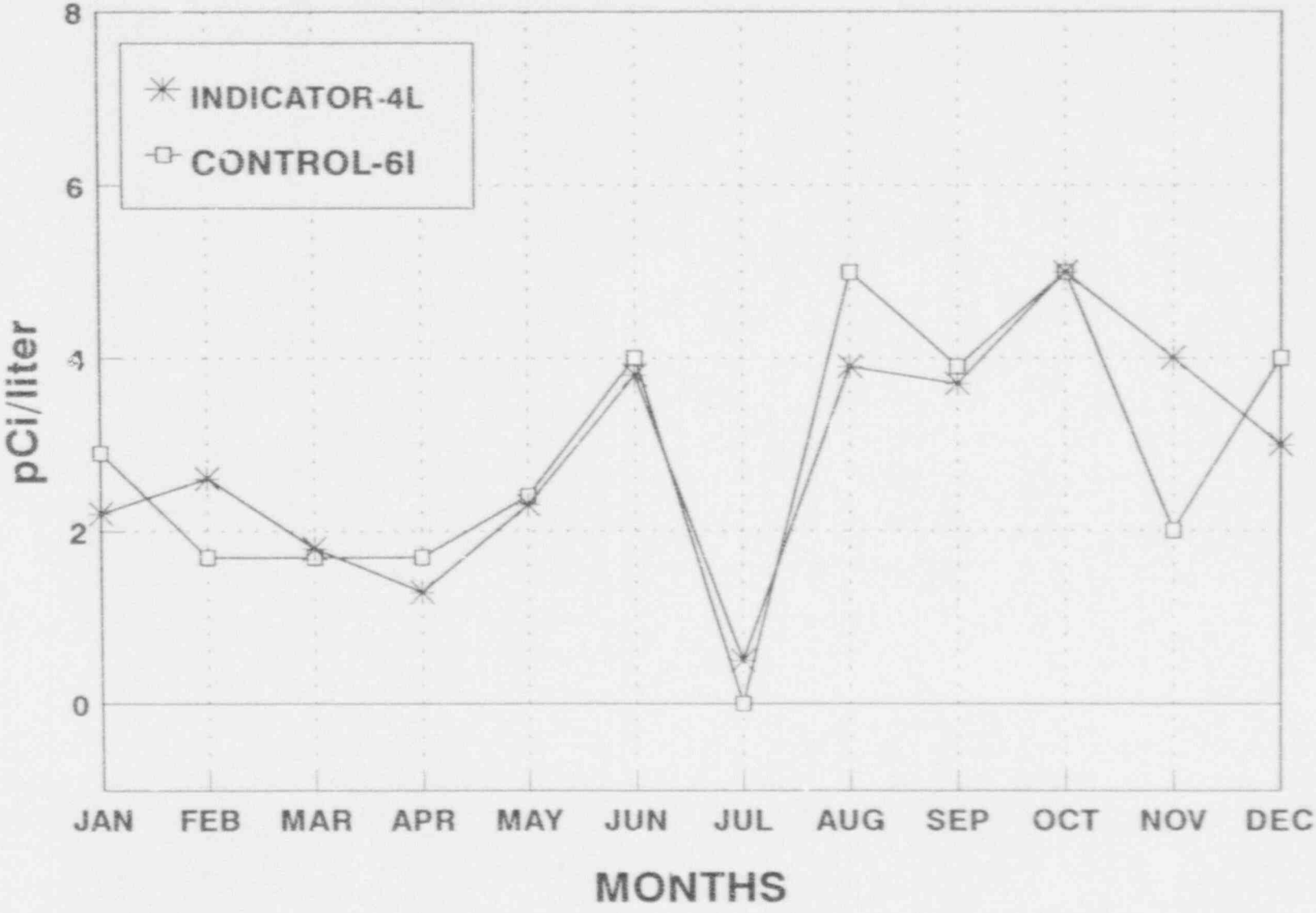


FIGURE C-5
MEAN ANNUAL CS-137 CONCENTRATIONS IN FISH SAMPLES
COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1991

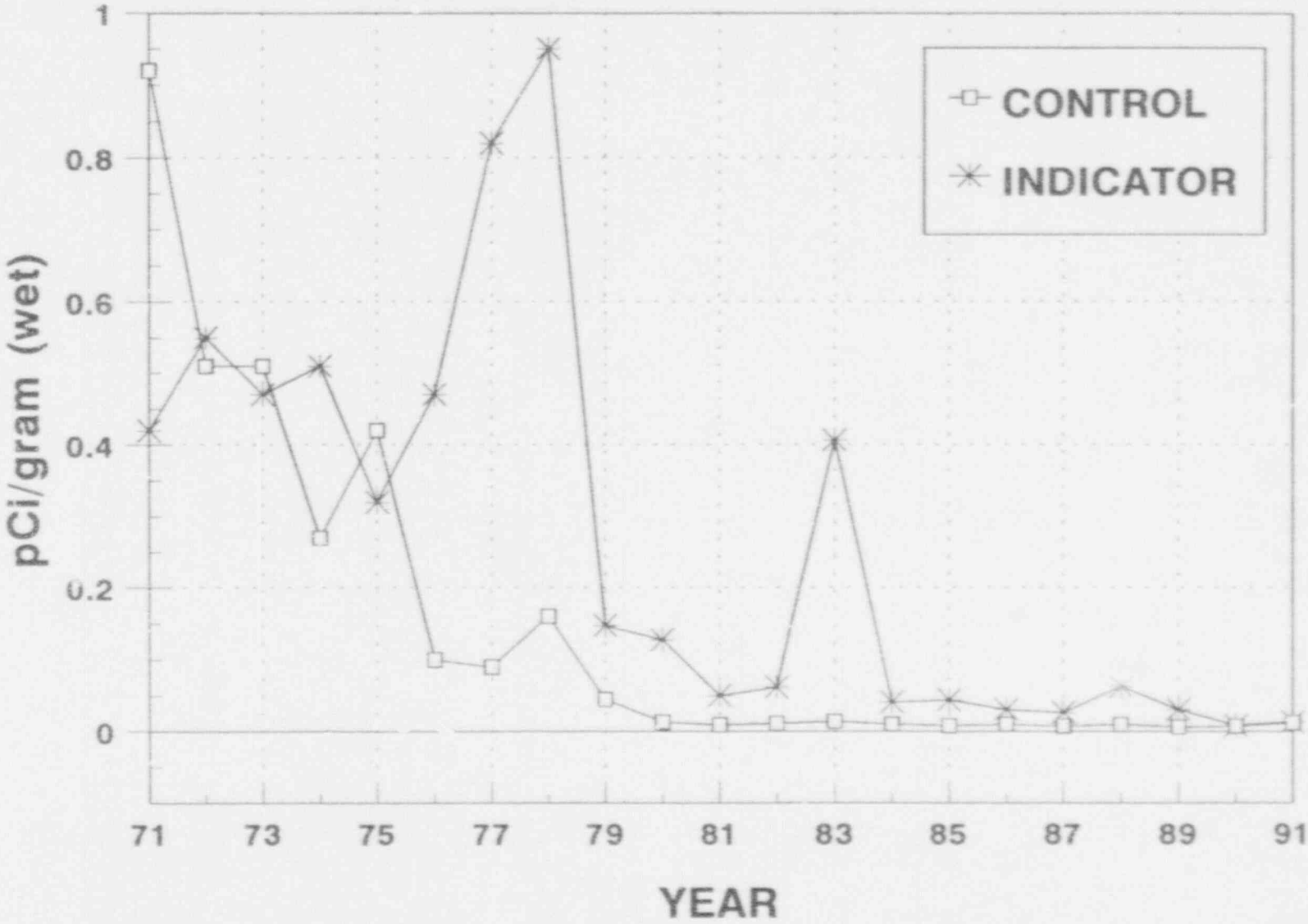
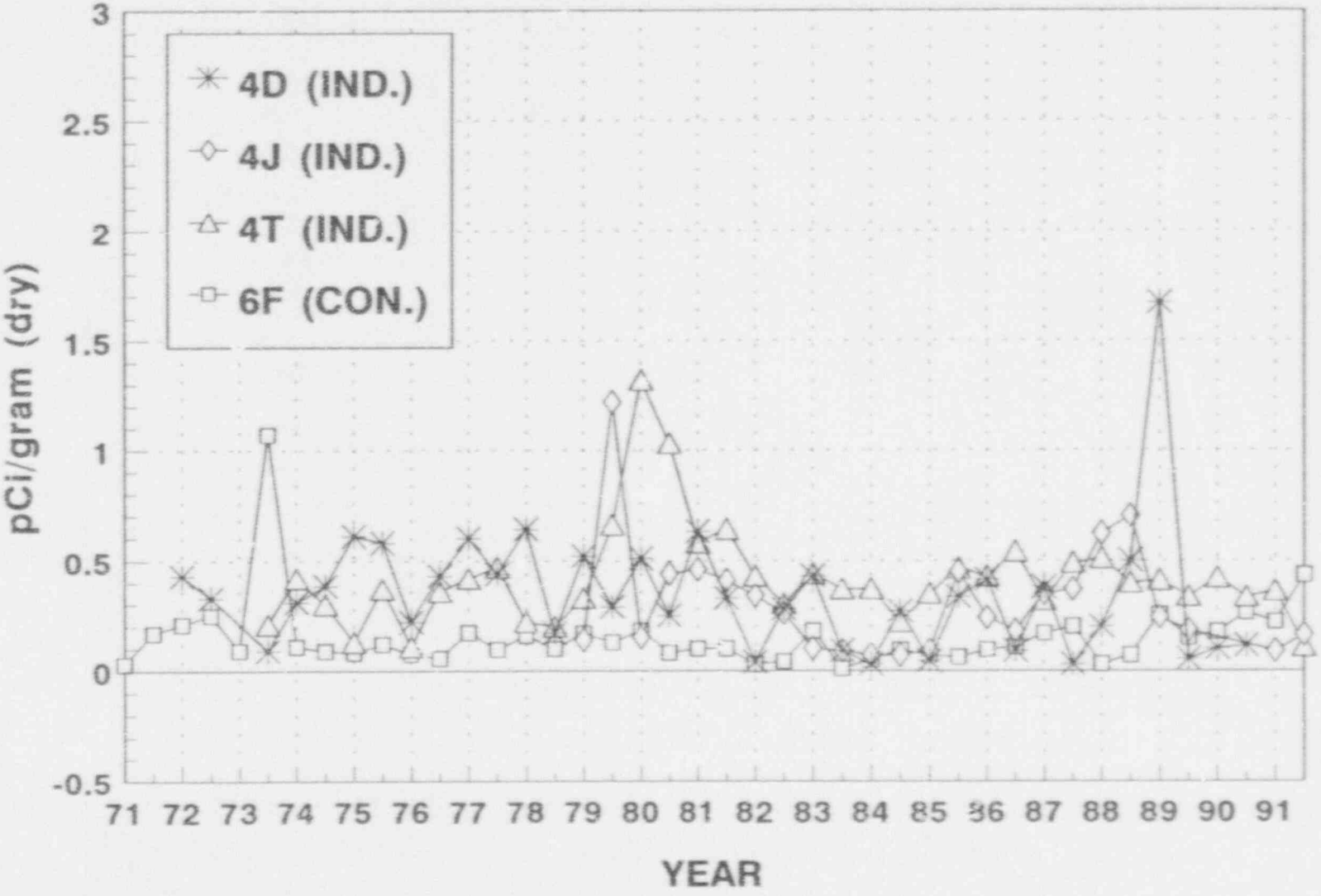


