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PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 and 3

Annual Radiological
Environmental Operating Report

Report #51

1 January Through 31 December 1993

Prepared By

PECO ENERGY
Nuclear Generation Group
965 Chesterbrook Blvd.
Wayne, PA 19087-5691

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program (REMP) conducted at the Peach Bottom Atomic Power Station (PBAPS) by PECO Energy covers the period 1 January 1993 through 31 December 1993. This report combines the results of the programs conducted by Teledyne Brown Engineering (TB) and Public Service Electric and Gas Company (PSE&G) laboratories. During this period 2,045 analyses were performed on 1,847 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. Sediment Location 4J and 4T, located below the discharge, showed Co-60 slightly above the detection limit. Cesium-137 was found at all locations. Results were consistent with data from previous years.

The atmospheric environment was divided into two parts for examination: airborne and terrestrial. Sample media for determining airborne effects included 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 activity.

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 showed 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. Results from January through November monthly analyses and first, second and third quarter analyses were consistent with those from previous years and showed no indication of PBAPS effect. TLDs for December and for the fourth quarter were higher than historical values due to a problem at the vendor laboratory in reading these dosimeters. The higher doses were not caused

by higher exposure rates in the environment.

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 Township, 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. Concentrat ons 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 1993. Samples for the PBAPS REMP were collected for PECO by RMC Environmental Services, Inc. (RMC). Sample locations and descriptions can be found in Table B-1 and Figures B-1 through B-3, Appendix B.

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 semiannually at three locations: 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 thirteen locations (1B, 1Z, 2, 3A, 4A, 5, 6E, 12D, 14, 15, 17, 32, 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 April through November. Additionally, samples from six locations (B, C, D, E, L, and P) 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, 16, 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 in the interpretation of the data. These factors are discussed here to avoid undue repetition in the discussion of the results.

1. Lower Limit of Detection

The lower limit of detection (LLD) was defined as the smallest concentration of radioactive material in a sample that would yield a net count (above background) that would be detected with only a 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD was intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criteria for the presence of activity. All analyses were designed to achieve the required LGS detection capabilities for environmental sample analysis.

2. Net Activity Calculation and Reporting of Results

Net activity for a sample was calculated by subtracting background activity from the sample activity. Since the REMP measures extremely small changes in radioactivity in the environment, background variations will result in sample activity being lower than the background activity effecting a negative number. For a more detailed description of the results calculation, see Appendix E.

Teledyne Brown Engineering (TB) reported all analysis results except gamma spec results as Activity ± 2 Sigma. Public Service Electric & Gas (PSE&G) reported all analysis results except gamma spec as Activity ± 1.96 Sigma.

TB reported all gamma spec results as Activity ± 2 Sigma using two conventions (statistically significant and statistically non-significant activity). A Statistically Significant Activity is calculated activity that is greater than the individual sample's Minimum Detectable Activity and therefore most likely a "true positive result". A Statistically Non-significant Activity is calculated activity that is below the individual sample's Minimum Detectable Activity and therefore most likely not a "true positive result". Statistically Non-significant Activity includes calculated "negative activity".

PSE&G reported gamma spec and iodine-131 analyses as Activity ± 1.96 Sigma counting statistic when the activity was greater than or equal to the 1.96 sigma. When an activity was less than the 1.96 sigma, the result was reported as "< the 1.96 sigma value". PSE&G refers to the 1.96 sigma value as the individual sample MDA. For specific equations please see Appendix E.

Data reported in this report were generated 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 significant 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 < MDA were considered to be at the MDA.

C. Program Exceptions

For 1993 the PBAPS REMP had a sample collection recovery rate of approximately 99%. The exceptions to this program are listed below:

1. Air particulate sample from location 38 was not available for week 34 due to a pump mechanical problem.

2. Air particulate and air iodine samples from location 2 were not available for week 24 because of a power interruption and for week 36 due to a pump malfunction.

3. Air iodine and gross beta samples from location 12D were not available for weeks 45, 46, 47, and 48 because of pump and electrical problems.

The specific dates for the above weeks may be found in Table C-IX.1, Appendix C.

4. Surface water sampler at location 1MM was out of service for the following dates: 12/30 to 1/7, 3/11 to 3/18, 4/8 to 4/27, 6/17 to 7/8 and 7/15 to 7/22 due to pump malfunctions. Daily grab samples were taken.

5. Drinking water sampler at location 4L was out of service from 4/17 to 4/25 due to pump malfunction. A grab sample was taken.

6. Drinking water sampler at location 6I was out of service for the following dates: 1/3 to 1/8, 2/26 to 3/6, 4/3 to 4/9 and 11/12 to 12/6 due to pump

malfunctions. Grab samples were taken. The pump experienced poor operation during the entire month of April due to high flows.

7. No sample was provided to the courier for the week 12/22 to 12/28 for locations 1LL and 1MM.

8. TLDs for December and fourth quarter for location 12D were not read due to laboratory error.

9. TLDs for the fourth quarter for locations 1E and 19 were lost in shipping.

10. TLD results for the month of December and quarterly results for the fourth quarter were affected by a mechanical failure of the TLD reader at the vendor laboratory. As a result, the values reported were higher than historical values and considered to be erroneous. The suspect data is included in the report, however, because the alternative would be to report no data for all stations. The vendor subsequently determined that the cause of the problem was dirt in the equipment and the appropriate corrective action to prevent recurrence of the problem was to initiate more frequent cleaning of the reader.

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 1993 PBAPS REMP:

1. Teledyne Isotopes through a reorganization became Teledyne Brown Engineering.

2. Philadelphia Electric Company changed its name to PECO Energy.

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 insoluble and soluble fractions (Table C-I.1 and C-I.2 and Figures C-1 and C-2). The results from analysis of the insoluble portion of all samples from the surface water locations ranged from 0 to 20 pCi/1. The means of the indicator and control locations were 2.3 pCi/1 and 1.2 pCi/1, respectively. The results for the soluble fraction ranged from 1.3 to 10 pCi/1. The mean for the three indicator locations was 4.1 pCi/1, compared to the mean value of 3.5 pCi/1 from the control location.

Tritium

Samples from three locations (1LL, 1MM, 13A) were analyzed for concentrations of tritium (Table C-I.3). Results ranged from -40 to 200 pCi/1 and were within the range found during the preoperational period. Mean activity values from indicator and control locations were 60 pCi/1 and 70 pCi/1, respectively.

Gamma Spectrometry

Samples from all locations were analyzed for concentrations of gamma emitters (Table C-I.4). Statistically significant activity for naturally occurring K-40 was found in 9 of 45 samples. Potassium-40 results ranged from -70 to 28 pCi/l. No statistically significant fission or activation products were found.

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 insoluble and soluble fractions (Tables C-II.1 and C-II.2 and Figures C-3 and C-4). Gross beta activity in the insoluble fraction ranged from 0.0 to 5.2

pCi/1. The values in the soluble fraction ranged from 1.5 to 13 pCi/1. No 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 -0.2 to 0.1 for the indicator location and from 0.0 to 0.3 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 -60 to 100 pCi/1 with a mean of 40 pCi/1. Control location values ranged from 50 to 200 pCi/1 with a mean of 110 pCi/1. 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). Statistically significant activity for naturally occurring K-40 was found in 6 of 24 samples. Potassium-40 results ranged from -50 to 11 pCi/l. No statistically significant fission or activation products were found.

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

Statistically significant activity was observed only for the nuclide K-40 which ranged from 2800 to 3800 pCi/kg (wet) (Table C-III.1). No statistically significant fission or activation products were found. 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). Statistically significant activity for potassium-40 was found in all samples ranging from 11 to 19 pCi/g (dry). Statistically significant activity for the Plant related nuclide Co-60 was found in two of the four sample from the indicator locations which were located downstream of the discharge. The results ranged from -0.01 to 0.08 pCi/g (dry) for the indicator locations and 0.0 to 0.2 pCi/g (dry) for the control location. Statistically significant activity from Cs-137 was found at all locations with a mean value of .25 pCi/g (dry) for the indicator locations and .07 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 thirteen locations (1B, 1Z, 2, 3A, 4A, 5, 6E, 12D, 14, 15, 17, 32, 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 50 E-3 pCi/m^3, with a mean of 18 E-3 pCi/m^3. The results from intermediate locations ranged from 2 to 35 E-3 pCi/m^3, with a mean of 18 E-3 pCi/m^3. The results from distant locations ranged from 6 to 32 E-3 pCi/m^3, with a mean of 18 E-3 pCi/m^3. Comparison of the values indicate no notable difference among the three groups suggesting no effects from operation of PBAPS (Figure C-7).

Gamma Spectrometry

Weekly samples from five locations (1B, 1Z, 2, 3A, and 12D) were composited and 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). No statistically significant I-131 was found.

2. Terrestrial

a. Milk

Samples were collected from eleven locations (A, B, C, D, E, G, J, L, N, 0 and P). 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 -0.2 to 0.1 pCi/l and were at or below the minimum detectable activity. 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 activity.

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). Except for the last monitoring period of the year, most monthly and quarterly TLD readings

were below 10 mR/std. month with a range of 3.0 to 11.5 mR/std. month for the monthly's and 3.2 to 14.4 mR/std. month for the quarterly's. Readings for the final period of the year at each station show a measurable increase over the balance of the year. In fact the annual mean value for every station appears higher than the previous year's data because of the bias introduced during the final period. This bias was caused by mechanical problems at the vendor laboratory which produced artificially higher values. No notable differences were observed among site-boundary, middle, and outer ring measurements, further confirming that the final period bias was due to processing of dosimeters rather than true increased dose rates. 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
LOCATION OF FACILITY: YORK COUNTY, PA

DOCKET NO.: 50-277 & 50-278
REPORTING PERIOD: 1993

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	45	2.5	4.1 (33/33) (1.3/10.0)	3.5 (12/12) (1.7/6.0)	5.0 (12/12) (3.7/10.0)	13A (INDICATOR) CHESTER WATER INTAKE POND 2.4 MILES ESE OF SITE	0
	GROSS BETA INSOLUBLE	45	2.5	2.3 (33/33) (0.0/20.0)	1.2 (12/12) (0.2/3.2)	4.3 (9/9) (0.0/20.0)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	TRITIUN	12	1200	60 (8/8) (-40/200)	70 (4/4) (-40/200)	70 (4/4) (-40/200)	1MM (INDICATOR) CANAL DISCHARGE 1.0 MILES SE OF SITE	0
	GAMMA K-40	45	N/A	-6 (33/33) (-52/14)	-5 (12/12) (-70/28)	-4 (12/12) (-25/13)	1MM (INDICATOR) CANAL DISCHARGE 1.0 MILES SE OF SITE	0
	MN-54		9	0.1 (33/33) (-0.3/0.8)	0.1 (12/12) (-0.4/0.4)	0.2 (9/9) (-0.1/0.3)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	CO-58		9	-0.1 (33/33) (-0.5/0.4)	0.0 (12/12) (-0.4/0.3)	0.0 (12/12) (-0.4/0.3)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE OF SITE	0
	FE-59		18	0.1 (33/33) (-0.9/1.0)	0.0 (12/12) (-0.7/0.8)	0.2 (12/12) (-0.9/0.9)	1MM (INDICATOR) CANAL DISCHARGE 1.0 MILES SE OF SITE	0
	CO-60		9	0.2 (33/33) (-0.3/0.8)	0.1 (12/12) (-0.2/0.4)	0.3 (9/9) (0.1/0.8)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	ZN-65		18	0.4 (33/33) (-0.6/1.6)	0.5 (12/12) (-0.5/2.0)	0.5 (12/12) (-0.5/2.0)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE 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
LOCATION OF FACILITY: YORK COUNTY, PA

DOCKET NO.: 50-277 & 50-278
REPORTING PERIOD: 1993

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
	ZR-95		9	0.6 (33/33) (-0.4/2.0)	0.0 (12/12) (-1.1/0.8)	0.8 (12/12) (-0.2/2.0)	1MM (INDICATOR) CANAL DISCHARGE 1.0 MILES SE OF SITE	0
	NB-95		9	0.4 (33/33) (-0.2/1.4)	0.4 (12/12) (0.1/0.7)	0.6 (9/9) (0.3/1.4)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	CS-134		9	0.0 (33/33) (-0.7/0.7)	0.0 (12/12) (-0.3/0.4)	0.0 (12/12) (-0.3/0.4)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE OF SITE	0
	CS-137		11	0.2 (33/33) (-0.4/0.7)	0.2 (12/12) (-0.7/0.9)	0.2 (12/12) (-0.7/0.9)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE OF SITE	0
	BA-140		9	1 (33/33) (-3/9)	-1 (12/12) (-3/1)	2 (9/9) (-1/9)	13B (INDICATOR) CHESTER WATER INTAKE PUMP 2.4 MILES ESE OF SITE	0
	LA-140		9	-0.3 (33/33) (-3.0/1.5)	-0.2 (12/12) (-0.9/0.5)	-0.2 (12/12) (-0.9/0.5)	1LL (CONTROL) UNITS 2 & 3 INTAKE 0.25 MILES ENE OF SITE	0
DRINKING WATER (PCI/LITER)	GROSS BETA SOLUBLE	24	2.5	4.3 (12/12) (1.5/13.0)	3.5 (12/12) (1.7/7.0)	4.3 (12/12) (1.5/13.0)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	GROSS BETA INSOLUBLE	24	2.5	0.9 (12/12) (0.0/2.9)	1.6 (12/12) (0.3/5.2)	1.6 (12/12) (0.3/5.2)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.9 MILES NW OF SITE	0
	TRITIUM	8	1200	40 (4/4) (-60/100)	110 (4/4) (50/200)	110 (4/4) (50/200)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0

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APPENDIX A
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY

NAME OF FACILITY: PEACH BOTTOM ATOMIC POWER STATION
LOCATION OF FACILITY: YORK COUNTY, PA

DOCKET NO.: 50-277 & 50-278
REPORTING PERIOD: 1993

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
	GAMMA K-40	24	N/A	0 (12/12) (-8/11)	-10 (12/12) (-50/9)	0 (12/12) (-8/11)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	MN-54	9		0.2 (12/12) (-0.2/0.5)	0.0 (12/12) (-0.5/0.3)	0.2 (12/12) (-0.2/0.5)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	CO-58	9		0.0 (12/12) (-0.6/0.5)	0.0 (12/12) (-0.7/0.6)	0.0 (12/12) (-0.6/0.5)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	FE-59	18		0.1 (12/12) (-1.0/1.1)	0.2 (12/12) (-0.9/1.2)	0.2 (12/12) (-0.9/1.2)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	CO-60	9		0.1 (12/12) (-0.4/0.4)	0.1 (12/12) (-0.2/0.6)	0.1 (12/12) (-0.2/0.6)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	ZN-65	18		0.2 (12/12) (-1.0/0.5)	0.5 (12/12) (-0.4/1.2)	0.5 (12/12) (-0.4/1.2)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	ZR-95	9		0.3 (12/12) (-3.0/2.0)	0.5 (12/12) (-0.2/1.0)	0.5 (12/12) (-0.2/1.0)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	NB-95	9		0.2 (12/12) (-0.1/0.7)	0.3 (12/12) (-0.6/0.7)	0.3 (12/12) (-0.6/0.7)	6I (CONTROL) HOLTWOOD STATION INTAKE 5.8 MILES NW OF SITE	0
	CS-134	9		0.0 (12/12) (-0.4/0.3)	-0.2 (12/12) (-0.5/0.1)	0.0 (12/12) (-0.4/0.3)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0

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	CS-137		11	0.3 (12/12) (-0.2/0.6)	0.1 (12/12) (-0.2/0.5)	0.3 (12/12) (-0.2/0.6)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	BA-140		9	0 (12/12) (-6/2)	0 (12/12) (-2/2)	0 (12/12) (-6/2)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
	LA-140		9	0.3 (12/12) (-0.1/0.9)	-0.2 (12/12) (-4.0/1.0)	0.3 (12/12) (-0.1/0.9)	4L (INDICATOR) CONOWINGO DAM EL 33FT. COMPOS 8.6 MILES SE OF SITE	0
PREDATOR (FISH) (PCI/KG WET)	GAMMA K-40	4	N/A	3400 (2/2) (2900/3800)	3400 (2/2) (3200/3500)	3400 (2/2) (2900/3800)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
	MN-54		80	1 (2/2) (-1/2)	0 (2/2) (0/10)	0 (2/2) (0/10)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	CO-58		80	-3 (2/2) (-5/-1)	0 (2/2) (-10/0)	-3 (2/2) (-5/-1)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
	FE-59		160	-10 (2/2) (-20/0)	-10 (2/2) (-40/30)	-10 (2/2) (-40/30)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	CO-60		80	3 (2/2) (-1/7)	10 (2/2) (0/20)	10 (2/2) (0/20)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	ZN-65		160	0 (2/2) (0/0)	30 (2/2) (10/40)	30 (2/2) (10/40)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0

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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
	CS-134		90	1 (2/2) (-1/2)	-10 (2/2) (-20/0)	1 (2/3) (-1/2)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
	CS-137		90	1 (2/2) (1/1)	10 (2/2) (10/10)	10 (2/2) (10/10)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
BOTTOM FEEDER (FISH) (PCI/KG WET)	GAMMA K-40	4	N/A	3000 (2/2) (2800/3200)	3200 (2/2) (3100/3200)	3200 (2/2) (3100/3200)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	MN-54		80	5 (2/2) (4/6)	-1 (2/2) (-2/0)	5 (2/2) (4/6)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
	CO-58		80	-18 (2/2) (-30/-5)	0 (2/2) (0/0)	0 (2/2) (0/0)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	FE-59		160	0 (2/2) (-10/10)	20 (2/2) (10/20)	20 (2/2) (10/20)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	CO-60		80	-2 (2/2) (-5/2)	13 (2/2) (5/20)	13 (2/2) (5/20)	6 (CONTROL) HOLTWOOD POND 6.0 MILES NW OF SITE	0
	ZN-65		160	30 (2/2) (10/50)	0 (2/2) (0/10)	30 (2/2) (10/50)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
	CS-134		90	2 (2/2) (-4/7)	0 (2/2) (0/0)	2 (2/2) (-4/7)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0

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	CS-137		90	10 (2/3) (0/20)	0 (2/2) (-10/0)	10 (2/2) (0/20)	4 (INDICATOR) CONOWINGO POND BELOW DISCHARG BELOW DISCHARGE	0
SILT (PCI/GRAM DRY)	GAMMA BE-7	6	N/A	0.8 (4/4) (0.1/1.2)	0.3 (2/2) (0.2/0.4)	0.8 (2/2) (0.1/1.2)	4T (INDICATOR) CONOWINGO POND NEAR CONOWINGO 8.1 MILES SE OF SITE	0
	K-40		N/A	15 (4/4) (12/19)	11 (2/2) (11/11)	16 (2/2) (12/19)	4J (INDICATOR) CONOWINGO POND NET TRAP 15 1.4 MILES SE OF SITE	0
	CO-60		N/A	0.03 (4/4) (-0.01/0.08)	0.01 (2/2) (0.00/0.02)	0.04 (2/2) (-0.01/0.08)	4T (INDICATOR) CONOWINGO POND NEAR CONOWINGO 8.1 MILES SE OF SITE	0
	CS-134		0.1	0.05 (4/4) (0.02/0.07)	0.05 (2/2) (0.03/0.06)	0.06 (2/2) (0.05/0.06)	4T (INDICATOR) CONOWINGO POND NEAR CONOWINGO 8.1 MILES SE OF SITE	0
	CS-137		0.1	0.24 (4/4) (0.11/0.41)	0.07 (2/2) (0.07/0.07)	0.29 (2/2) (0.17/0.41)	4T (INDICATOR) CONOWINGO POND NEAR CONOWINGO 8.1 MILES SE OF SITE	0
AIR PARTICULATE (E-3 PCI/CU. METER)	GROSS BETA	671	6	18 (518/518) (2/50)	18 (153/153) (6/32)	19 (52/52) (8/35)	14 (INDICATOR) PETERS CREEK 1.9 MILES ESE OF SITE	0
	GAMMA BE-7	20	N/A	64 (16/16) (28/88)	66 (4/4) (49/87)	70 (4/4) (60/88)	1B (INDICATOR) WEATHER STATION NO.2 0.5 MILES NW OF SITE	0
	K-40		N/A	7 (16/16) (-4/42)	5 (4/4) (0/10)	16 (4/4) (-4/42)	1Z (INDICATOR) WEATHER STATION 1 0.3 MILES SE OF SITE	0

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	CS-134		40	0.0 (16/16) (-0.3/0.3)	0.1 (4/4) (-0.1/0.2)	0.1 (4/4) (-0.1/0.2)	12D (CONTROL) 2301 MARKET ST., PHILA 62.0 MILES ENE OF SITE	0
	CS-137		40	0.1 (16/16) (-0.1/0.3)	0.1 (4/4) (0.0/0.2)	0.2 (4/4) (0.0/0.3)	1Z (INDICATOR) WEATHER STATION 1 0.3 MILES SE OF SITE	0
	RA-226		N/A	-2 (16/16) (-5/1)	-4.2 (4/4) (-11.0/-1.0)	-1 (4/4) (-2/0)	3A (INDICATOR) DELTA, PA SUBSTATION 3.6 MILES SW OF SITE	0
	TH-228		N/A	-0.1 (16/16) (-0.7/1.0)	0.0 (4/4) (-0.4/0.4)	0.1 (4/4) (-0.5/1.0)	1B (INDICATOR) WEATHER STATION NO.2 0.5 MILES NW OF SITE	0
AIR IODINE (E-3 PCI/CU. METER)	I-131	250	40	2 (202/202) (-20/18)	-1 (48/48) (-92/11)	2 (51/51) (-19/18)	3A (INDICATOR) DELTA, PA SUBSTATION 3.6 MILES SW OF SITE	0
MILK (PCI/LITER)	I-131 BY RADIOCHEMISTY	129	0.6	-0.02 (96/96) (-0.20/0.10)	-0.01 (33/33) (-0.08/0.07)	0.01 (21/21) (-0.04/0.07)	G (INDICATOR) NEARBY FARM G 1.3 MILES SSW OF SITE	0
	GAMMA K-40	20	N/A	1400 (16/16) (1100/1500)	1400 (4/4) (1300/1400)	1400 (4/4) (1400/1500)	N (INDICATOR) INTERMEDIATE DISTANCE FARM N 3.2 MILES ESE OF SITE	0
	CS-134		10	0 (16/16) (-3/2)	-2 (4/4) (-3/0)	1 (4/4) (-1/2)	O (INDICATOR) NEARBY FARM O 2.2 MILES SW OF SITE	0
	CS-137		10	1 (16/16) (-1/3)	2 (4/4) (0/4)	2 (4/4) (0/4)	A (CONTROL) DISTANCE FARM A 6.0 MILES WSW OF SITE	0

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DIRECT RADIATION (MILLI-ROENTGEN / STD. MONTH)	BA-140		9	1 (16/16) (-6/7)	-4 (4/4) (-9/0)	1 (4/4) (-5/6)	G (INDICATOR) NEARBY FARM G 1.3 MILES SSW OF SITE	0
	LA-140		9	0 (16/16) (-3/5)	-1 (4/4) (-2/1)	1 (4/4) (-1/2)	G (INDICATOR) NEARBY FARM G 1.3 MILES SSW OF SITE	0
	TLD-MONTHLY	538	N/A	6.49 (455/455) (3.00/11.70)	6.21 (83/83) (3.90/10.50)	7.85 (12/12) (6.90/10.10)	50 (INDICATOR) TRANSCO PUMPING STATION 4.9 MILES W OF SITE	0
	TLD-QUARTERLY	176	N/A	6.74 (150/150) (3.20/14.40)	6.26 (26/26) (3.60/11.80)	8.83 (4/4) (6.20/14.40)	1F (INDICATOR) SITE, 200 DEGREE SECTOR HILL 0.6 MILES SSW OF SITE	0