FIGURE C-6
SEMI-ANNUAL CS-137 CONCENTRATIONS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1991



Station 4D discontinued beginning 1991, No sample collected from Station 4J in 1990

FIGURE C-7

MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1991

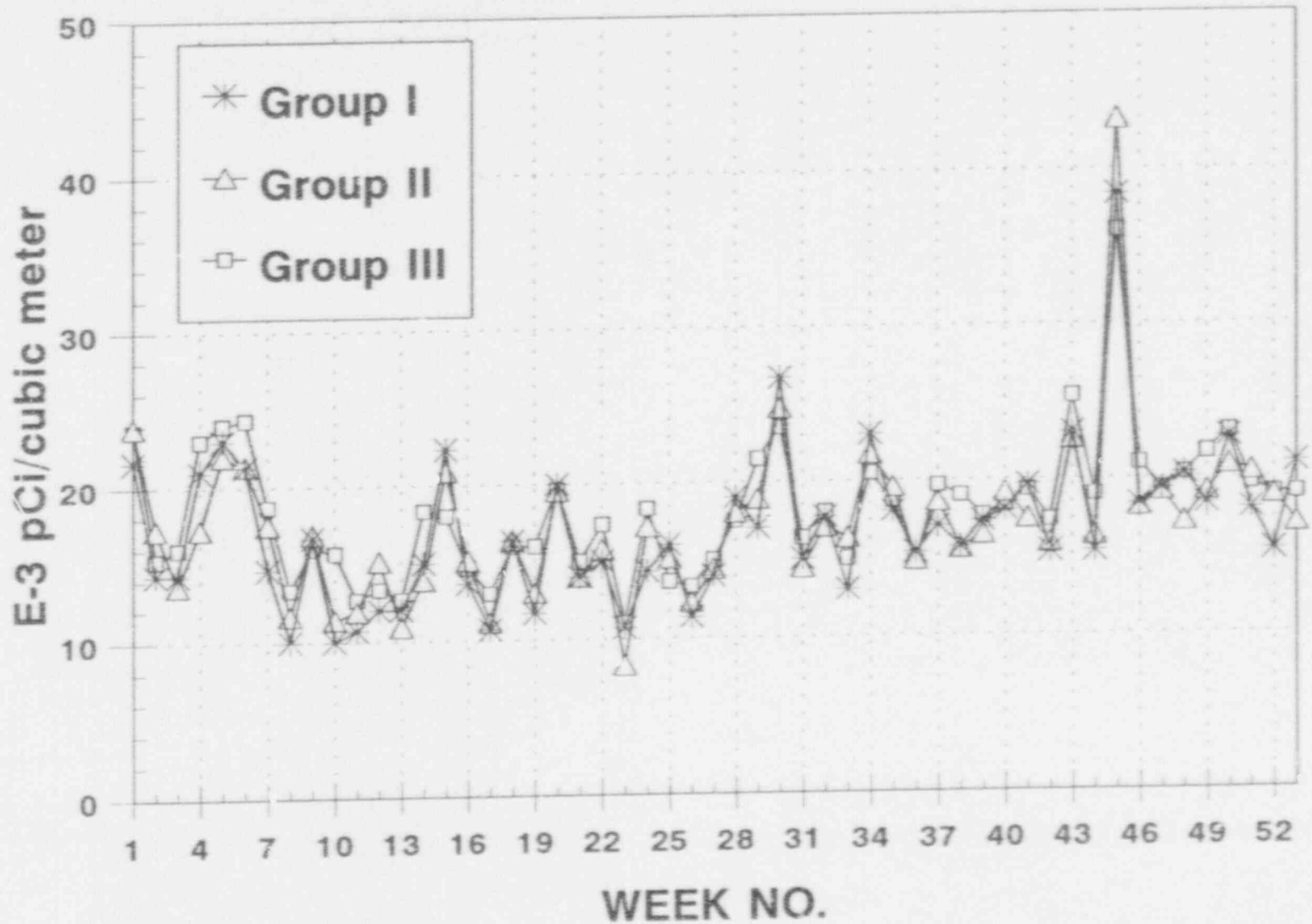


FIGURE C-8
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1970 - 1991

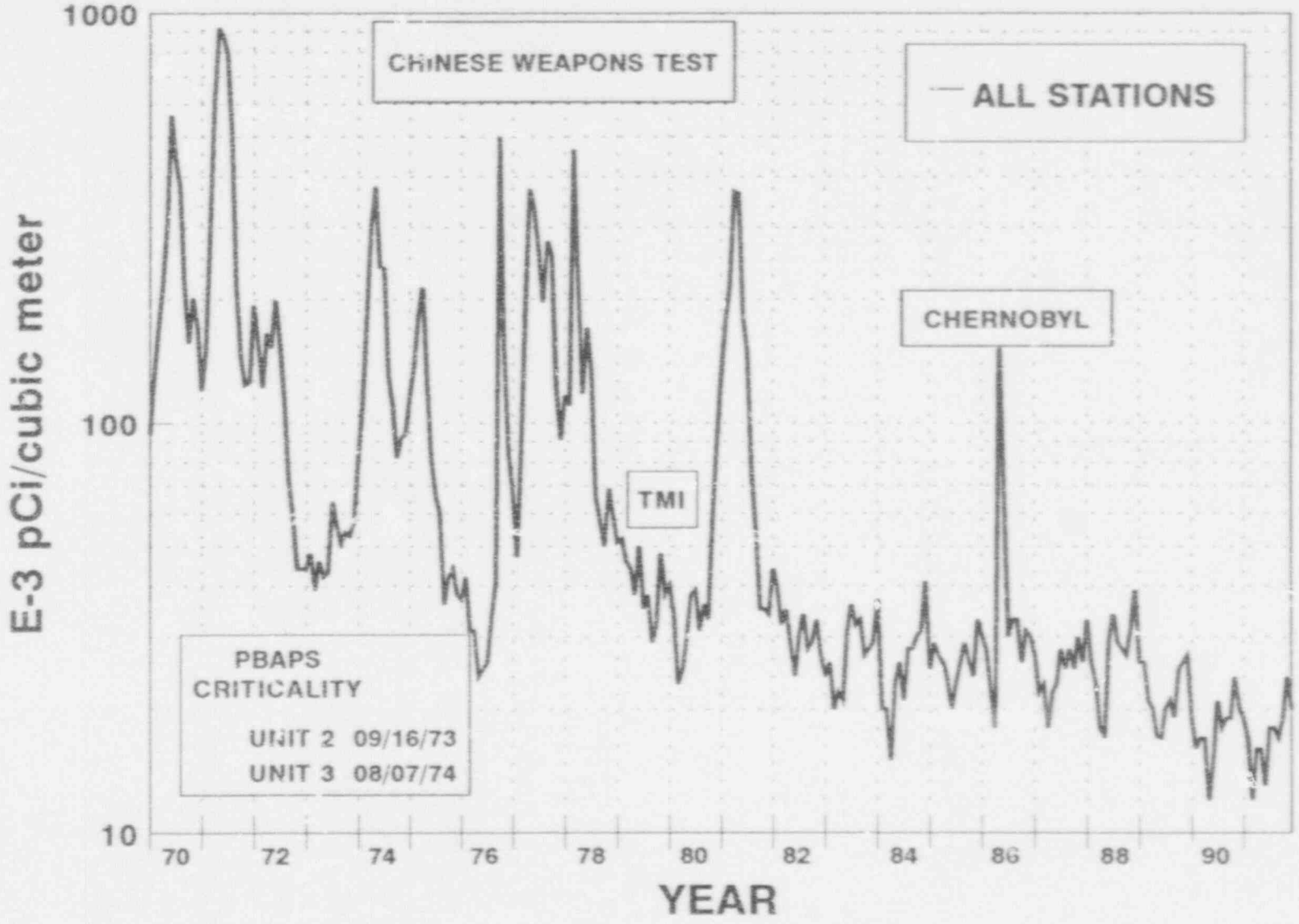


FIGURE C-9
MEAN ANNUAL CS-137 CONCENTRATIONS IN MILK SAMPLES
COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1991

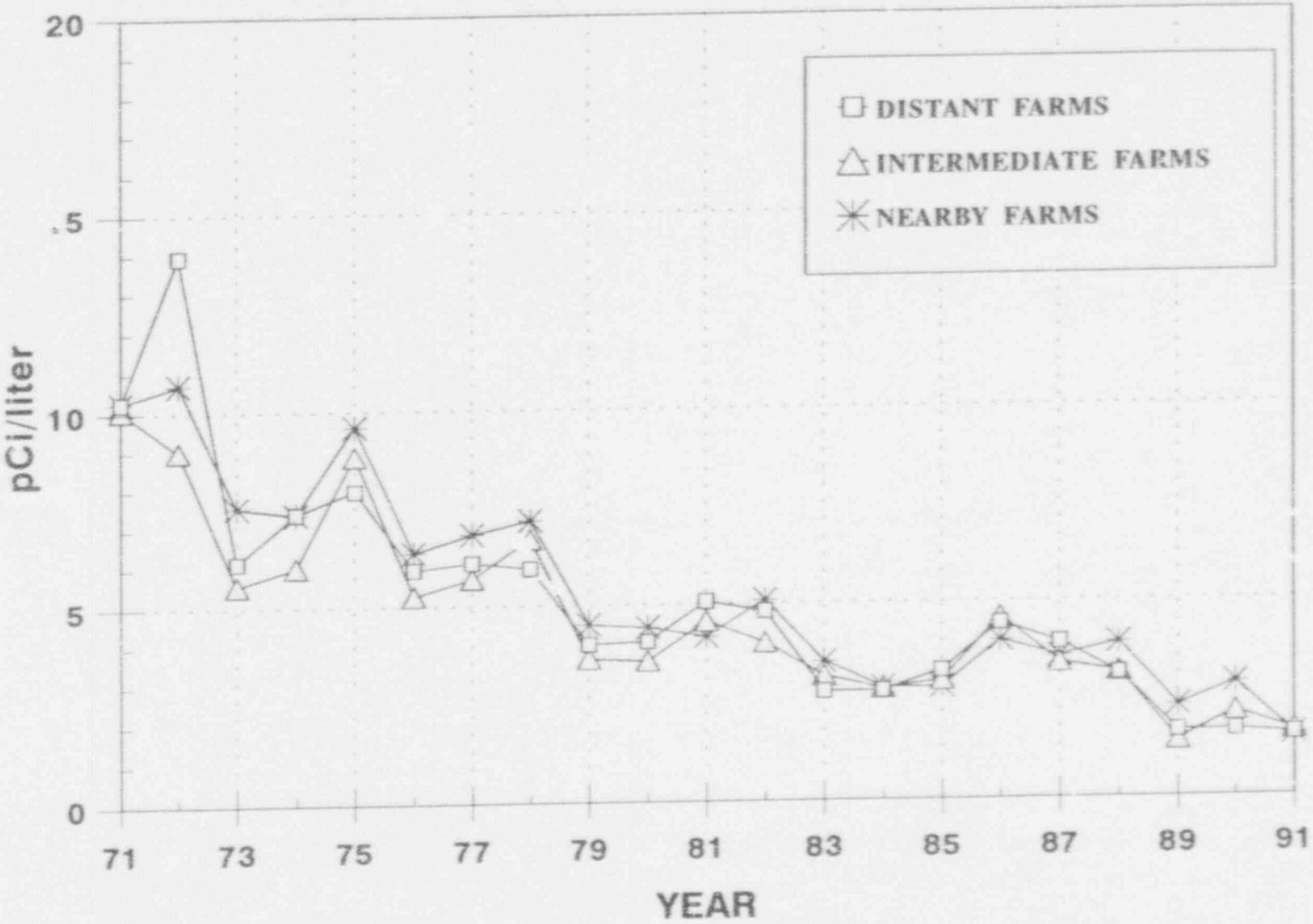


FIGURE C-10
MEAN MONTHLY AMBIENT GAMMA RADIATION (TLD)
LEVELS IN THE VICINITY OF PBAPS, 1991

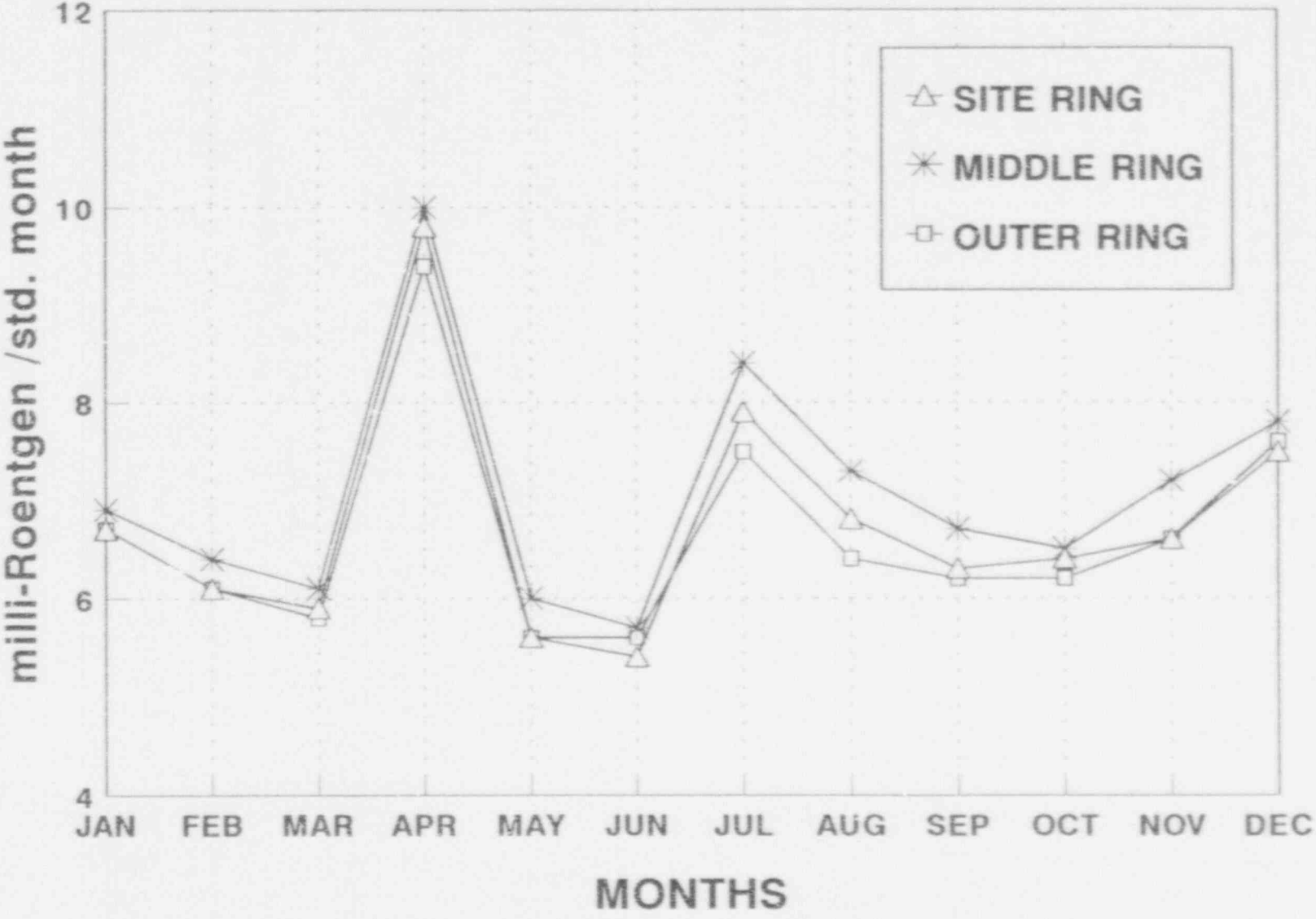
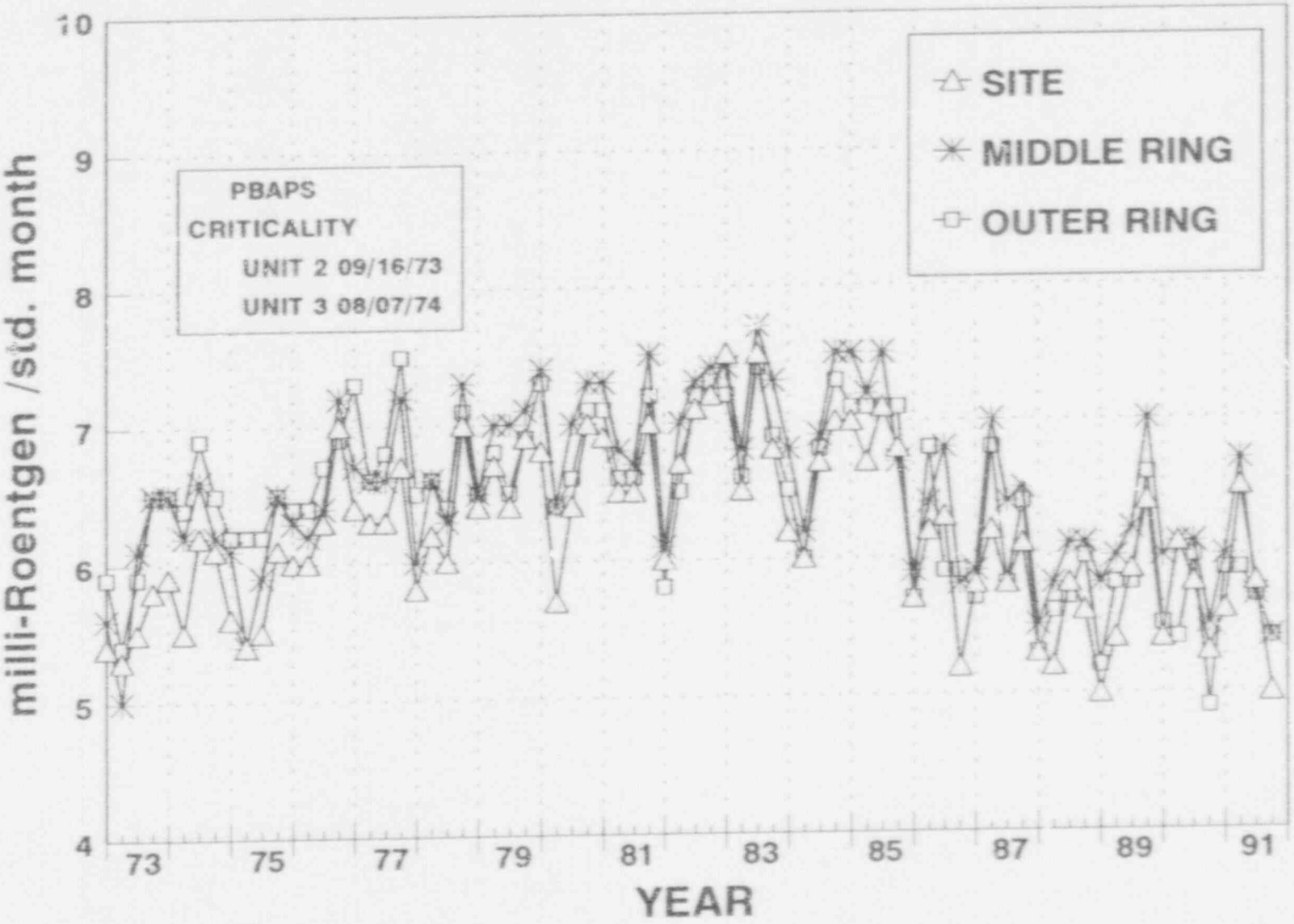


FIGURE C-11
MEAN QUARTERLY AMBIENT GAMMA RADIATION (TLD)
LEVELS IN THE VICINITY OF PBAPS, 1973 - 1991



DATA TABLES AND FIGURES

COMPARISON LABORATORY

APPENDIX D: DATA TABLES AND FIGURES - COMPARISON LABORATORY

TABLES

FIGURES

The following section contains data and figures illustrating the analyses performed by the quality control laboratory. Duplicate samples were obtained from several locations and media and split between the primary laboratory, Teledyne Isotopes (TI) and the quality control laboratory, Public Servic Electric & Gas (PSE&G). Comparison of the results for most media were within expected ranges, though occasional differences were seen:

PSE&G's results of gross beta insoluble in surface and drinking water samples (Table D-1.2) were generally lower than the results from Teledyne Isotopes (Table C-1.2, Appendix C). The differences were probably due to contrasts in the respective laboratory's analytical procedures. PSE&G ashes the sample prior to counting whereas, TI does not.

PSE&G's gross beta results for air particulate samples were higher than TI's results, but the trends were similar for both laboratories (Figures D-1 and D-2). PSE&G used Sr-90 as a calibration source whereas, TI used Cs-137.

TABLE D-1.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1LL		1MM		4L		6I	
	(1)							
MAY 91	0.3	± 0.5	0.6	± 0.5	-0.1	± 0.4	0.0	± 0.4
AUG 91	-0.1	± 0.4	0.4	± 0.5	0.0	± 0.4	0.2	± 0.4
NOV 91	0.0	± 0.4	0.4	± 0.4	0.1	± 0.4	0.1	± 0.4
MEAN	0.1	± 0.4	0.5	± 0.4	0.0	± 0.2	0.1	± 0.2

TABLE D-1.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1LL		1MM		4L		6I	
	(1)							
MAY 91	1.9	± 0.6	1.5	± 0.6	1.9	± 0.6	1.5	± 0.5
AUG 91	3.6	± 0.7	3.1	± 0.7	2.4	± 0.6	3.2	± 0.7
NOV 91	2.7	± 0.7	2.5	± 0.6	2.6	± 0.7	2.6	± 0.7
MEAN	2.7	± 1.7	2.4	± 1.6	2.3	± 0.7	2.4	± 1.7

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION

TABLE D-1.3 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
		(1)											
1LL	MAY 91	< 40	< 0.7	< 0.7	< 1	< 0.5	< 3	< 1	< 1	< 0.9	< 1	< 7	< 100
	AUG 91	< 50	< 1	< 0.4	< 2	< 0.9	< 1	< 0.8	< 0.7	< 0.5	< 0.8	< 3	< 9
	NOV 91	< 60	< 1.0	< 0.8	< 3	< 0.6	< 2	< 2	< 2	< 0.5	< 0.8	< 6	< 20
	MEAN	< 50	< 0.9	< 0.6	< 2	< 0.7	< 2	< 1.3	< 1.2	< 0.6	< 0.9	< 5	< 48
1MM	MAY 91	< 40	< 0.9	< 0.5	< 1	< 0.9	< 2	< 3	< 2	< 1	< 2	< 6	< 200
	AUG 91	50 ± 20	< 0.4	< 1	< 0.8	< 0.9	< 1	< 1	< 0.7	< 0.6	< 0.3	< 5	< 100
	NOV 91	< 50	< 0.7	< 0.5	< 0.9	< 1	< 1	< 1	< 1	< 0.5	< 0.4	< 4	< 10
	MEAN	50 ± 20	< 0.7	< 0.7	< 0.9	< 0.9	< 1	< 2	< 1.2	< 0.7	< 0.9	< 5	< 100
4L	MAY 91	< 50	< 0.8	< 0.7	< 1	< 0.6	< 2	< 0.9	< 0.9	< 0.6	< 0.7	< 5	< 70
	AUG 91	40 ± 10	< 1	< 2	< 1	< 0.8	< 1	< 0.9	< 0.8	< 0.6	< 10	< 10	< 1
	NOV 91	10 ± 10	< 1.0	< 0.7	< 5	< 1	< 1	< 1	< 1.0	< 1	< 0.8	< 5	< 4
	MEAN	30 ± 30	< 0.9	< 1.1	< 2	< 0.8	< 1	< 0.9	< 0.9	< 0.7	< 4.8	< 8	< 24
6I	MAY 91	< 50	< 0.3	< 0.7	< 1	< 0.6	< 0.7	< 1	< 0.4	< 0.7	< 0.4	< 4	< 30
	AUG 91	70 ± 20	< 1	< 1	< 1.0	< 1	< 2	< 1	< 0.6	< 0.6	< 7	< 6	< 1
	NOV 91	< 40	< 0.8	< 0.4	< 0.8	< 0.8	< 1	< 2	< 1	< 0.6	< 0.7	< 5	< 5
	MEAN	50 ± 30	< 0.7	< 0.7	< 0.9	< 0.8	< 1.2	< 1	< 0.7	< 0.6	< 2.7	< 5	< 13

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION

TABLE D-11.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

WEEK	1A		4B	
(1)				
14	22	± 3	22	± 3
15	26	± 3	24	± 3
16	19	± 3	18	± 3
17	14	± 2	15	± 2
18	23	± 3	(2)	
19	16	± 3	(2)	
20	26	± 3	27	± 3
21	20	± 3	17	± 2
22	22	± 3	22	± 3
23	15	± 3	14	± 2
24	21	± 3	21	± 3
25	22	± 2	22	± 2
26	18	± 3	18	± 3
27	23	± 2	22	± 2
28	23	± 3	24	± 3
29	22	± 3	19	± 3
30	32	± 3	30	± 3
31	23	± 3	21	± 3
32	28	± 3	22	± 7
33	21	± 3	22	± 3
34	29	± 3	28	± 3
35	30	± 3	27	± 3
36	23	± 2	20	± 3
37	28	± 3	27	± 3
38	24	± 4	23	± 4
39	21	± 3	21	± 3
40	26	± 3	23	± 3
41	23	± 3	24	± 3
42	25	± 3	20	± 3
43	37	± 3	34	± 3
44	20	± 3	23	± 3
45	47	± 4	46	± 3
46	23	± 3	27	± 3
47	32	± 3	26	± 3
48	19	± 3	17	± 3
49	25	± 2	(2)	
50	35	± 4	36	± 4
51	25	± 3	27	± 3
52	23	± 3	21	± 3
MEAN	24	± 12	24	± 12

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION
(2) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES
COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF E-3 PCI/CU. METER ± 2 SIGMA

STC	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137
		(1)			
1A	12/28-04/05/91	64 ± 5	14 ± 4	< 0.2	< 0.4
	03/30-06/28/91	61 ± 6	< 10	< 0.10	< 0.1
	06/28-09/27/91	59 ± 8	< 10	< 0.1	< 0.1
	09/27-12/27/91	48 ± 7	< 20	< 0.1	< 0.3
	MEAN	58 ± 14	15 ± 6	< 0.13	< 0.2
4B	12/28-04/05/91	60 ± 4	15 ± 3	< 0.1	< 0.1
	03/30-06/28/91	73 ± 7	< 20	< 0.2	< 0.6
	06/28-09/27/91	45 ± 8	< 20	< 0.2	< 0.3
	09/27-12/27/91	55 ± 7	< 10	< 0.2	< 0.2
	MEAN	58 ± 23	15 ± 2	< 0.2	< 0.3

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION

TABLE D-III.1 CONCENTRATIONS OF I-131 BY CHEMICAL SEPARATION AND GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	CS-134	CS-137	BA-140	LA-140
		(1)					
A	06/03-06/03/91	< 0.2	1170 ± 80	< 0.8	< 2	< 4	< 3
	08/26-08/26/91	< 0.3	1400 ± 90	< 1	< 2	< 7	< 3
	11/18-11/18/91	< 0.3	1470 ± 80	< 1	< 2	< 6	< 3
	MEAN	< 0.3	1350 ± 310	< 0.9	< 2	< 6	< 3
J	06/03-06/03/91	< 0.2	1400 ± 80	< 1	< 0.7	< 5	< 2
	08/26-08/26/91	< 0.4	1500 ± 90	< 1	< 2	< 8	< 3
	11/18-11/18/91	< 0.2	1400 ± 90	< 0.9	< 0.8	< 8	< 3
	MEAN	< 0.3	1430 ± 120	< 1.0	< 1.2	< 7	< 3
N	06/03-06/03/91	< 0.10	1250 ± 80	< 1	< 2	< 4	< 5
	08/26-08/26/91	< 0.3	1300 ± 100	< 2	< 0.9	< 5	< 4
	11/18-11/18/91	< 0.2	1300 ± 70	< 0.7	< 1.0	< 6	< 2
	MEAN	< 0.20	1270 ± 60	< 1.2	< 1.3	< 5	< 4

(1) SEE PROGRAM CHANGES SECTION FOR EXPLANATION

TABLE D-IV.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1991

SURFACE AND DRINKING WATER

COLLECTION PERIOD	1LL	1MM	4L	6I
MAY 91	05/02-05/30	05/02-05/30	05/03-05/31	05/04-06/01
AUG 91	08/01-08/29	08/01-08/29	08/02-08/30	08/03-08/31
NOV 91	10/31-12/05	10/31-12/05	11/01-12/08	11/02-12/09