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SAMPLE DESIGNATBON
AND LOCATIONS

APPENDIX B: SAMPLE DESIGNATION AND LOCATIONS

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FIGURES

FIGURE B-1: Environmental Sampling Locations on Site or Near the Peach Bottom Atomic Power Station

FIGURE B-2: Environmental Sampling Locations at Intermediate Distances from the Peach Bottom Atomic Power Station

FIGURE B-3: Environmental Sampling Locations at Remote Distances from the Peach Bottom Atomic Power Station

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1993

Location	Location Description	Distance & 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 - TB Gamma Spec - monthly - TB Tritium - quarterly - TB 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	Cross Beta (S&I) - monthly - TB Gamma Spec - monthly - TB Tritium - quarterly - TB
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 draining the tank and placed in a 2 gallon polyethylene bottle to form a monthly composite sample.	Gross Beta (S&I) - monthly - TB Gamma Spec - monthly - TB Tritium - quarterly - TB 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, 1993

Location	Location Description	Distance & 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 - TB
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 - TB
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, 1993

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
E. Air Particulate - Air Iodine				
1A	Weather Station #1	0.3 miles SE	About 1 cfm continuous flow through glass fiber filter (approx. 2" diameter) which is installed for a week and replaced	Gross beta - weekly - 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 - TB Gamma Spec - quarterly - TB I-131 - weekly - TB
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 - TB Gamma Spec - quarterly - TB
4B	Conowingo Dam - Power House Roof	8.6 miles SE	Same as location 1A	Same as location 4A
5	Wakefield, 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, 1993

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
5	Silver Spring Rd	3.6 miles N	Same as location 1A	Same as location 4A
27	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
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** - TB Gamma Spec - quarterly - TB I-131 - quarterly - PSE&G* Gamma Spec - quarterly - PSE&G*
B	(Control)	9.2 miles S	Same as Farm A	I-131 - quarterly - TB
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** - TB Gamma Spec - quarterly - TB
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
N		3.2 miles ESE	Same as Farm A	Same as Farm A
O		2.2 miles SW	Same as Farm A	Same as Farm B
P		2.1 miles ENE	Same as Farm A	Same as Farm B

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1993

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
G. Environmental Dosimetry - TLD				
At each of the following locations there are two environmental dosimeters packets 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 - TB
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 Substation	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° Sector Hill	0.7 miles S		Same as location 1A
1L	Peach Bottom Unit 3 Intake	0.2 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, 1993

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
1M	Peach Bottom Canal Discharge	1.0 miles SE		Same as location 1A
1NN	Peach Bottom Site	0.5 miles WSW		Same as location 1A
2	Peach Bottom 130° Sector Hill	0.9 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	Fawn Grove, PA	10.0 miles W		Same as location 1A
19	Red Lion, PA (Control)	20.6 miles WNW		Same as location 1A

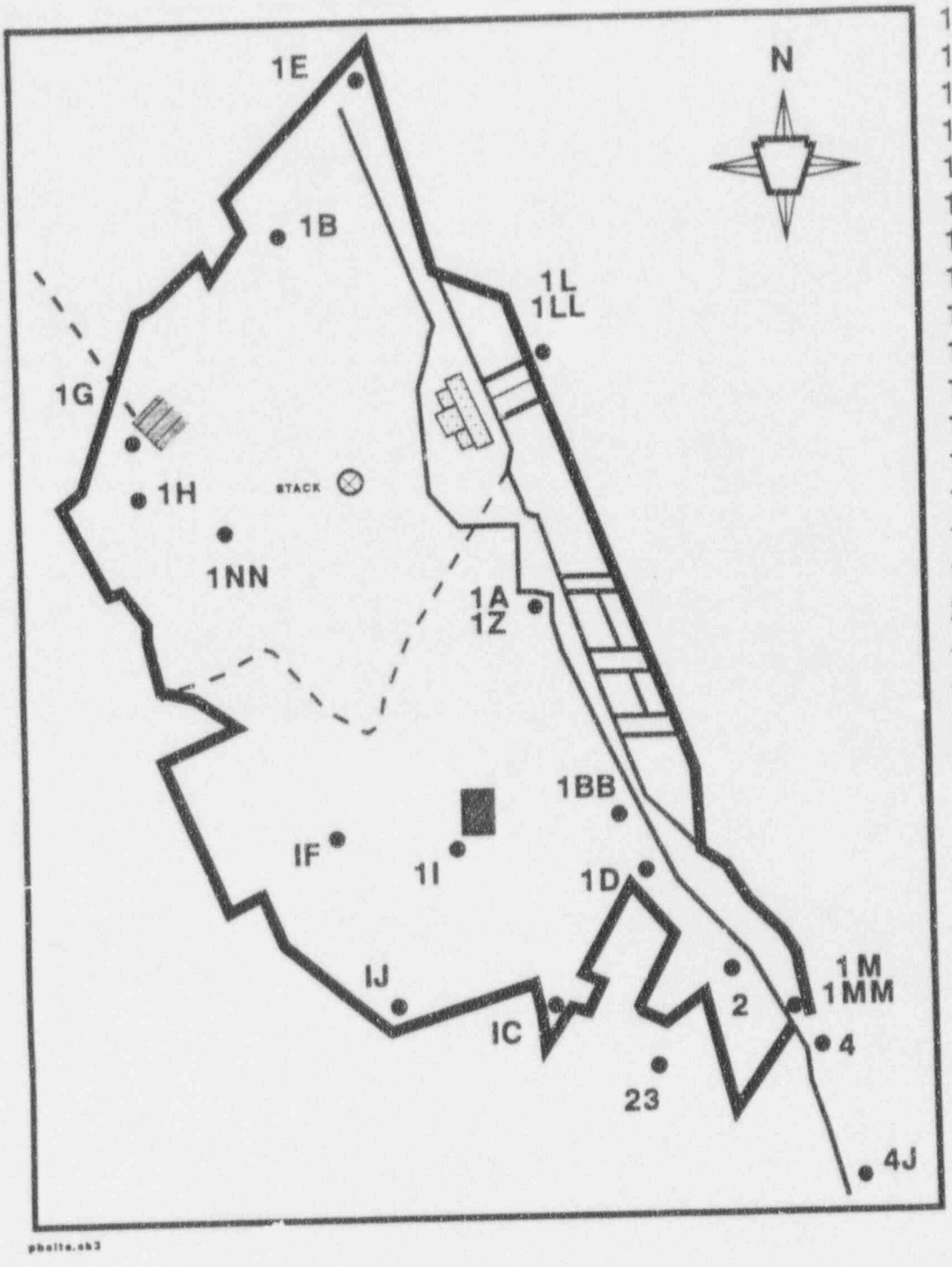
TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1993

Location	Location Description	Distance & 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
26	Slab Road	4.2 miles WW		Same as location 1A
27	N. 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	1.2 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

TABLE B-I: Sample Collection and Analysis Program for the Radiological Environmental Monitoring Program for Peach Bottom Atomic Power Station, 1993

Location	Location Description	Distance & Direction	Collection Method and Frequency	Analysis & Frequency Performed--Consultant
45	PB-Keeney Line	3.3 miles ENE		Same as location 1A
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

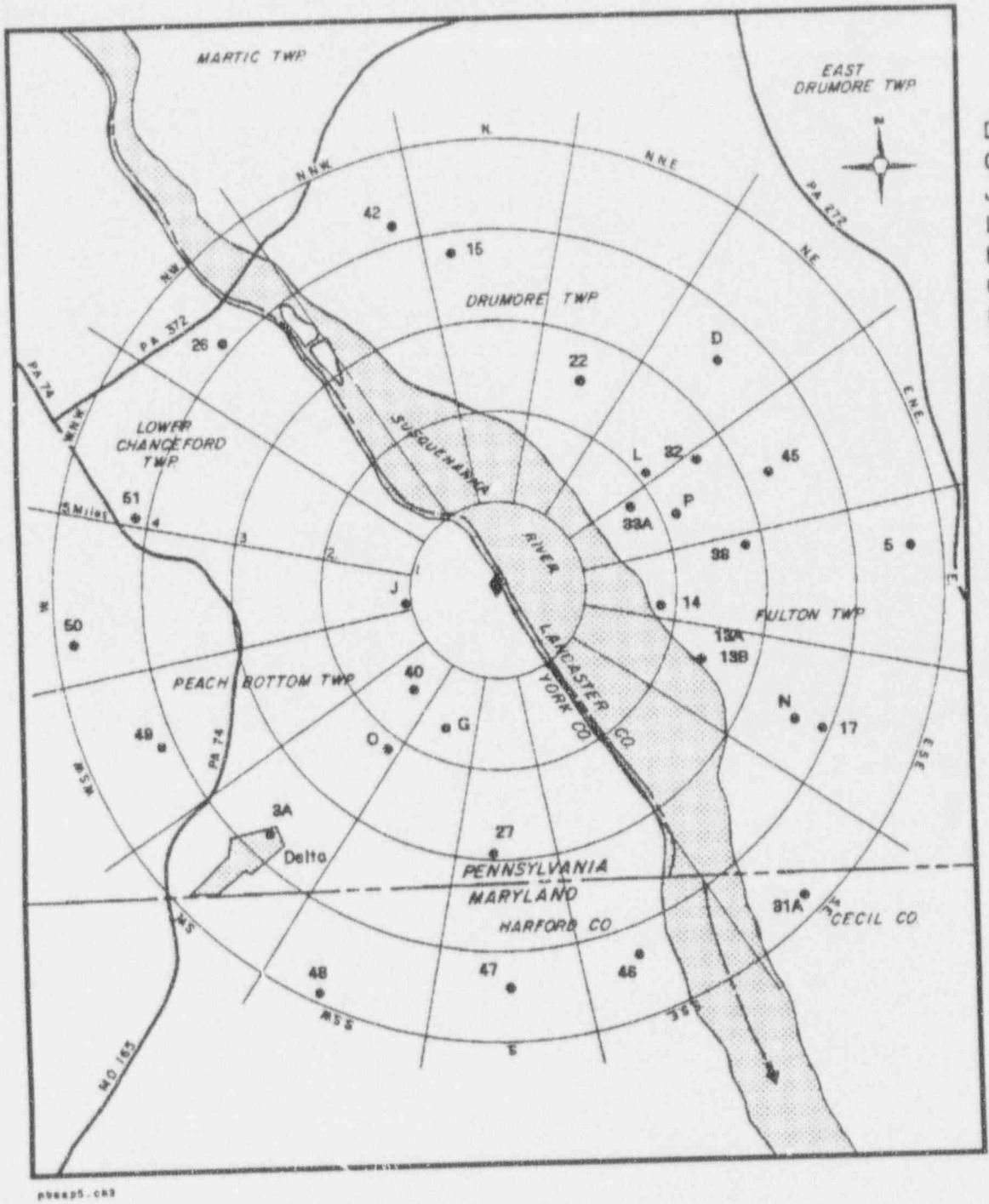
* QC Laboratory
** Monthly from December through March when cows are off pasture.