AIR PARTICULATE

WEEK	1A	4B
14	03/30-04/05	03/30-04/05
15	04/05-04/12	04/05-04/12
16	04/12-04/19	04/12-04/19
17	04/19-04/26	04/19-04/26
18	04/26-05/03	
19	05/03-05/10	
20	05/10-05/17	05/10-05/17
21	05/17-05/24	05/17-05/24
22	05/24-05/31	05/24-05/31
23	05/31-06/07	05/31-06/07
24	06/07-06/14	06/07-06/14
25	06/14-06/22	06/14-06/22
26	06/22-06/28	06/22-06/28
27	06/28-07/07	06/28-07/07
28	07/07-07/13	07/07-07/13
29	07/13-07/19	07/13-07/19
30	07/19-07/26	07/19-07/26
31	07/26-08/02	07/26-08/02
32	08/02-08/09	08/02-08/09
33	08/09-08/15	08/09-08/15
34	08/15-08/23	08/15-08/23
35	08/23-08/30	08/23-08/30
36	08/30-09/08	08/30-09/08
37	09/08-09/16	09/08-09/16
38	09/16-09/21	09/16-09/21
39	09/21-09/27	09/21-09/27
40	09/27-10/04	09/27-10/04
41	10/04-10/11	10/04-10/11
	10/11-10/18	10/11-10/18
43	10/18-10/26	10/18-10/25
44	10/26-11/01	10/25-11/01
45	11/01-11/08	11/01-11/08
46	11/08-11/15	11/08-11/15
47	11/15-11/22	11/15-11/22
48	11/22-11/29	11/22-11/29
49	11/29-12/08	
50	12/08-12/14	12/08-12/14
51	12/14-12/21	12/14-12/21
52	12/21-12/27	12/21-12/27

FIGURE D-1
WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM PBAPS LOCATIONS 1A AND 1Z, 1991

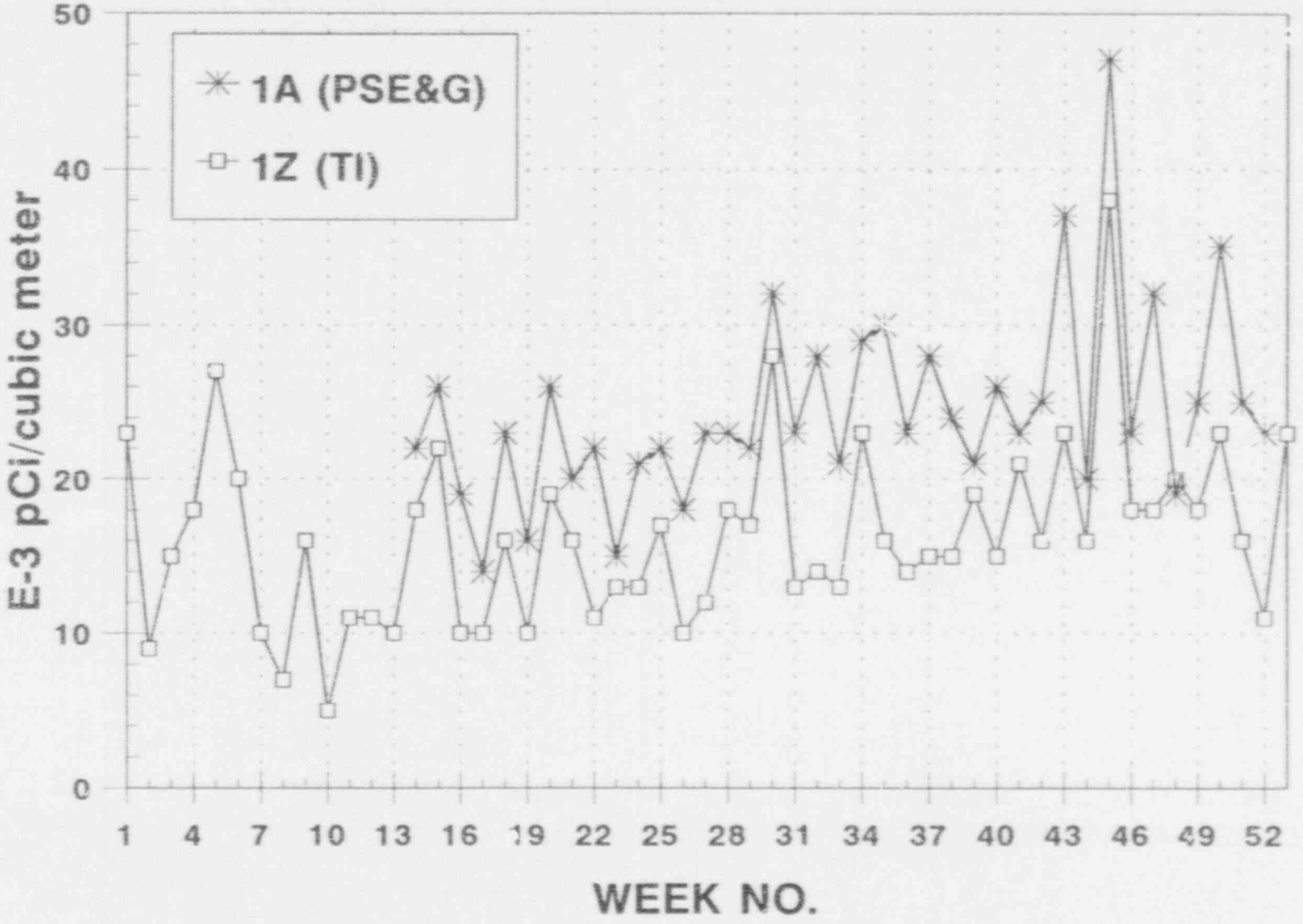
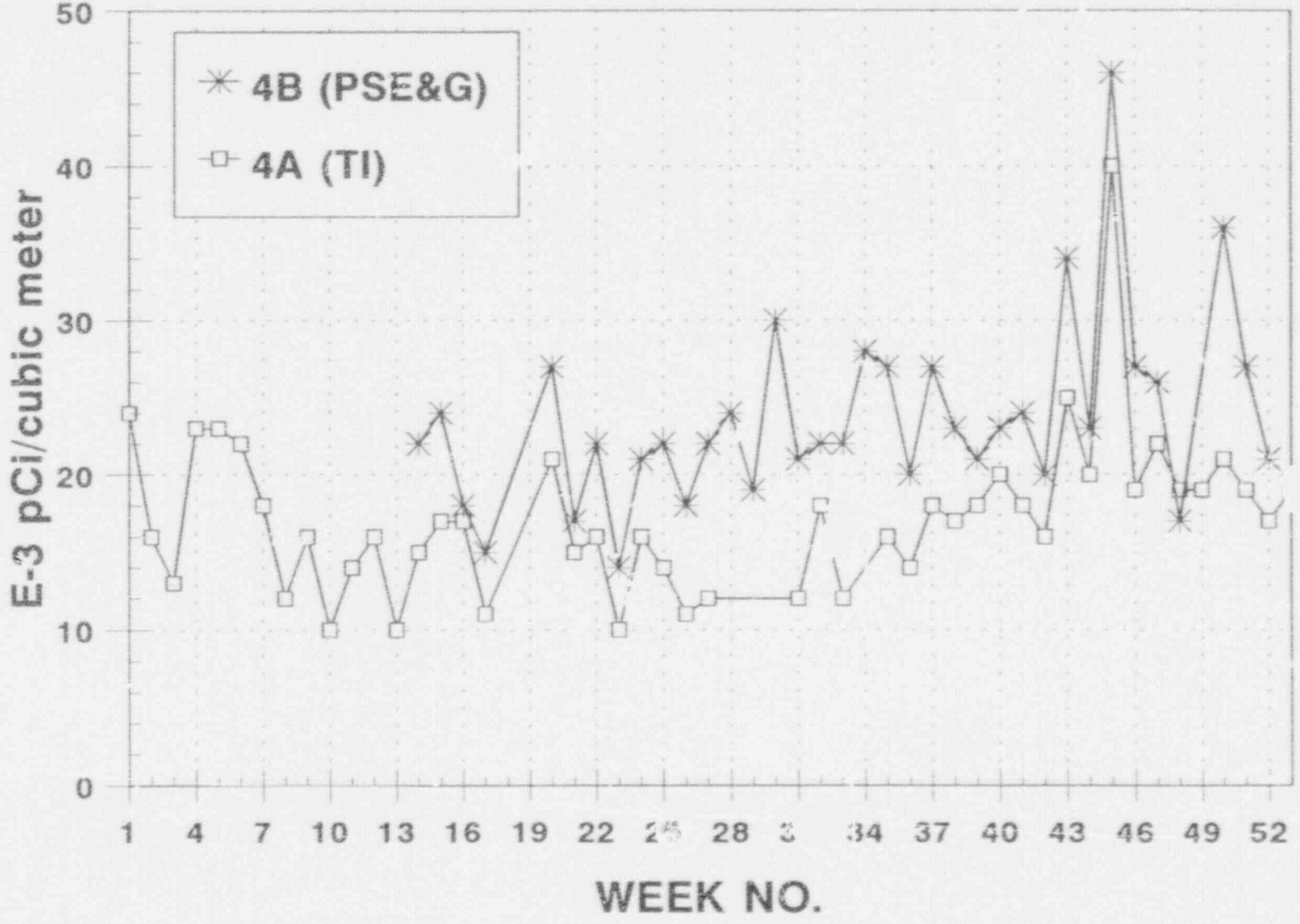


FIGURE D-2
WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM PBAPS LOCATIONS 4B AND 4A, 1991



SYNOPSIS OF ANALYTICAL PROCEDURES

APPENDIX E: SYNOPSIS OF ANALYTICAL PROCEDURES

The following appendix is comprised of two sections: Section 1 describes the collection methods used to obtain samples for the REMP, and section 2 describes the methods and formulas used by Teledyne Isotopes and Public Serivce Electric & Gas to obtain the sample activities.

Section 1: Collection Methods

Surface and Drinking Water Samples

Surface and drinking water samples are composited over a one-month period at four locations (1LL, 1MM, 4L, and 6I). Water is continuously sampled at each location and collected in large tanks. Two quarts of water are removed from the tank each week and put into a clean two-gallon polyethylene bottle to form a monthly composite. At locations 13A and 13B a monthly grab sample is obtained.

Air Particulate and Air Iodine Samples

Air particulate samples are obtained using a system consisting of a pump, a glass fiber filter with a 35-mm diameter orifice, and a running time meter to indicate the total period of operation. At those locations where airborne iodine was also sampled, a charcoal filter was mounted behind the glass fiber filter. The volume sampled for the period is determined from the known flow rate and the running time. At the end of each weekly air particulate collection period, the air sampling unit is stopped. The filter is then removed from the holder and replaced with a clean filter, and the air sampling unit is returned to operation.

Sediment Samples

Sediment samples are collected by one of two methods, determined by the depth from which the sediment is obtained. In water greater than 4-feet deep, sediment is collected by either a Ponar or Ekman Grab with a surface area of 81 square inches. In shallow water (1-4 feet), sediment is collected by scooping up mud with a plastic bucket or shovel.