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

phelte.ch3

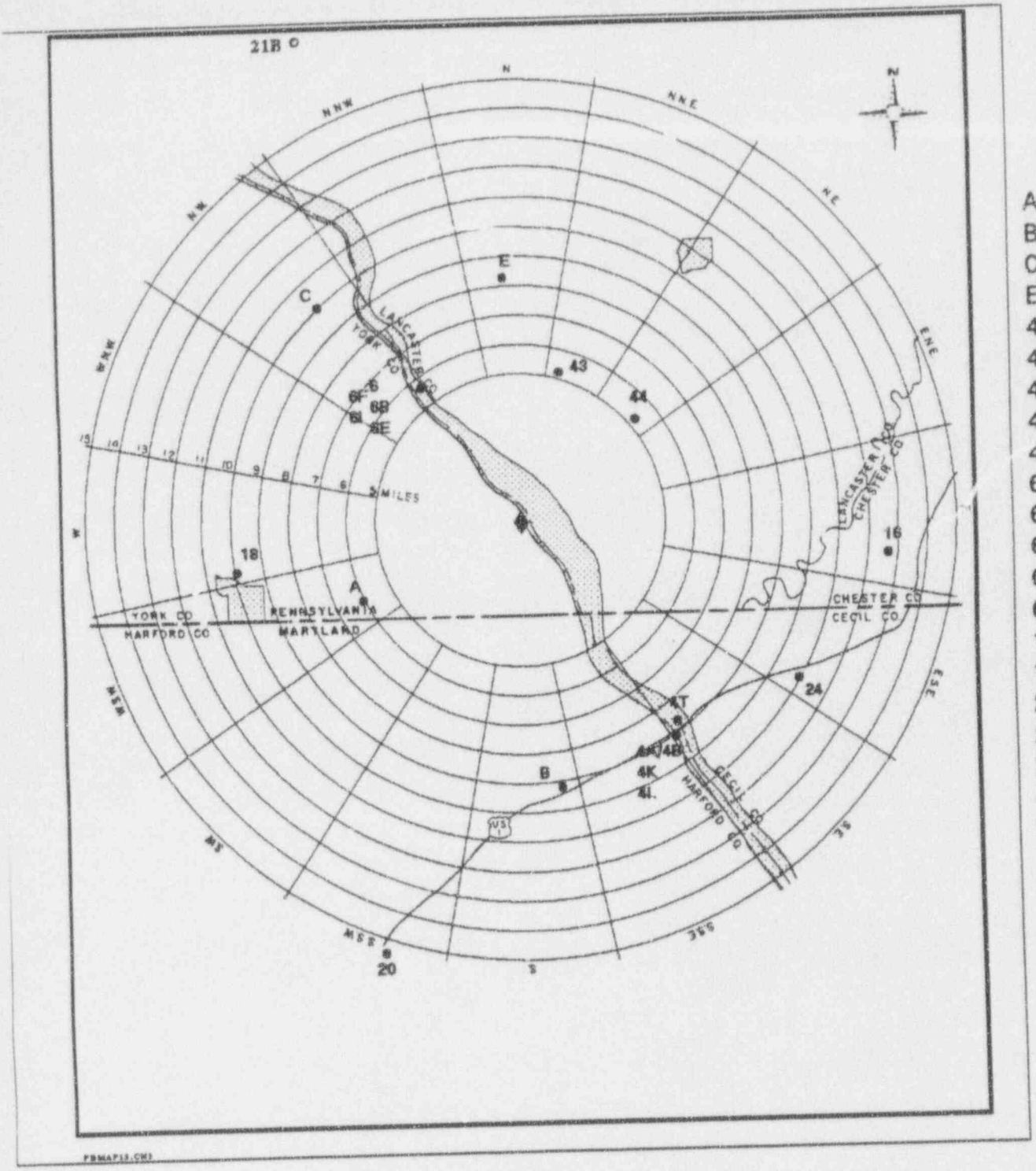
Figure B-1
Environmental Sampling Locations
On Or Near The Peach Bottom
Atomic Power Station Site



pbeap5.ch3

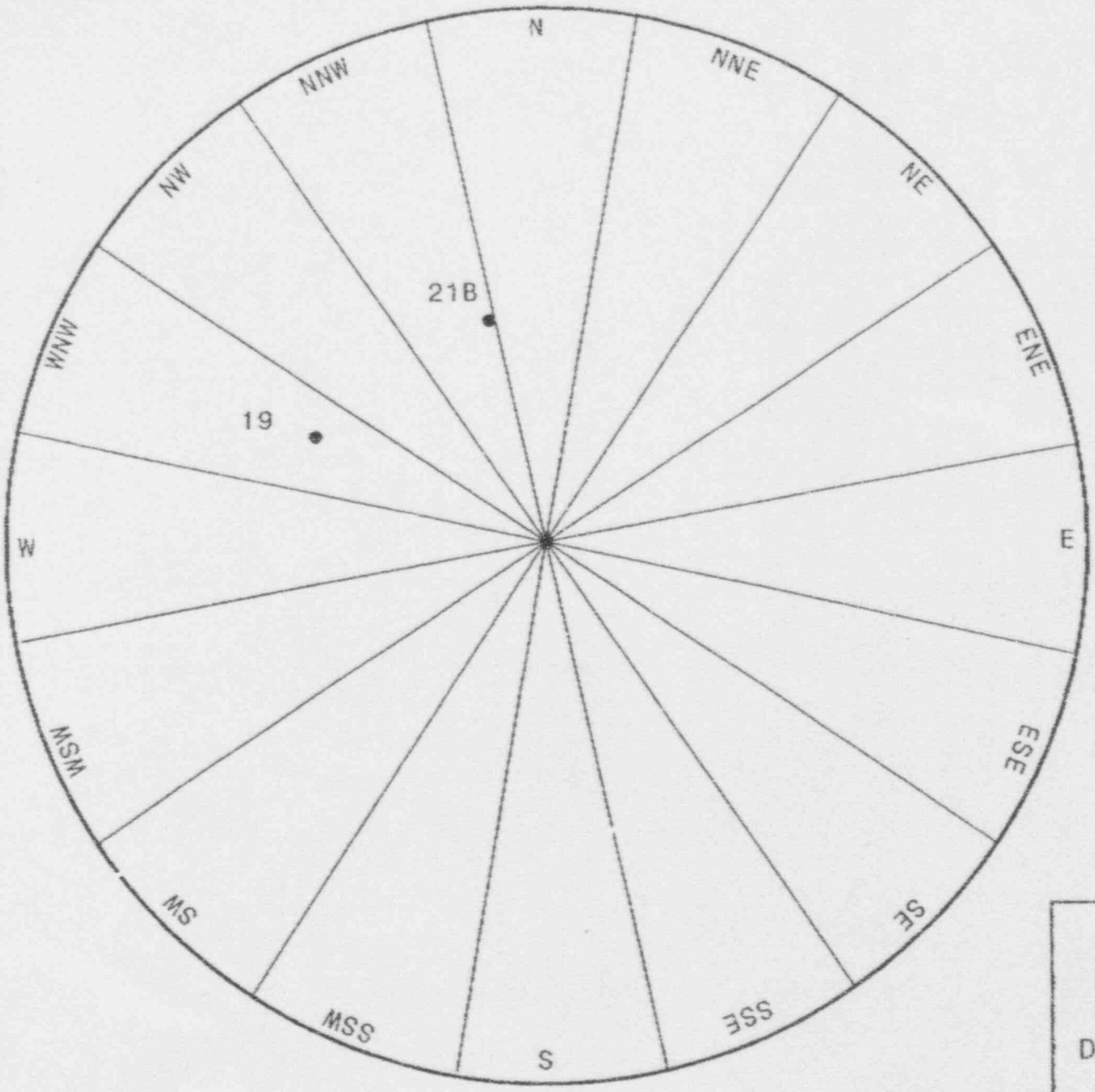
D	MILK
G	MILK
J	MILK
L	MILK
N	MILK
O	MILK
P	MILK
13A	WATER
13B	WATER
3A	APT/AIO, TLD
5	APT, TLD
14	APT, TLD
15	APT, TLD
17	APT, TLD
22	TLD
26	TLD
27	TLD
31A	TLD
32	APT,TLD
33A	TLD
38	APT, TLD
40	TLD
42	TLD
45	TLD
46	TLD
47	TLD
48	TLD
49	TLD
50	TLD
51	TLD

Figure B-2
Environmental Sampling Locations
Within A Five Mile Distance Of
Peach Bottom Atomic Power Station



A	MILK
B	MILK
C	MILK
E	MILK
4A	APT
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	TLD
24	TLD
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



50 MILE RADIUS

12D	TLD, APT/AIO
21B	TLD
19	TLD

Figure B-4
Environmental Sampling Locations At Remote Distances From The Peach Bottom Atomic Power Station

DATA TABLES AND FIGURES
PRIMARY LABORATORY

APPENDIX C: DATA TABLES AND FIGURES - PRIMARY LABORATORY

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Figure C-4 Monthly Soluble Gross Beta Concentrations in Drinking Water Samples Collected in the Vicinity of PBAPS, 1993.

Figure C-5 Mean Annual Cs-137 Concentrations in Fish Samples Collected in the Vicinity of PBAPS, 1971-1993.

Figure C-6 Mean Semi-Annual Cs-137 Concentrations in Sediment Samples Collected in the Vicinity of PBAPS, 1971-1993.

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Figure C-9 Mean Annual Cs-137 Concentrations in Milk Samples Collected in the Vicinity of PBAPS, 1971-1993.

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TABLE C-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN 93	0.0	± 0.5	6	± 1	0.6	± 0.6	0.6	± 0.5
FEB 93	2.0	± 0.9	0.0	± 0.7	0.5	± 0.7	0.4	± 0.7
MAR 93	4.1	± 0.9	3.5	± 0.8	3.2	± 0.8	0.7	± 0.5
APR 93	2.1	± 0.6			0.2	± 0.5	2.8	± 0.8
MAY 93	1.3	± 0.6	20	± 2	1.5	± 0.6	3.7	± 0.8
JUN 93	0.2	± 0.5	3.4	± 0.8	0.3	± 0.5	0.2	± 0.5
JUL 93	3.2	± 0.8	1.1	± 0.6	1.8	± 0.7	1.8	± 0.7
AUG 93	1.8	± 0.8			2.0	± 0.8	1.1	± 0.7
SEP 93	2.1	± 0.6	3.9	± 0.9	2.3	± 0.7	1.2	± 0.6
OCT 93	0.7	± 0.5	0.3	± 0.5	0.2	± 0.5	0.7	± 0.5
NOV 93	2.6	± 0.9			0.8	± 0.7	0.7	± 0.7
DEC 93	0.8	± 0.5	0.2	± 0.5	1.3	± 0.6	2.8	± 0.7
MEAN	1.7	± 2.4	4.3	± 12.5	1.2	± 1.9	1.4	± 2.3

TABLE C-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN 93	1.9	± 0.9	1.9	± 0.8	1.7	± 0.8	1.3	± 0.8
FEB 93	8	± 1	2	± 1	2	± 1	2	± 1
MAR 93	3.1	± 0.8	2.6	± 0.8	2.5	± 0.8	2.7	± 0.8
APR 93	2.3	± 0.8			2.3	± 0.8	2.1	± 0.8
MAY 93	4	± 1	3.3	± 0.9	2.5	± 0.9	2.8	± 0.9
JUN 93	4	± 1	4	± 1	3	± 1	3	± 1
JUL 93	7	± 1	7	± 1	4	± 1	3	± 1
AUG 93	5	± 1			6	± 2	5	± 1
SEP 93	10	± 1	5	± 1	6	± 1	6	± 1
OCT 93	5	± 1	4	± 1	4	± 1	4	± 1
NOV 93	4	± 1			6	± 1	4	± 1
DEC 93	6	± 1	3.0	± 0.9	2.1	± 0.8	3.7	± 0.9
MEAN	5.0	± 4.8	3.6	± 3.2	3.5	± 3.3	3.5	± 2.8

TABLE C-I.3 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13A		13B		1LL		1MM	
JAN-MAR 93	0	± 100			100	± 100	100	± 100
APR-JUN 93	100	± 100			200	± 100	200	± 100
JUL-SEP 93	-10	± 70			-40	± 70	-40	± 70
OCT-DEC 93	90	± 90			40	± 90	10	± 90
MEAN	50	± 110			70	± 200	70	± 210

TABLE C-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65
13A	JAN 93	2 ± 4	0.0 ± 0.3	-0.1 ± 0.4	-0.3 ± 0.8	0.0 ± 0.4	0.6 ± 0.8
	FEB 93	9 ± 5	0.1 ± 0.4	0.0 ± 0.4	0.0 ± 0.8	0.3 ± 0.4	0.0 ± 0.8
	MAR 93	14 ± 6	0.0 ± 0.4	-0.4 ± 0.4	0 ± 1	-0.3 ± 0.5	2 ± 1
	APR 93	-20 ± 10	-0.3 ± 0.5	0.0 ± 0.6	0 ± 1	0.2 ± 0.5	0 ± 1
	MAY 93	-11 ± 6	0.2 ± 0.4	-0.5 ± 0.5	0 ± 1	0.0 ± 0.5	0.0 ± 0.9
	JUN 93	-1 ± 6	0.0 ± 0.4	0.1 ± 0.4	0.3 ± 0.8	0.1 ± 0.4	0.1 ± 0.8
	JUL 93	-4 ± 5	-0.2 ± 0.3	0.0 ± 0.4	-0.1 ± 0.8	0.1 ± 0.3	-0.1 ± 0.6
	AUG 93	7 ± 6	-0.1 ± 0.4	-0.3 ± 0.4	0 ± 1	0.2 ± 0.5	1 ± 1
	SEP 93	0 ± 10	0.8 ± 0.6	0.3 ± 0.7	1 ± 2	0.3 ± 0.6	0 ± 1
	OCT 93	-20 ± 9	0.3 ± 0.4	-0.1 ± 0.5	0 ± 1	0.3 ± 0.4	1 ± 1
	NOV 93	10 ± 6	0.2 ± 0.5	-0.1 ± 0.6	0 ± 1	0.3 ± 0.5	1 ± 1
	DEC 93	-40 ± 10	0.0 ± 0.5	-0.2 ± 0.5	1 ± 1	0.1 ± 0.5	0 ± 1
	MEAN	-5 ± 31	0.1 ± 0.6	-0.1 ± 0.4	0.1 ± 0.7	0.1 ± 0.3	0.3 ± 1.1
13B	JAN 93	10 ± 6	0.3 ± 0.5	0.4 ± 0.6	1 ± 1	0.8 ± 0.5	2 ± 1
	FEB 93	-50 ± 10	0.1 ± 0.6	-0.2 ± 0.6	-1 ± 2	0.1 ± 0.5	1 ± 1
	MAR 93	-1 ± 6	0.2 ± 0.4	-0.1 ± 0.4	1 ± 1	0.4 ± 0.4	-0.3 ± 0.8
	MAY 93	1 ± 8	0.2 ± 0.5	0.0 ± 0.7	-1 ± 2	0.1 ± 0.5	0 ± 1
	JUN 93	0 ± 8	0.1 ± 0.5	-0.3 ± 0.5	0 ± 1	0.3 ± 0.4	0 ± 1
	JUL 93	-10 ± 9	0.2 ± 0.5	0.0 ± 0.6	0 ± 2	0.1 ± 0.5	0 ± 1
	SEP 93	2 ± 5	-0.1 ± 0.4	0.1 ± 0.5	1 ± 1	0.2 ± 0.5	0.5 ± 0.9
	OCT 93	-18 ± 7	0.1 ± 0.4	-0.1 ± 0.5	0 ± 1	0.2 ± 0.4	0.8 ± 0.9
	DEC 93	-15 ± 7	0.3 ± 0.5	-0.3 ± 0.5	1 ± 1	0.2 ± 0.5	0 ± 1
	MEAN	-9 ± 37	0.2 ± 0.2	-0.1 ± 0.4	0 ± 1	0.3 ± 0.1	0.5 ± 1.2
1LL	JAN 93	6 ± 5	0.2 ± 0.4	-0.1 ± 0.4	0.5 ± 1.0	0.1 ± 0.4	-0.2 ± 0.9
	FEB 93	-5 ± 5	0.2 ± 0.3	-0.2 ± 0.3	0.7 ± 0.7	0.1 ± 0.3	0.0 ± 0.7
	MAR 93	28 ± 7	0.1 ± 0.6	0.3 ± 0.6	0 ± 1	0.0 ± 0.5	1 ± 1
	APR 93	-5 ± 4	0.2 ± 0.4	0.1 ± 0.4	0 ± 1	0.0 ± 0.4	0.7 ± 0.8
	MAY 93	-2 ± 7	-0.1 ± 0.4	-0.2 ± 0.5	1 ± 1	0.4 ± 0.5	1 ± 1
	JUN 93	-70 ± 10	-0.2 ± 0.5	-0.4 ± 0.6	0 ± 1	0.1 ± 0.5	2 ± 1
	JUL 93	0 ± 8	0.1 ± 0.4	0.2 ± 0.6	-1 ± 1	0.2 ± 0.5	0 ± 1
	AUG 93	1 ± 7	-0.4 ± 0.5	-0.1 ± 0.6	-1 ± 1	0.1 ± 0.5	0 ± 1
	SEP 93	5 ± 4	0.0 ± 0.4	0.2 ± 0.5	-1 ± 1	-0.2 ± 0.4	0.5 ± 0.9
	OCT 93	0 ± 5	0.1 ± 0.3	0.2 ± 0.4	-0.2 ± 0.8	0.1 ± 0.3	0.2 ± 0.7
	NOV 93	-20 ± 10	0.4 ± 0.5	0.1 ± 0.5	-1 ± 1	0.1 ± 0.5	2 ± 1
	DEC 93	1 ± 5	0.2 ± 0.3	0.0 ± 0.3	0.0 ± 0.7	0.0 ± 0.3	-0.5 ± 0.7
	MEAN	-5 ± 46	0.1 ± 0.4	0.0 ± 0.4	0.0 ± 1.1	0.1 ± 0.3	0.5 ± 1.6
1MM	JAN 93	-4 ± 7	0.2 ± 0.4	0.3 ± 0.4	-0.9 ± 0.9	0.1 ± 0.4	-0.3 ± 0.9
	FEB 93	13 ± 1	-0.1 ± 0.4	0.0 ± 0.5	0 ± 1	0.1 ± 0.5	0.6 ± 1.0
	MAR 93	-9 ± 6	0.6 ± 0.5	-0.2 ± 0.5	0 ± 1	0.8 ± 0.5	-1 ± 1
	APR 93	-4 ± 5	0.5 ± 0.3	0.2 ± 0.4	-0.5 ± 0.8	-0.1 ± 0.3	0.0 ± 0.7
	MAY 93	-3 ± 8	0.1 ± 0.4	0.0 ± 0.5	0 ± 1	-0.2 ± 0.4	1.0 ± 0.9
	JUN 93	0 ± 5	-0.1 ± 0.4	-0.5 ± 0.4	1 ± 1	0.1 ± 0.5	1.1 ± 0.8
	JUL 93	1 ± 4	0.1 ± 0.4	-0.1 ± 0.4	0.7 ± 0.9	0.4 ± 0.4	1.1 ± 0.8
	AUG 93	-25 ± 8	0.2 ± 0.5	-0.4 ± 0.5	1 ± 1	0.1 ± 0.5	0 ± 1
	SEP 93	-10 ± 10	0.0 ± 0.6	-0.1 ± 0.8	1 ± 2	0.0 ± 0.6	0 ± 1
	OCT 93	0 ± 10	0.1 ± 0.5	0.0 ± 0.6	1 ± 1	0.1 ± 0.5	1 ± 1
	NOV 93	7 ± 5	0.1 ± 0.4	-0.1 ± 0.4	1 ± 1	0.5 ± 0.4	0.2 ± 0.9
	DEC 93	-10 ± 10	0.0 ± 0.5	-0.2 ± 0.5	1 ± 1	0.5 ± 0.5	0 ± 1
	MEAN	-4 ± 19	0.1 ± 0.4	-0.1 ± 0.4	0.2 ± 1.2	0.2 ± 0.6	0.3 ± 1.2

TABLE C-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
13A	JAN 93	0.1 ± 0.8	0.2 ± 0.4	-0.4 ± 0.4	-0.1 ± 0.4	2 ± 2	0.3 ± 0.9
	FEB 93	0.2 ± 0.8	0.1 ± 0.4	0.1 ± 0.4	0.2 ± 0.4	0 ± 1	-0.1 ± 0.6
	MAR 93	0.7 ± 1.0	0.4 ± 0.5	-0.7 ± 0.5	0.4 ± 0.4	3 ± 2	0 ± 1
	APR 93	2 ± 1	0.3 ± 0.6	-0.3 ± 0.5	0.2 ± 0.5	-1 ± 4	0 ± 2
	MAY 93	1 ± 1	-0.2 ± 0.5	0.4 ± 0.5	0.2 ± 0.5	-1 ± 3	-1 ± 2
	JUN 93	-0.1 ± 0.8	0.4 ± 0.4	0.2 ± 0.4	0.1 ± 0.4	-1 ± 2	-0.4 ± 0.8
	JUL 93	-0.4 ± 0.7	0.2 ± 0.4	0.0 ± 0.3	0.1 ± 0.3	2 ± 3	0 ± 1
	AUG 93	0 ± 1	0.5 ± 0.5	-0.4 ± 0.4	-0.2 ± 0.4	-2 ± 3	0 ± 1
	SEP 93	1 ± 1	0.5 ± 0.7	-0.3 ± 0.6	0.0 ± 0.6	2 ± 7	0 ± 3
	OCT 93	0 ± 1	0.4 ± 0.5	-0.1 ± 0.5	0.7 ± 0.5	-1 ± 4	-1 ± 1
	NOV 93	0 ± 1	0.3 ± 0.6	0.7 ± 0.6	-0.4 ± 0.6	3 ± 3	0 ± 1
	DEC 93	1 ± 1	0.7 ± 0.5	0.1 ± 0.5	0.7 ± 0.5	2 ± 2	-0.5 ± 0.9
	MEAN	0.5 ± 1.2	0.3 ± 0.5	-0.1 ± 0.8	0.2 ± 0.7	1 ± 3	-0.2 ± 0.8
13B	JAN 93	1 ± 1	0.7 ± 0.6	0.3 ± 0.5	0.5 ± 0.5	-1 ± 7	-1 ± 3
	FEB 93	0 ± 1	1.4 ± 0.7	0.0 ± 0.6	-0.3 ± 0.5	0 ± 7	-1 ± 3
	MAR 93	-0.3 ± 0.9	1 ± 5	0.1 ± 0.4	0.1 ± 0.4	-1 ± 4	0 ± 2
	MAY 93	1 ± 2	0.6 ± 0.7	-0.1 ± 0.6	0.3 ± 0.6	10 ± 10	-3 ± 4
	JUN 93	1 ± 1	0.5 ± 0.6	0.5 ± 0.5	0.1 ± 0.5	1 ± 3	0 ± 1
	JUL 93	1 ± 1	0.5 ± 0.7	-0.2 ± 0.5	0.3 ± 0.5	0 ± 10	-2 ± 4
	SEP 93	0 ± 1	0.4 ± 0.5	0.1 ± 0.4	0.1 ± 0.4	1 ± 5	0 ± 2
	OCT 93	1 ± 1	0.3 ± 0.5	-0.4 ± 0.4	0.2 ± 0.4	9 ± 9	1 ± 4
	DEC 93	0 ± 1	0.5 ± 0.5	0.1 ± 0.5	0.0 ± 0.5	0 ± 3	1 ± 1
	MEAN	0.4 ± 1.1	0.6 ± 0.6	0.0 ± 0.5	0.1 ± 0.4	2 ± 7	-1 ± 3
1LL	JAN 93	0.3 ± 0.9	0.4 ± 0.5	0.0 ± 0.4	-0.7 ± 0.4	-2 ± 3	0 ± 1
	FEB 93	-0.1 ± 0.7	0.1 ± 0.3	0.0 ± 0.3	0.1 ± 0.3	0 ± 2	0.5 ± 0.8
	MAR 93	-1 ± 1	0.6 ± 0.6	-0.1 ± 0.6	0.9 ± 0.6	0 ± 4	-1 ± 1
	APR 93	-0.2 ± 0.9	0.7 ± 0.4	0.0 ± 0.4	-0.2 ± 0.4	1 ± 3	1 ± 2
	MAY 93	0 ± 1	0.2 ± 0.5	-0.3 ± 0.5	0.7 ± 0.5	1 ± 4	-1 ± 2
	JUN 93	1 ± 1	0.7 ± 0.6	-0.3 ± 0.6	0.1 ± 0.6	1 ± 4	-1 ± 2
	JUL 93	1 ± 1	0.5 ± 0.6	0.1 ± 0.5	0.2 ± 0.5	-3 ± 5	0 ± 2
	AUG 93	1 ± 1	0.4 ± 0.6	0.1 ± 0.5	0.2 ± 0.5	-1 ± 4	0 ± 2
	SEP 93	0 ± 1	0.2 ± 0.5	0.4 ± 0.4	-0.1 ± 0.4	-3 ± 6	1 ± 2
	OCT 93	-0.1 ± 0.8	0.1 ± 0.4	0.3 ± 0.3	0.4 ± 0.3	0 ± 3	0 ± 1
	NOV 93	-1 ± 1	0.2 ± 0.5	0.1 ± 0.5	0.6 ± 0.5	0 ± 3	-1 ± 1
	DEC 93	-0.5 ± 0.7	0.6 ± 0.4	0.1 ± 0.3	0.0 ± 0.3	0 ± 2	0.2 ± 0.8
	MEAN	0.0 ± 1.3	0.4 ± 0.4	0.0 ± 0.4	0.2 ± 0.9	-1 ± 3	-0.2 ± 1.0
1MM	JAN 93	0.6 ± 0.9	0.3 ± 0.4	-0.4 ± 0.4	0.3 ± 0.4	-2 ± 3	-0.1 ± 0.9
	FEB 93	1 ± 1	0.7 ± 0.5	-0.3 ± 0.5	0.4 ± 0.5	2 ± 3	-1 ± 1
	MAR 93	0 ± 1	0.2 ± 0.6	0.5 ± 0.6	0.2 ± 0.6	0 ± 4	2 ± 2
	APR 93	-0.2 ± 0.8	0.0 ± 0.4	0.0 ± 0.3	0.1 ± 0.3	0 ± 3	0 ± 1
	MAY 93	1 ± 1	0.4 ± 0.5	0.2 ± 0.5	0.1 ± 0.4	-3 ± 4	0 ± 2
	JUN 93	0.4 ± 0.9	0.0 ± 0.4	0.0 ± 0.4	0.3 ± 0.4	2 ± 2	0 ± 1
	JUL 93	0.1 ± 0.8	0.4 ± 0.4	-0.4 ± 0.4	-0.1 ± 0.4	1 ± 3	1 ± 1
	AUG 93	1 ± 1	0.3 ± 0.5	0.0 ± 0.5	0.2 ± 0.5	4 ± 4	-1 ± 1
	SEP 93	2 ± 2	-0.2 ± 0.8	0.2 ± 0.6	0.2 ± 0.6	-2 ± 9	-2 ± 3
	OCT 93	2 ± 1	0.2 ± 0.6	0.3 ± 0.5	0.5 ± 0.5	5 ± 5	1 ± 2
	NOV 93	0.1 ± 0.9	0.1 ± 0.4	-0.1 ± 0.4	0.0 ± 0.4	-1 ± 2	0 ± 1
	DEC 93	2 ± 1	0.0 ± 0.6	0.3 ± 0.5	0.1 ± 0.5	2 ± 3	0 ± 1
	MEAN	0.8 ± 1.6	0.2 ± 0.5	0.0 ± 0.6	0.2 ± 0.3	1 ± 5	-0.2 ± 1.9