Milk Samples

Milk samples are obtained by removing two gallons from the dairyman's bulk tank. The sample from each location is therefore a composite of all the milk from the dairy herd (from 1 to 3 milkings). The milk is scooped from the agitated bulk tank and placed in new plastic containers.

Fish Samples

Fish samples are collected via electroshocking or trap netting.

DETERMINATION OF GROSS BETA ACTIVITY IN WATER SAMPLES (TOTAL SUSPENDED AND DISSOLVED FRACTIONS)

Teledyne Isotopes

This describes the process used to measure the radioactivity of water samples without identifying the radioactive species present. No chemical separation techniques are involved.

For surface and drinking water samples, one liter of the sample is filtered under vacuum through a 0.45 micron Millipore filter. This filter represents the insoluble portion of the sample. The filter is dried and mounted on a planchet. The filter which represents the soluble portion of the sample is evaporated on a hot plate, and the residue is transferred and dried on another planchet.

The planchets are counted for 50 minutes in a low-background gas flow proportional counter. Calculation of activity includes a self-absorption correction for counter efficiency based on the weight of residue on each planchet.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{(2.22)(v)(E)} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{(2.22)(v)(E)}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
β	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume in liters
E	=	efficiency of the counter
2	=	multiple of counting error

The MDL is defined as that value equal to the two sigma counting error of the result.

DETERMINATION OF GROSS BETA ACTIVITY IN WATER SAMPLES
(TOTAL SUSPENDED AND DISSOLVED FRACTIONS)

Public Service Electric & Gas

This describes the process used to measure the overall radioactivity of water samples without identifying the radioactive species present. No chemical separation techniques are involved.

The sample is mixed thoroughly. Then, a 1.0 liter portion is removed from the surface or drinking water container and filtered through a slow, hardened ashless filter paper mounted in a Buchner funnel. The filter paper is removed from the Buchner funnel, folded into a triangle, placed in a covered porcelain crucible and heated over a Bunsen burner until completely charred. The crucible is then ashed for at least 2 hours in a muffle furnace at 500° C. The cooled ash is then transferred to a tared stainless steel ribbed planchet using a rubber policeman with laboratory aerosol and reagent water.

The filtrate portion of the sample is evaporated on a hot plate until the volume approaches 20 to 25 ml. At that point, the filtrate is transferred to a tared stainless steel ribbed planchet. Both planchets are evaporated to dryness under an infrared heat lamp. They are subsequently cooled in a desiccator, weighed and counted using a low background gas proportional counter.

Calculation of Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{2.22(v)(E)} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}}{2.22(v)(E)}$$

Net Activity Counting Error

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count (counts)
T_b	=	background count time (min)
E	=	counting efficiency based on Sr-90 for the weight of planchetted sample
v	=	aliquot size in liters
2.22	=	dpm per pCi
1.96	=	multiple of counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result.

DETERMINATION OF TRITIUM IN WATER BY ELECTROLYTIC ENRICHMENT AND LIQUID SCINTILLATION COUNTING

Teledyne Isotopes

A 60 ml aliquot is distilled and collected in an Erlenmeyer flask. Approximately 55 g of the distillate is transferred into an electrolytic enrichment cell. One ml of 30% sodium hydroxide solution is added to the cell. The sample is electrolyzed in a 10° C cooling water bath until the volume is 3-4 ml. CO_2 is bubbled through the solution to neutralize the sodium hydroxide. The sample is transferred to a collecting bottle at 80° C and weighed. It is then transferred into a liquid scintillation vial and 20 ml of cocktail is added. The sample is counted for 100 minutes in a liquid scintillation counter.

Determination of the Enrichment Factor:

$$EnrichmentFactor = \frac{(final\ volume)(observed\ dpm/ml)}{(initial\ volume)(standard\ dpm/ml)}$$

Aliquots of a tritium standard solution have been enriched to different final volumes to provide a graph of the enrichment factor versus the final volume.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \underbrace{\frac{\frac{N}{t} - \beta}{2.22(v)(EF)(E)}}_{\text{Net Activity}} \pm \underbrace{\frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{2.22(v)(EF)(E)}}_{\text{Counting Error}}$$

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
β	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	initial volume (in liters) before enrichment
EF	=	enrichment factor = .039 x VF + .603 where VF = Final Volume
E	=	efficiency of the counter tritium
2	=	multiples of counting error

The MDL is defined as that value equal to the two sigma counting error of the result.

DETERMINATION OF GROSS BETA ACTIVITY IN AIR PARTICULATE SAMPLES

Teledyne Isotopes

This describes the process used to measure the overall beta activity of air particulate filters without identifying the radioactive species present. No chemical separation techniques are involved. Each air particulate filter is placed directly on a 2-inch stainless steel planchet. The planchets are then counted for beta activity in a low-background gas flow proportional counter. Calculation of activity includes an empirical self-absorption correction curve which allows for the change in effective counting efficiency caused by the residue mass. Self-absorption is not considered in the case of air particulate filters because of the impracticality of accurately weighing the deposit and because the penetration depth of the deposit into the filter is unknown.

Calculation of Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/m^3)} = \frac{(\frac{N}{t}) - \beta}{2.22(v)(E)(.02832)} \pm \frac{2\sqrt{(\frac{N}{t^2}) + (\frac{\beta}{t})}}{2.22(v)(E)(.02832)}$$

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
ß	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume of sample analyzed in cubic feet calculated from the elapsed time meter
E	=	efficiency of the counter
2	=	multiple of counting error
.02832	=	conversion to cubic meters

The MDL is defined as that value equal to the two sigma counting error of the result.

DETERMINATION OF GROSS BETA ACTIVITY IN AIR PARTICULATE SAMPLES

Public Service Electric & Gas

After allowing at least a three-day (extending from the sample stop data to the sample count time) period for the short-lived radionuclides to decay out, each air particulate filter paper is placed in a 2-inch diameter stainless steel planchet and counted using a gas proportional counter.

Calculation of Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{(pCi/m^3)} = \underbrace{\frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{2.22(v)(E)(.02832)}}_{\text{Net Activity}} \pm \underbrace{\frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}}{2.22(v)(E)(.02832)}}_{\text{Counting Error}}$$

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count (counts)
T_b	=	background count time (min)
E	=	counting efficiency based on Sr-90
v	=	sample volume in cubic feet calculated from the elapsed time meter readings and the flow rate
.02832	=	conversion to cubic meters
2.22	=	dpm/pCi
1.96	=	multiple of the counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF I-131 IN MILK AND WATER SAMPLES

Teledyne Isotopes

Two liters of sample are first equilibrated with stable iodide carrier. A batch treatment with anion exchange resin is used to remove iodide from the sample. The iodine is then stripped from the resin with sodium hypochlorite, reduced with hydroxylamine hydrochloride, and extracted into carbon tetrachloride as free iodine. It is then back-extracted as iodide into sodium bisulfite solution and is precipitated as palladium iodide. The precipitate is weighed for chemical yield and is mounted on a nylon planchet for low level beta counting. The chemical yield is corrected by measuring the stable iodide content of the milk or water with a specific ion electrode.

Calculation of the Sample Activity and 2 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\frac{N}{t} - \beta}{(2.22)(v)(E)(y)(\exp^{-\lambda\Delta t})} \pm \frac{2\sqrt{\frac{N}{t^2} + \frac{\beta}{t}}}{(2.22)(v)(E)(y)(\exp^{-\lambda\Delta t})}$$

Net Activity | Counting Error

where:

N	=	total counts from sample (counts)
t	=	counting time for sample (min)
β	=	background rate of counter (cpm)
2.22	=	dpm/pCi
v	=	volume of sample analyzed (liters)
y	=	chemical yield of the amount of sample counted
λ	=	is the radioactive decay constant for I-131 (0.693/8.05)
Δt	=	is the elapsed time between sample collection (or end of the sample collection) to the midcount time
2	=	multiple of the counting error
E	=	efficiency of the counter for I-131, corrected for self absorption effects by the formula:

$$E = E_s \frac{(\exp^{-0.0061M})}{(\exp^{-0.0061M_s})}$$

where:

E_s	=	efficiency of the counter determined from an I-131 standard mount
M	=	mass of PdI_2 on the sample mount (mg)
M_s	=	mass of PdI_2 on the standard mount (mg)

The MDL is defined as that value equal to the two sigma counting error of the result.

DETERMINATION OF I-131 IN MILK AND WATER SAMPLES

Public Service Electric & Gas

Stable iodine carrier is equilibrated in a 4-liter volume of raw milk before two separate 50 ml batches of anion exchange resin are introduced to extract iodine. After each batch has been stirred in the milk for an appropriate time, both are then transferred to an aluminum sample can where the resins are rinsed with demineralized water several times and any leftover rinse water removed with an aspirator stick. The can is hermetically sealed and then counted on a gamma detector.

Calculation of the Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{(pCi/l)} = \frac{\left(\frac{C_s}{T_s} - \frac{C_b}{T_b}\right)(1.05)}{(2.22)(v)(E)(y)(\exp^{-\lambda\Delta t})} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}\,(1.05)}{(2.22)(v)(E)(y)(\exp^{-\lambda\Delta t})}$$

Net Activity Counting Error

where:

C_s	=	total gross sample counts (counts)
T_s	=	sample count time (min)
C_b	=	total background count time (counts)
T_b	=	background count time (min)
E	=	counting efficiency for I-131
v	=	aliquot analyzed (liters)
y	=	iodine yield
λ	=	is the radioactive decay constant for I-131 (0.693/8.05)
Δt	=	is the elapsed time between sample collection (or end of the sample collection) to the midcount time
1.05	=	Correction factor for protein-bound iodine
2.22	=	dpm/pCi
1.96	=	multiple of counting error

The MDL is defined as that value equal to the 1.96 sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF GAMMA EMITTING RADIOISOTOPES

Teledyne Isotopes

Gamma emitting radioisotopes are determined with the use of a lithium drifted germanium (GeLi) and high purity germanium detectors with high resolution spectrometry in specific media; such as, air particulate filters, charcoal filters, milk and water. Each sample to be assayed is prepared and counted in standard geometries such as one liter wrap-around Marinelli containers, 300 ml or 150 ml bottles, or 2-inch filter paper source geometries.