TABLE C-II.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 93	0.0	± 0.5	0.9	± 0.6
FEB 93	0.6	± 0.7	1.3	± 0.8
MAR 93	1.0	± 0.5	0.7	± 0.5
APR 93	1.5	± 0.6	1.3	± 0.6
MAY 93	0.3	± 0.5	0.5	± 0.5
JUN 93	0.5	± 0.5	0.3	± 0.5
JUL 93	2.9	± 0.8	5.2	± 0.7
AUG 93	0.5	± 0.7	4.1	± 0.9
SEP 93	1.4	± 0.6	1.9	± 0.6
OCT 93	0.2	± 0.5	0.4	± 0.5
NOV 93	1.0	± 0.7	1.8	± 0.8
DEC 93	0.7	± 0.6	0.3	± 0.5
MEAN	0.9	± 1.6	1.6	± 3.1

TABLE C-II.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 93	1.5	± 0.8	2.0	± 0.8
FEB 93	3	± 1	3	± 1
MAR 93	3.1	± 0.9	2.9	± 0.9
APR 93	3.0	± 0.8	2.7	± 0.8
MAY 93	2.3	± 0.9	3.0	± 0.9
JUN 93	4	± 1	3	± 1
JUL 93	5	± 1	5	± 1
AUG 93	3	± 1	4	± 1
SEP 93	7	± 1	7	± 1
OCT 93	13	± 2	5	± 1
NOV 93	4	± 1	4	± 1
DEC 93	2.5	± 0.9	1.7	± 0.8
MEAN	4.3	± 6.2	3.6	± 3.0

TABLE C-II.3 CONCENTRATIONS OF I-131 BY RADIOCHEMISTRY IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN 93	0.1	± 0.1	0.1	± 0.1
FEB 93	0.1	± 0.1	0.16	± 0.06
MAR 93	0.0	± 0.1	0.05	± 0.07
APR 93	-0.01	± 0.08	0.02	± 0.09
MAY 93	0.02	± 0.08	0.05	± 0.07
JUN 93	0.1	± 0.1	0.1	± 0.1
JUL 93	0.07	± 0.10	0.06	± 0.08
AUG 93	0.06	± 0.07	0.1	± 0.1
SEP 93	-0.2	± 0.1	0.1	± 0.1
OCT 93	0.01	± 0.09	0.3	± 0.3
NOV 93	-0.01	± 0.08	-0.02	± 0.06
DEC 93	-0.03	± 0.06	0.05	± 0.06
MEAN	0.02	± 0.17	0.09	± 0.17

TABLE C-II.4 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L		6I	
JAN-MAR 93	100	± 100	100	± 100
APR-JUN 93	100	± 100	200	± 100
JUL-SEP 93	-60	± 80	50	± 70
OCT-DEC 93	70	± 90	70	± 90
MEAN	40	± 140	110	± 140

TABLE C-II.5 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40		MN-54		CO-58		FE-59		CO-60		ZN-65	
4L	JAN 93	0	± 10	0.3	± 0.5	0.0	± 0.5	1	± 1	0.3	± 0.5	1	± 1
	FEB 93	11	± 5	0.2	± 0.4	0.1	± 0.4	1.1	± 0.8	-0.2	± 0.4	0.3	± 0.8
	MAR 93	-5	± 9	0.1	± 0.5	-0.1	± 0.5	0	± 1	0.0	± 0.5	0.3	± 1.0
	APR 93	0	± 6	0.3	± 0.4	0.0	± 0.5	0	± 1	-0.3	± 0.4	0.2	± 0.9
	MAY 93	-8	± 6	-0.2	± 0.4	0.0	± 0.5	0	± 1	0.1	± 0.4	0.1	± 0.9
	JUN 93	-5	± 8	0.2	± 0.5	0.2	± 0.5	0	± 1	0.1	± 0.5	1	± 1
	JUL 93	8	± 6	0.4	± 0.5	0.5	± 0.6	1	± 1	-0.4	± 0.5	-1	± 1
	AUG 93	8	± 5	0.5	± 0.4	0.0	± 0.5	1	± 1	0.2	± 0.4	0.8	± 0.9
	SEP 93	1	± 7	0.0	± 0.5	-0.6	± 0.6	-1	± 1	0.4	± 0.5	1	± 1
	OCT 93	-4	± 5	0.2	± 0.4	0.1	± 0.5	-1	± 1	0.2	± 0.4	0.1	± 0.9
	NOV 93	-2	± 5	-0.2	± 0.5	0.2	± 0.5	0	± 1	0.3	± 0.5	0	± 1
	DEC 93	2	± 5	0.4	± 0.4	0.0	± 0.4	-0.2	± 0.8	0.1	± 0.4	-0.3	± 0.8
	MEAN	0	± 12	0.2	± 0.5	0.0	± 0.5	0.1	± 1.3	0.1	± 0.5	0.2	± 1.1
6I	JAN 93	-40	± 10	-0.2	± 0.5	0.6	± 0.5	0	± 1	0.4	± 0.5	1	± 1
	FEB 93	6	± 5	0.0	± 0.4	-0.1	± 0.4	0.6	± 0.9	0.0	± 0.4	0.4	± 0.9
	MAR 93	4	± 7	0.3	± 0.5	-0.7	± 0.5	1	± 1	0.1	± 0.5	-0.4	± 1.0
	APR 93	-13	± 7	0.0	± 0.4	-0.2	± 0.4	-1	± 1	0.1	± 0.4	0.8	± 0.9
	MAY 93	-16	± 7	0.2	± 0.4	-0.1	± 0.4	0	± 1	0.6	± 0.4	0.3	± 0.8
	JUN 93	-14	± 8	0.3	± 0.5	-0.2	± 0.5	0	± 1	0.1	± 0.5	0	± 1
	JUL 93	-50	± 10	0.1	± 0.5	-0.3	± 0.5	-1	± 1	0.2	± 0.5	1	± 1
	AUG 93	-7	± 7	-0.1	± 0.5	0.5	± 0.6	1	± 1	0.1	± 0.5	0	± 1
	SEP 93	7	± 6	0.1	± 0.4	0.3	± 0.5	0	± 1	0.0	± 0.4	1	± 1
	OCT 93	-7	± 4	-0.5	± 0.4	0.3	± 0.4	0.6	± 0.9	-0.2	± 0.4	0.8	± 0.8
	NOV 93	9	± 5	-0.3	± 0.4	0.0	± 0.4	0.2	± 0.9	0.1	± 0.4	0.0	± 0.8
	DEC 93	3	± 4	-0.2	± 0.3	0.1	± 0.3	0.2	± 0.8	0.1	± 0.4	0.5	± 0.6
	MEAN	-10	± 38	0.0	± 0.5	0.0	± 0.7	0.2	± 1.2	0.1	± 0.4	0.5	± 0.8

TABLE C-II.5 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	ZR-95		NB-95		CS-134		CS-137		BA-140		LA-140	
4L	JAN 93	1	± 1	0.4	± 0.5	-0.1	± 0.5	0.5	± 0.5	1	± 3	1	± 1
	FEB 93	0.2	± 0.7	0.2	± 0.4	-0.1	± 0.4	0.1	± 0.4	0	± 2	0.1	± 1.0
	MAR 93	0	± 1	0.2	± 0.5	-0.2	± 0.5	0.3	± 0.5	2	± 3	0	± 1
	APR 93	0.0	± 1.0	0.3	± 0.5	0.2	± 0.4	0.1	± 0.4	-1	± 4	1	± 2
	MAY 93	1	± 1	0.5	± 0.5	-0.2	± 0.4	0.5	± 0.5	-2	± 3	0	± 1
	JUN 93	1	± 1	0.2	± 0.5	0.1	± 0.5	0.3	± 0.5	-1	± 2	-0.1	± 1.0
	JUL 93	2	± 1	0.1	± 0.6	-0.4	± 0.5	0.4	± 0.5	2	± 4	0	± 2
	AUG 93	1	± 1	0.2	± 0.5	0.2	± 0.4	0.4	± 0.5	2	± 3	0	± 1
	SEP 93	-3	± 1	0.7	± 0.7	0.3	± 0.5	0.6	± 0.6	-6	± 7	1	± 3
	OCT 93	0	± 1	0.1	± 0.5	0.0	± 0.4	0.1	± 0.4	1	± 4	1	± 2
	NOV 93	-0.5	± 0.9	0.0	± 0.5	-0.2	± 0.5	-0.2	± 0.5	-1	± 3	1	± 1
	DEC 93	0.6	± 0.8	-0.1	± 0.4	-0.2	± 0.5	0.2	± 0.4	1	± 1	0.2	± 0.5
	MEAN	0.3	± 2.4	0.2	± 0.4	0.0	± 0.4	0.3	± 0.5	0	± 4	0.3	± 0.7
6I	JAN 93	1	± 1	-0.6	± 0.5	-0.1	± 0.5	0.4	± 0.5	-1	± 3	-1.3	± 0.9
	FEB 93	-0.2	± 0.8	0.7	± 0.4	-0.1	± 0.4	0.1	± 0.4	0	± 1	-0.4	± 0.8
	MAR 93	1	± 1	0.3	± 0.5	-0.5	± 0.5	0.0	± 0.5	-1	± 3	0	± 1
	APR 93	0.8	± 0.9	0.2	± 0.4	-0.3	± 0.4	0.3	± 0.4	0	± 3	1	± 1
	MAY 93	0.6	± 0.9	0.4	± 0.4	-0.3	± 0.4	-0.2	± 0.4	1	± 3	0	± 1
	JUN 93	1	± 1	0.4	± 0.5	-0.2	± 0.5	0.2	± 0.5	0	± 2	0.2	± 0.9
	JUL 93	1	± 1	0.2	± 0.5	-0.3	± 0.5	0.1	± 0.5	0	± 4	-4	± 1
	AUG 93	0	± 1	0.6	± 0.6	0.0	± 0.5	0.5	± 0.6	-2	± 5	0	± 2
	SEP 93	0	± 1	0.5	± 0.6	-0.2	± 0.5	-0.1	± 0.4	0	± 5	1	± 2
	OCT 93	0.9	± 0.9	-0.1	± 0.4	-0.4	± 0.4	0.1	± 0.4	2	± 3	1	± 1
	NOV 93	0.9	± 0.9	0.3	± 0.4	0.1	± 0.4	-0.2	± 0.4	-2	± 2	0	± 1
	DEC 93	-0.2	± 0.7	0.2	± 0.4	-0.1	± 0.4	-0.1	± 0.4	-1	± 1	-0.2	± 0.7
	MEAN	0.5	± 0.8	0.3	± 0.7	-0.2	± 0.3	0.1	± 0.5	0	± 2	-0.2	± 2.6

TABLE C-III.1 CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC		COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65	CS-134	CS-137
4	PREDATOR	06/21-06/23/93	2900 ± 300	0 ± 10	0 ± 10	-20 ± 30	10 ± 10	0 ± 30	0 ± 10	0 ± 10
		10/25-10/25/93	3800 ± 400	-1 ± 8	-5 ± 7	0 ± 20	-1 ± 9	0 ± 20	2 ± 8	1 ± 8
		MEAN	3400 ± 1300	1 ± 4	-3 ± 6	-10 ± 30	3 ± 11	0 ± 10	1 ± 4	1 ± 0
	BOTTOM FEEDER	06/22-06/23/93	3200 ± 500	0 ± 20	-30 ± 20	-10 ± 40	-10 ± 20	50 ± 40	10 ± 20	20 ± 20
		10/25-11/09/93	2800 ± 300	6 ± 7	-5 ± 7	10 ± 20	2 ± 7	10 ± 20	-4 ± 8	0 ± 9
		MEAN	3000 ± 600	5 ± 3	-18 ± 35	0 ± 30	-2 ± 10	30 ± 60	2 ± 16	10 ± 18
6	PREDATOR	06/22-06/23/93	3200 ± 400	0 ± 20	0 ± 20	-40 ± 40	20 ± 20	40 ± 40	-20 ± 20	10 ± 20
		10/25-10/25/93	3500 ± 300	10 ± 10	-10 ± 10	30 ± 30	0 ± 10	10 ± 20	0 ± 10	10 ± 10
		MEAN	3400 ± 400	0 ± 10	0 ± 0	-10 ± 100	10 ± 30	30 ± 40	-10 ± 30	10 ± 10
	BOTTOM FEEDER	06/22-06/22/93	3200 ± 400	0 ± 10	0 ± 20	20 ± 30	20 ± 20	10 ± 30	0 ± 20	-10 ± 10
		10/22-10/25/93	3100 ± 300	0 ± 9	0 ± 10	10 ± 20	5 ± 9	0 ± 20	0 ± 10	0 ± 10
		MEAN	3200 ± 100	-1 ± 3	0 ± 10	20 ± 10	13 ± 21	0 ± 10	0 ± 10	0 ± 20

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

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

	GROUP II - INTERMEDIATE DISTANCE LOCATIONS															
WEEK	3A		5		14		15		17		32		38			
01	14	± 3	11	± 4	19	± 4	14	± 4	17	± 4	16	± 4	15	± 4		
02	18	± 3	17	± 3	18	± 3	13	± 3	19	± 3	17	± 3	18	± 3		
03	21	± 3	22	± 3	21	± 3	19	± 3	20	± 3	19	± 3	19	± 3		
04	18	± 4	21	± 4	21	± 4	17	± 4	21	± 4	18	± 4	23	± 4		
05	19	± 3	17	± 3	17	± 3	13	± 3	16	± 3	17	± 3	17	± 3		
06	17	± 3	12	± 3	19	± 3	13	± 3	13	± 3	15	± 3	18	± 3		
07	9	± 4	7	± 4	13	± 4	5	± 4	6	± 4	9	± 4	10	± 4		
08	12	± 3	15	± 3	21	± 4	19	± 3	16	± 3	23	± 4	26	± 4		
09	19	± 4	18	± 4	18	± 4	21	± 4	24	± 4	21	± 4	22	± 4		
10	21	± [illegible]	17	± 3	19	± 4	21	± 4	18	± 3	18	± 4	24	± 4		
11	19	±	19	± 4	20	± 4	18	± 4	16	± 4	21	± 4	23	± 4		
12	17	± [illegible]	15	± 3	15	± 3	14	± 3	19	± 3	18	± 3	15	± 3		
13	6	± 3	6	± 3	8	± 3	2	± 3	7	± 3	8	± 3	5	± 3		
14	15	± 3	16	± 3	22	± 4	14	± 3	17	± 3	10	± 3	18	± 3		
15	4	± 2	7	± 2	8	± 2	6	± 2	8	± 2	5	± 2	7	± 2		
16	13	± 3	7	± 3	11	± 3	8	± 3	11	± 3	11	± 3	11	± 3		
17	16	± 4	15	± 4	24	± 4	21	± 4	15	± 4	17	± 4	16	± 4		
18	14	± 3	20	± 4	22	± 4	35	± 5	15	± 4	15	± 4	16	± 4		
19	19	± 3	19	± 3	17	± 3	19	± 3	18	± 3	24	± 4	22	± 4		
20	16	± 3	16	± 3	17	± 3	9	± 3	12	± 3	12	± 3	12	± 3		
21	15	± 3	16	± 3	17	± 3	14	± 3	20	± 3	17	± 3	17	± 3		
22	14	± 3	16	± 3	11	± 2	11	± 2	11	± 2	11	± 2	10	± 2		
23	16	± 3	13	± 3	18	± 4	14	± 3	14	± 3	13	± 3	18	± 4		
24	10	± 3	9	± 3	11	± 3	9	± 3	8	± 3	10	± 3	10	± 3		
25	15	± 3	14	± 3	19	± 3	17	± 3	16	± 3	17	± 3	18	± 3		
26	15	± 2	15	± 2	18	± 2	14	± 2	16	± 2	17	± 2	17	± 2		
27	21	± 3	22	± 4	22	± 4	18	± 4	22	± 4	24	± 4	26	± 4		
28	17	± 3	17	± 3	16	± 3	14	± 3	15	± 3	16	± 3	19	± 3		
29	12	± 3	12	± 3	13	± 3	14	± 3	14	± 3	16	± 3	12	± 3		
30	19	± 3	20	± 3	17	± 3	15	± 3	17	± 3	18	± 4	14	± 3		
31	12	± 3	16	± 4	16	± 4	12	± 4	14	± 4	16	± 4	16	± 4		
32	18	± 4	17	± 3	17	± 3	19	± 3	14	± 3	19	± 3	14	± 3		
33	22	± 3	21	± 4	21	± 3	24	± 4	21	± 3	23	± 4	30	± 20		
34	27	± 4	28	± 4	30	± 4	24	± 3	24	± 4	25	± 4		(1)		
35	24	± 3	22	± 3	23	± 3	18	± 3	20	± 3	21	± 3	17	± 3		
36	19	± 3	23	± 4	24	± 4	20	± 4	23	± 4	21	± 4	27	± 4		
37	12	± 3	16	± 3	14	± 3	22	± 3	16	± 3	13	± 3	14	± 3		
38	19	± 4	20	± 4	19	± 4	21	± 4	20	± 4	21	± 4	21	± 4		
39	17	± 3	19	± 3	16	± 3	14	± 3	14	± 3	16	± 3	18	± 3		
40	14	± 3	14	± 3	15	± 3	12	± 3	16	± 3	13	± [illegible]	15	± 3		
41	17	± 3	19	± 3	17	± 3	18	± 3	17	± 3	14	± 3	15	± 3		
42	21	± 3	22	± 4	21	± 3	17	± 3	20	± 3	21	± 3	20	± 3		
43	17	± 3	21	± 4	22	± 4	19	± 3	19	± 3	19	± 3	21	± 4		
44	19	± 3	15	± 3	16	± 3	14	± 3	15	± 3	15	± 3	18	± 3		
45	25	± 3	29	± 4	29	± 4	30	± 4	25	± 4	29	± 4	27	± 4		
46	20	± 3	21	± 3	22	± 3	14	± 3	19	± 3	19	± 3	21	± 3		
47	26	± 4	28	± 4	28	± 4	25	± 4	27	± 4	28	± 4	28	± 4		
48	17	± 3	15	± 2	18	± 2	15	± 2	15	± 2	16	± 2	18	± 2		
49	27	± 4	34	± 5	35	± 5	30	± 5	32	± 5	32	± 5	33	± 5		
50	15	± 3	18	± 3	21	± 3	19	± 3	16	± 3	19	± 3	17	± 3		
51	16	± 4	16	± 3	18	± 4	20	± 4	16	± 4	20	± 4	20	± 4		
52	24	± 4	21	± 3	25	± 4	21	± 4	20	± 3	19	± 3	22	± 3		
MEAN	17	± 10	17	± 11	19	± 10	17	± 12	17	± 10	18	± 10	18	± 11		

(1) SEE PROGRAM EXCEPTIONS 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, 1993

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

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

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN SILT SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/GRAM DRY ± 2 SIGMA

STC	COLLECTION PERIOD	BE-7		K-40		CO-60		CS-134		CS-137		RA-226		TH-228	
4J	06/24/93	0.1	± 0.1	12	± 1	0.03	± 0.01	0.02	± 0.01	0.11	± 0.02	0.9	± 0.3	0.50	± 0.05
	10/18/93	0.1	± 0.3	19	± 2	0.00	± 0.03	0.07	± 0.03	0.28	± 0.05	2.6	± 0.7	1.4	± 0.1
	MEAN	0.1	± 0.0	16	± 10	0.02	± 0.04	0.05	± 0.07	0.20	± 0.24	1.8	± 2.4	0.95	± 1.27
4T	06/24/93	1.2	± 0.3	14	± 1	-0.01	± 0.03	0.05	± 0.03	0.17	± 0.04	2.0	± 0.8	1.4	± 0.1
	10/18/93	0.1	± 0.2	15	± 2	0.08	± 0.02	0.06	± 0.02	0.41	± 0.04	1.5	± 0.5	0.83	± 0.08
	MEAN	0.6	± 1.6	15	± 1	0.04	± 0.13	0.06	± 0.01	0.29	± 0.34	1.8	± 0.7	1.12	± 0.81
6P	06/24/93	0.4	± 0.2	11	± 1	0.00	± 0.02	0.06	± 0.03	0.07	± 0.03	2.1	± 0.7	1.3	± 0.1
	10/18/93	0.2	± 0.3	11	± 1	0.02	± 0.02	0.03	± 0.03	0.07	± 0.03	2.2	± 0.6	1.1	± 0.1
	MEAN	0.3	± 0.3	11	± 0	0.01	± 0.03	0.05	± 0.04	0.07	± 0.00	2.2	± 0.1	1.2	± 0.3