Samples are counted on large (>55 cc volume) GeLi detectors connected to Nuclear Data 6620 data acquisition and computation systems. All resultant spectra are stored on magnetic tape.

The analysis of each sample consists of calculating the specific activities of all detected radionuclides or the detection limits from a standard list of nuclides. The GeLi systems are calibrated for each standard geometry using certified radionuclide standards traceable to NIST.

Calculation of the Sample Activity and 2 Sigma Error:

$$\frac{Result}{\left(\frac{pCi}{vol - mass}\right)} = \frac{N_{(j)} - B_{(j)}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Net Activity

$$\pm \frac{2\sqrt{N_{(j)} + B_{(j)}}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Counting Error

where:

$N_{(j)}$ = area, in counts, of a special region containing a gamma emission of the nuclide of interest

NOTE: If the detector exhibits a peak in this region when counting a blank (i.e., from natural background) (ß)(t) is subtracted from N before using the above equation. ß is the count rate of the blank, cpm, in the background peak.

$B_{(j)}$ = background counts in the region of interest, calculated by fitting a straight line across the region connecting the two adjacent region.

2 = multiple of counting error

2.22 = dpm/pCi

V = volume or mass of sample analyzed

t = counting interval of sample, minutes

$E_{(j)}$ = efficiency of counter at the energy region of interest

$BI_{(j)}$ = branching intensity of the nuclide at the gamma emission energy under consideration

$\lambda_{(j)}$ = is the radioactive decay constant for $nuclide_{(j)}$ (0.693/nuclide half life)

Δt = is the elapsed time between sample collection (or end of the sample collection) to the midcount time

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the measured result defined above.

DETERMINATION OF GAMMA EMITTING RADIOISOTOPES

Public Service Electric & Gas

The procedure for detection of gamma emitting radioisotopes generates high resolution gamma spectra which are used for quantitative determination and identification. Standard geometries have been established to maximize efficiency, for sample types: air particulate filters, water, and milk.

A description of the analytical methods, beginning with air particulates used for each sample type is presented, followed by the general formula used for calculation of the sample activities.

Air particulate: At the end of each calendar quarter, 13 weekly air filters from a given location are stacked in a two inch diameter Petri dish in chronological order, with the oldest filter at the bottom, nearest the detector, and the newest one on top. The Petri dish is closed and the sample counted.

Water and Milk: A well-mixed 3.5-liter sample is poured into a calibrated Marinelli beaker. The samples are brought to ambient temperature and counted.

Calculation of the Sample Activity and 1.96 Sigma Error:

$$\frac{Result}{\left(\frac{pCi}{vol - mass}\right)} = \frac{N_{(j)} - B_{(j)}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Net Activity

$$\pm \frac{1.96\sqrt{N_{(j)} + B_{(j)}}}{(2.22)(v)(t)(E_{(j)})(BI_{(j)})(\exp^{-\lambda_{(j)}\Delta t})}$$

Counting Error

where:

$N_{(j)}$ = area, in counts, of a special region containing a gamma emission of the nuclide of interest

NOTE: If the detector exhibits a peak in this region when counting a blank (i.e., from natural background) (ß)(t) is subtracted from N before using the above equation. ß is the count rate of the blank, cpm, in the background peak.

$B_{(j)}$ = background counts in the region of interest, calculated by fitting a straight line across the region connecting the two adjacent region.

1.96 = multiple of counting error

2.22 = dpm/pCi

V = volume or mass of sample analyzed

t = counting interval of sample, minutes

$E_{(j)}$ = efficiency of counter at the energy region of interest

$BI_{(j)}$ = branching intensity of the nuclide at the gamma emission energy under consideration (no. of photons per disintegration)

$\lambda_{(j)}$ = is the radioactive decay constant for $nuclide_{(j)}$ (0.693/nuclide half life)

Δt = is the elapsed time between sample collection (or end of the sample collection) to the midcount time

The MDL is defined as that value equal to the two sigma counting error of the result. Less than MDL is reported as the result when this value is greater than the measured result defined above.

Teledyne Isotopes

Teledyne Isotopes dosimeters are rectangular teflon wafers impregnated with 25% CaSO4:Dy phosphor. They are annealed in a hot air oven prior to use and are inserted into black polyethylene pouches. The filled pouches are labelled and placed in rectangular holders which contain copper shielding to filter out low energy radiation. After exposure in the environment, four separate areas of the dosimeter are read in a Teledyne Isotopes model 8300 TLD reader. The dosimeter is then re-irradiated by a standardized Cs-137 source and the four areas are read again. Calculation of the environmental exposure is performed by computer, using the re-irradiation readings to determine the sensitivity of each area of the dosimeter. The reading of control dosimeters are subtracted to allow for transit dose and system background.

A. For any given area of the dosimeter, the dose mR is calculated by the formula:

$$Dose = (R)\left(\frac{redose}{RR}\right)(avcontrol)$$

where:

R	=	initial reading of the area
RR	=	second reading of the area (after re-irradiation)
redose	=	re-irradiation dose in mR
avcontrol	=	average of control values calculated as explained below. If no controls are used, avcontrol = 0 and gross exposures result

B. Each area of each control is calculated by the formula:

$$cdose = (cr)\left(\frac{credose}{crr}\right)$$

where:

cdose	=	control area dose in mR
cr	=	initial reading of the control area
crr	=	second reading of the control area (after re-irradiation)
credose	=	re-irradiation dose of the control dosimeter in mR

The average of control values is then calculated from all four areas of all controls by the formula:

$$avcontrol = \frac{\sum_{1}^{4N} cdose}{4N}$$

where:

N = total number of control dosimeters

C. The average and standard deviation of the area readings for each dosimeter are calculated by standard methods.

D. Using the criteria that if one standard deviation is greater than 10% of the average of the four readings and that if the value of one area is outside the range of 3 standard deviations of the average of the other three areas, then that area will be eliminated and the results will be based on the remaining areas.

QUALITY CONTROL
EPA INTER-LABORATORY COMPARISON PROGRAM

APPENDIX F: QUALITY CONTROL PROGRAM

Teledyne Isotopes (TI) and Public Service Electric & Gas (PSE&G) participate in the EPA Radiological Inter-laboratory Comparison (cross check) Program. This participation includes a number of analyses on various sample media as found in the Peach Bottom Atomic Power Station REMP. As a result of this participation, an objective measurement of analytical precision and accuracy as well as, a bias estimation of the results are obtained.

Examination of the data shows that the vast majority were within the EPA control limits. Each case of exceeding the control limits was investigated. There was no evidence to suggest systematic errors.

The results of TI's and PSE&G's participation in the EPA cross check program can be found in Tables F-1 and F-2, respectively.

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1991
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)		Teledyne Isotopes Results(b)			Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.	
01/11/91	561	Water	Sr-89	5.00 ±	8.66	5.00 ±	0.00		-0.08	0.00	5.0 ±	3.58
			Sr-90	5.00 ±	8.66	5.00 ±	0.00		0.05	0.00	5.0 ±	3.02
01/25/91	560	Water	Gross Alpha	5.00 ±	8.66	9.00 ±	3.00		1.15	1.39	5.69 ±	3.58
			Gross Beta	5.00 ±	8.66	7.00 ±	0.00		0.24	0.69	6.30 ±	3.02
02/08/91	565	Water	Co-60	40.0 ±	8.66	39.33 ±	9.18		-0.24	-0.23	40.04 ±	5.74
			Zn-65	149.0 ±	25.98	147.00 ±	3.00		-0.31	-0.23	149.71 ±	21.36
			Ru-106	186.00 ±	32.91	176.67 ±	52.68		-1.38	-0.85	191.83 ±	39.86
			Ba-133	75.0 ±	13.86	75.67 ±	16.53		0.33	0.14	74.14 ±	11.72
			Cs-134	8.0 ±	8.66	7.33 ±	1.74		-0.26	-0.23	8.09 ±	3.96
			Cs-137	8.0 ±	8.66	7.67 ±	9.63		-0.48	-0.12	9.06 ±	3.18
02/15/91	563	Water	I-131	75.0 ±	13.86	80.00 ±	15.87		0.65	1.08	77.0[illegible]	11.78
02/22/91	564	Water	H-3	4418.0 ±	765.6	4500.0 ±	519.63		0.24	0.32	4437.[illegible] ±	665.58
03/29/91	568	Air Filter	Gross Alpha	25.0 ±	10.39	42.67 ±	1.74	(c)	3.73	5.10	29.73 ±	11.86
			Gross Beta	124.0 ±	10.39	126.67 ±	11.54		-0.99	0.77	130.11 ±	27.20
			Sr-90	40.0 ±	8.66	37.00 ±	3.00		-0.80	-1.04	39.30 ±	10.42
			Cs-137	40.0 ±	8.66	43.00 ±	15.87		-0.56	1.04	44.61 ±	15.24
04/16/91	570	Water Lab Perf.	Gross Alpha	54.0 ±	24.25	59.67 ±	12.12		1.23	0.70	49.71 ±	22.86
			Gross Beta	115.0 ±	29.44	110.00 ±	0.00		0.14	-0.51	108.60 ±	27.74
			Sr-89	28.0 ±	8.66	31.00 ±	3.00		1.82	1.04	25.74 ±	12.90
			Sr-90	26.0 ±	8.66	21.00 ±	0.00		0.90	1.73	23.61 ±	6.54
			Cs-134	24.0 ±	8.66	25.00 ±	3.00		0.71	0.35	22.96 ±	4.12
			Cs-137	25.0 ±	8.66	24.00 ±	5.19		-0.52	-0.35	25.49 ±	4.28
04/26/91	571	Milk	Sr-89	32.0 ±	8.66	24.00 ±	9.00	(a)	.06	-2.77	27.07 ±	15.06
			Sr-90	32.0 ±	8.66	26.33 ±	6.24		-0.59	-1.96	28.02 ±	10.28
			I-131	60.0 ±	10.39	53.33 ±	6.93		-2.26	-1.92	61.17 ±	11.58
			Cs-137	49.0 ±	8.66	52.67 ±	4.59		0.46	1.27	51.35 ±	7.46
			K	1650.0 ±	143.76	1590.00 ±	245.55		-1.32	-1.25	1653.09 ±	324.44

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1991
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)		Teledyne Isotopes Results(b)			Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.	
05/10/91	572	Water	Sr-89	39.0 ±	8.66	38.67 ±	13.53		0.43	-0.12	37.43 ±	16.54
			Sr-90	24.0 ±	8.66	22.00 ±	5.19		-0.64	-0.69	23.85 ±	6.04
05/17/91	569	Water	Gross Alpha	24.0 ±	10.39	24.33 ±	7.56		0.98	0.10	20.94 ±	13.26
			Gross Beta	46.0 ±	8.66	50.33 ±	3.06		1.94	1.50	44.73 ±	15.46
06/07/91	573	Water	Co-60	10.0 ±	8.66	10.33 ±	1.74		-0.12	0.12	10.69 ±	4.64
			Zn-65	108.0 ±	19.05	106.00 ±	7.95		-0.56	-0.31	109.54 ±	16.26
			Ru-106	149.0 ±	25.98	136.67 ±	11.37		-0.56	-1.42	141.48 ±	28.16
			Ba-133	62.0 ±	10.39	56.33 ±	4.59		-1.45	-1.64	61.37 ±	10.96
			Cs-134	15.0 ±	8.66	13.67 ±	4.59		-0.19	-0.46	14.20 ±	4.04
			Cs-137	14.0 ±	8.66	13.67 ±	4.59		-0.59	-0.12	15.37 ±	3.92
06/21/91	574	Water	H-3	12480 ±	2161.60	12833.33 ±	346.50		0.55	0.49	12434.92 ±	1881.62
08/09/91	576	Water	I-131	20.0 ±	10.39	19.33 ±	1.74		-0.47	-0.19	20.96 ±	6.04
08/30/91	580	Air Filter	Gross Alpha	25.0 ±	10.39	27.00 ±	6.00		-0.38	0.58	28.33 ±	10.06
			Gross Beta	92.0 ±	17.32	100.00 ±	0.00		0.77	1.39	95.54 ±	18.08
			Sr-90	30.0 ±	8.66	27.67 ±	8.67		-0.50	-0.81	29.11 ±	7.84
			Cs-137	30.0 ±	8.66	33.33 ±	9.63		0.30	1.15	32.48 ±	10.76
09/13/91	581	Water	Sr-89	49.0 ±	8.66	50.67 ±	8.67		0.38	0.58	49.57 ±	18.16
			Sr-90	25.0 ±	8.66	26.00 ±	3.00		0.44	0.35	24.72 ±	5.82
09/20/91	579	Water	Gross Alpha	10.0 ±	8.66	11.67 ±	1.74		0.45	0.58	10.36 ±	6.30
			Gross Beta	20.0 ±	8.66	21.00 ±	0.00		0.24	0.35	20.30 ±	7.36
09/27/91	584	Milk	Sr-89	25.0 ±	8.66	21.00 ±	7.95		0.02	-1.39	20.95 ±	10.36
			Sr-90	25.0 ±	8.66	19.00 ±	0.00	(d)	-0.72	-2.08	21.09 ±	8.40
			I-131	108.0 ±	19.05	113.33 ±	17.31		0.75	0.84	108.56 ±	16.68
			Cs-137	30.0 ±	8.66	29.00 ±	10.83		-0.81	-0.35	31.35 ±	4.68
			K	1740.0 ±	150.69	1503.33 ±	225.18	(e)	-3.27	-4.71	1667.46 ±	241.58

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1991
TELEDYNE ISOTOPES

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Isotopes Results(b)		Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.	
10/04/91	582	Water Lab Perf.	Co-60	29.0 ± 8.66	30.33 ±	6.24	0.18	0.46	29.83 ±	6.00
			Zn-65	73.0 ± 12.12	72.67 ±	21.27	-0.47	-0.08	74.57 ±	13.28
			Ru-106	199.0 ± 34.64	197.67 ±	22.53	0.30	-0.12	194.21 ±	41.84
			Ba-133	98.0 ± 17.32	97.00 ±	26.16	0.25	-0.17	95.56 ±	14.88
			Cs-134	10.0 ± 8.66	10.33 ±	1.74	0.14	0.12	9.93 ±	3.64
			Cs-137	10.0 ± 8.56	11.33 ±	1.74	0.16	0.46	10.86 ±	3.62
10/18/91	583	Water	H-3	2454.0 ± 611.41	2333.33 ±	173.22	-0.98	-0.59	2531.91 ±	677.04
10/22/91	586	Water Lab Perf.	Gross Alpha	82.00 ± 36.37	55.00 ±	13.08 (f)	-1.70	-2.23	60.64 ±	32.10
			Gross Beta	65.0 ± 17.32	56.00 ±	3.00	0.08	-1.56	50.78 ±	12.64
			Sr-89	10.0 ± 8.66	10.67 ±	9.24	0.30	0.23	18.84 ±	10.24
			Sr-90	10.0 ± 8.66	9.33 ±	1.74	-0.26	-0.23	14.44 ±	4.04
			Co-60	20.0 ± 8.66	19.67 ±	1.74	-0.19	-0.12	20.22 ±	4.26
			Cs-134	10.0 ± 8.66	10.33 ±	9.24	0.26	-0.12	7.49 ±	2.88
			Cs-137	11.0 ± 8.66	13.67 ±	1.74	0.42	0.92	5.94 ±	3.10

Footnotes:

(a) EPA Results - Expected laboratory precision (3 sigma). Units are pCi/l for water and milk except K which is in mg/l.

(b) Teledyne Results - Average ± 3 sigma. Units are pCi/l for water and milk except K which is in mg/l. Units are total pCi for air particulate filters.

(c) The sample presents a different counting geometry. The EPA deposits activity in a 3/4 inch diameter circle, on a plastic disk approximately 3/32 inch thick. A special calibration for EPA filters will be performed. The laboratory has obtained blank filters from the Las Vegas facility, and will simulate their deposits.

(d) The cause for the deviation is believed to be erroneously high strontium yields, probably caused by incomplete separation of calcium. The laboratory has investigated carrier concentrations and pipeting techniques and have found them to be correct. Further aspects of analysts' techniques are being tested. The laboratory has received a new strontium extraction material developed at Argonne National Laboratory. Experiments with this method to achieve better separation of calcium were completed and procedure PRO-032-105 was implemented on 2/1/92.

(e) There is no apparent cause for the low K results. Two other isotopes spiked in the sample were in good agreement with EPA values. Unit conversions were reviewed and found to be correctly applied. Possible background errors in geometry were investigated and found to have an insignificant effect.

(f) Probable failure to transfer all sample residue to the counting planchet. Analysts are being tested using in-house and other EPA spikes.

TABLE F-2

USEPA
ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
01-91	EPA-WAT-AB319	Water	Beta	5.8 ± 0	5 ± 5
02-91	EPA-WAT-G320	Water	Co-60	45 ± 0.9	40 ± 5
			Zn-65	157 ± 7.4	149 ± 15
			Ru-106	227 ± 15	186 ± 19
			Ba-133	86 ± 2.5	75 ± 8
			Cs-134	13 ± 1.7	8 ± 5
			Cs-137	13 ± 0.8	8 ± 5
02-91	EPA-WAT-I321	Water	I-131	79 ± 1.9	75 ± 8
03-91	EPA-APT-GABS323	APT	Beta	121 ± 1.6	124 ± 6
			Cs-137	39 ± 0.5	40 ± 5
04-91	EPA-WAT-P324	Water	Beta	114 ± 6.9	115 ± 17
			Cs-134	25 ± 1.2	24 ± 5
			Cs-137	26 ± 0.9	25 ± 5
04-91	EPA-MLK-GS325	Milk	Cs-137	51 ± 0.9	49 ± 5
			K(1)	1660 ± 53	1650 ± 83
			I-131	63 ± 0.5	60 ± 6
05-91	EPA-WAT-AB327	Water	Beta	46 ± 1.7	46 ± 5
06-91	EPA-WAT-G328	Water	Co-60	12 ± 0.5	10 ± 5
			Zn-65	110 ± 3.1	108 ± 11
			Ru-106	155 ± 5.7	149 ± 15
			Ba-133	64 ± 2.6	62 ± 6
			Cs-134	17 ± 1.7	15 ± 5
			Cs-137	17 ± 0	14 ± 5
08-91	EPA-APT-GABS331	APT	Beta	93 ± 1.2	92 ± 10
			Cs-137	26 ± 0.5	30 ± 5
08-91	EPA-WAT-I330	Water	I-131	19 ± 0.8	20 ± 6
09-91	EPA-WAT-AB333	Water	Beta	21 ± 1.4	20 ± 5

TABLE F-2

USEPA
ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
09-91	EPA-MLK-GS334	MLK	I-131	110 ± 2.6	108 ± 11
			Cs-137	32 ± 1.2	30 ± 5
			K(1)	1670 ± 19	1740 ± 87
10-91	EPA-WAT-G335	Water	Co-60	30 ± 0.4	29 ± 5
			Zn-65	74 ± 0.2	73 ± 7
			Ru-106	215 ± 1.4	199 ± 20
			Ba-133	108 ± 1.7	98 ± 10
			Cs-134	11 ± 0.2	10 ± 5
			Cs-137	12 ± 0.7	10 ± 5
10-91	EPA-WAT-P337	Water	Beta	62 ± 2.5	65 ± 10
			Co-60	22 ± 0.6	20 ± 5
			Cs-134	11 ± 1	10 ± 5
			Cs-137	13 ± 1.5	11 ± 5

* s. d. - one standard deviation of three individual analytical results

** known value with control limits, indicating whether results are in agreement or disagreement

Note units are: pCi/l for water and milk except K which is in mg/l, and pCi/filter for air particulate filters.

PBAPS SURVEY

A Land Use Census around the Peach Bottom Atomic Power Station (PBAPS) was conducted by Philadelphia Electric Company to comply with Section 3/4.8.E.2 of PBAPS's Technical Specifications. The survey was conducted during the May to October 1991 growing season. The results of this survey are summarized in Table G-1.

There were no changes required to the PBAPS REMP as a result of this survey.

TABLE G-1 LOCATION OF THE NEAREST MILK PRODUCING ANIMAL WITHIN A FIVE MILE RADIUS OF PBAPS, 1991

Sector	Distance (ft.) from Vents
N	18,500
NNE	10,700
NE	11,200
ENE	10,900
E	15,200
ESE	17,200
SE	24,700
SSE	-
S	15,900
SSW	6,900
SW	11,600
WSW	12,400
W	6,000
WNW	8,400
NW	17,900
NNW	-

- INDICATES NO MILK ANIMALS LOCATED