TABLE C-V.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

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

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

(1) SEE 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, 1993

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
01/02/93-01/29/93	15	24	19 ± 6	01/02/93-01/30/93	11	23	18 ± 6	12/29/92-02/01/93	14	23	19 ± 5
01/29/93-02/26/93	7	19	15 ± 8	01/29/93-02/27/93	5	26	15 ± 10	01/29/93-03/01/93	8	23	17 ± 9
02/26/93-04/02/93	8	25	18 ± 11	02/26/93-04/03/93	2	24	16 ± 12	02/26/93-04/03/93	6	27	17 ± 11
04/02/93-04/30/93	6	23	13 ± 11	04/02/93-05/01/93	4	24	13 ± 11	03/29/93-05/03/93	8	24	15 ± 10
04/30/93-05/28/93	10	39	18 ± 14	04/30/93-05/28/93	9	35	17 ± 10	04/30/93-06/01/93	13	24	17 ± 7
05/28/93-07/04/93	9	17	14 ± 6	05/28/93-07/05/93	8	19	14 ± 6	05/28/93-07/05/93	10	20	15 ± 6
07/04/93-07/30/93	12	23	18 ± 8	07/04/93-07/31/93	12	25	17 ± 7	06/28/93-08/02/93	10	30	18 ± 10
07/30/93-09/03/93	12	50	23 ± 18	07/30/93-09/04/93	12	30	20 ± 10	07/30/93-09/04/93	14	29	20 ± 9
09/03/93-09/30/93	5	36	19 ± 15	09/03/93-10/01/93	12	27	19 ± 7	08/30/93-10/01/93	11	23	18 ± 7
09/30/93-10/29/93	12	23	17 ± 7	09/30/93-10/29/93	12	22	18 ± 6	09/27/93-11/01/93	11	22	17 ± 7
10/29/93-11/26/93	17	30	24 ± 8	10/29/93-11/26/93	14	30	23 ± 11	10/29/93-11/26/93	14	32	23 ± 14
11/26/93-12/31/93	15	36	22 ± 12	11/26/93-12/31/93	15	35	21 ± 12	11/26/93-01/03/94	16	32	21 ± 9
01/02/93-12/31/93	5	50	18 ± 13	01/02/93-12/31/93	2	35	18 ± 11	12/29/92-01/03/94	6	32	18 ± 9

TABLE C-V.3 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

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

STC	COLLECTION PERIOD	BE-7		K-40		CS-134		CS-137		RA-226		TH-228	
1B	01/02-04/02/93	60	± 7	10	± 4	-0.3	± 0.7	0.1	± 0.3	-1	± 6	0.3	± 0.5
	04/02-07/04/93	88	± 9	4	± 4	0.2	± 0.3	0.1	± 0.3	-1	± 5	1.0	± 0.5
	07/04-09/30/93	70	± 7	5	± 4	-0.1	± 0.3	-0.1	± 0.3	-5	± 5	-0.3	± 0.5
	09/30-12/31/93	63	± 7	6	± 4	0.0	± 0.3	0.2	± 0.3	-5	± 5	-0.5	± 0.5
	MEAN	70	± 25	6	± 5	0.0	± 0.4	0.1	± 0.2	-3	± 5	0.1	± 1.4
1Z	01/02-04/02/93	51	± 6	42	± 7	0.1	± 0.4	0.3	± 0.4	-3	± 5	-0.4	± 0.4
	04/02-07/04/93	63	± 6	-4	± 6	0.0	± 0.3	0.1	± 0.3	-2	± 4	-0.3	± 0.4
	07/04-09/30/93	66	± 7	11	± 6	-0.1	± 0.4	0.3	± 0.4	0	± 5	-0.7	± 0.4
	09/30-12/31/93	52	± 6	16	± 7	0.0	± 0.3	0.0	± 0.3	-2	± 4	-0.3	± 0.4
	MEAN	58	± 16	16	± 39	0.0	± 0.2	0.2	± 0.3	-2	± 3	-0.4	± 0.4
2	01/02-04/02/93	50	± 6	5	± 4	0.3	± 0.3	0.2	± 0.3	-1	± 5	-0.6	± 0.5
	04/02-07/04/93	75	± 7	3	± 4	-0.1	± 0.3	0.1	± 0.3	-5	± 4	0.2	± 0.4
	07/04-09/30/93	76	± 8	2	± 4	-0.2	± 0.3	0.1	± 0.3	1	± 4	0.1	± 0.3
	09/30-12/31/93	63	± 6	5	± 4	0.1	± 0.3	-0.1	± 0.2	-2	± 3	-0.1	± 0.3
	MEAN	66	± 25	4	± 3	0.0	± 0.4	0.1	± 0.2	-2	± 5	-0.1	± 0.7
3A	01/02-04/02/93	28	± 5	8	± 4	0.0	± 0.7	0.0	± 0.6	0	± 3	0.2	± 0.3
	04/02-07/04/93	83	± 8	1	± 4	0.0	± 0.2	0.2	± 0.2	0	± 4	-0.2	± 0.3
	07/04-09/30/93	72	± 7	0	± 4	0.0	± 0.2	0.0	± 0.2	-2	± 4	-0.2	± 0.4
	09/30-12/31/93	59	± 6	5	± 3	0.0	± 0.2	0.1	± 0.2	-1	± 4	-0.1	± 0.3
	MEAN	61	± 47	3	± 7	0.0	± 0.0	0.1	± 0.2	-1	± 2	-0.1	± 0.4
12D	12/29-03/29/93	49	± 5	5	± 4	-0.1	± 0.2	0.0	± 0.2	-2.9	± 0.4	0.2	± 0.4
	03/29-06/28/93	87	± 9	10	± 4	0.2	± 0.3	0.0	± 0.3	-11	± 6	0.4	± 0.5
	06/28-09/27/93	74	± 9	5	± 5	0.1	± 0.3	0.2	± 0.3	-1	± 6	-0.1	± 0.5
	09/27-01/03/94	53	± 6	0	± 5	0.0	± 0.3	0.1	± 0.3	-2	± 4	-0.4	± 0.4
	MEAN	66	± 36	5	± 8	0.1	± 0.2	0.1	± 0.2	-4.2	± 9.2	0.0	± 0.7

TABLE C-VI.1 CONCENTRATIONS OF I-131 GAMMA SPEC IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

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	± 20	10	± 20	10	± 20	10	± 20	10	± 20
02	0	± 20	0	± 20	0	± 20	0	± 20	10	± 10
03	10	± 30	10	± 30	10	± 30	10	± 30	10	± 10
04	0	± 40	0	± 40	0	± 40	0	± 40	0	± 20
05	10	± 20	10	± 20	10	± 20	10	± 20	0	± 20
06	0	± 20	0	± 10	0	± 10	0	± 10	-10	± 10
07	10	± 20	10	± 20	10	± 20	10	± 20	2	± 6
08	0	± 20	0	± 10	0	± 20	0	± 20	-10	± 10
09	-10	± 20	-10	± 20	-10	± 20	-10	± 20	0	± 20
10	-10	± 30	-10	± 30	-10	± 30	-10	± 30	0	± 10
11	10	± 10	10	± 10	10	± 10	10	± 10	3	± 9
12	0	± 20	0	± 20	0	± 20	0	± 20	-10	± 20
13	0	± 20	0	± 20	0	± 20	0	± 30	0	± 10
14	-20	± 30	-20	± 30	0	± 20	-20	± 30	0	± 10
15	0	± 20	0	± 20	0	± 20	0	± 20	0	± 10
16	10	± 20	10	± 20	10	± 20	4	± 7	-2	± 9
17	10	± 20	10	± 20	10	± 20	10	± 20	10	± 20
18	0	± 10	0	± 10	0	± 10	0	± 10	0	± 10
19	0	± 20	0	± 20	0	± 20	0	± 20	0	± 9
20	10	± 20	10	± 20	10	± 20	10	± 20	-10	± 10
21	0	± 20	0	± 20	0	± 20	0	± 10	0	± 20
22	0	± 20	0	± 20	0	± 20	-2	± 8	0	± 10
23	-10	± 20	-10	± 20	-6	± 7	-10	± 10	0	± 10
24	0	± 20	0	± 20		(1)	0	± 20	-10	± 10
25	0	± 20	0	± 20	0	± 20	0	± 20	0	± 10
26	3	± 7	3	± 7	3	± 7	2	± 5	1	± 7
27	10	± 30	10	± 30	10	± 20	0	± 20	3	± 7
28	-10	± 20	-10	± 20	-10	± 20	-5	± 7	10	± 30
29	0	± 20	0	± 20	0	± 20	0	± 10	-10	± 10
30	0	± 20	0	± 20	0	± 20	0	± 10	0	± 20
31	0	± 20	0	± 20	0	± 20	0	± 20	0	± 10
32	0	± 20	0	± 20	0	± 20	0	± 20	0	± 8
33	10	± 20	10	± 20	10	± 20	10	± 10	-1	± 8
34	10	± 20	10	± 20	10	± 20	10	± 20	5	± 10
35	20	± 20	20	± 20	10	± 10	20	± 20	3	± 7
36	20	± 20	20	± 20		(1)	20	± 20	7	± 8
38	10	± 20	10	± 20	10	± 20	10	± 20	-2	± 8
39	0	± 20	0	± 20	0	± 20	0	± 20	2	± 8
40	0	± 10	0	± 10	0	± 10	0	± 10	-2	± 8
41	0	± 20	0	± 20	0	± 20	0	± 20	-90	± 80
42	0	± 20	0	± 20	0	± 20	0	± 20	0	± 10
43	0	± 20	0	± 20	0	± 20	0	± 20	0	± 9
44	0	± 20	0	± 20	0	± 20	0	± 20	10	± 20
45	0	± 20	0	± 20	0	± 20	0	± 20		(1)
46	0	± 20	0	± 20	0	± 20	0	± 20		(1)
47	10	± 10	10	± 10	10	± 10	10	± 10		(1)
48	10	± 10	10	± 10	10	± 10	10	± 10		(1)
49	-10	± 20	-10	± 20	-10	± 20	-10	± 20	0	± 10
50	0	± 9	0	± 9	0	± 10	0	± 9	-2	± 6
51	0	± 20	0	± 20	0	± 20	0	± 20	2	± 7
52	10	± 20	10	± 20	10	± 20	10	± 20	-1	± 6
53									10	± 10
MEAN	2	± 15	2	± 15	2	± 12	2	± 14	-1	± 28

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	NEARBY FARMS						INTERMEDIATE DISTANCE FARMS						DISTANT FARMS							
COLLECTION DATE	G		J		O		D		L		N		P		A		B		C		E	
01/18/93	0.00	± 0.05	-0.07	± 0.07	-0.06	± 0.07					0.1	± 0.1			-0.04	± 0.05						
02/08/93	-0.03	± 0.09	-0.1	± 0.1	-0.1	± 0.2	0.0	± 0.2	-0.04	± 0.08	-0.02	± 0.08	0.0	± 0.2	-0.1	± 0.1	-0.1	± 0.1	-0.02	± 0.09	-0.1	± 0.1
03/08/93	0.01	± 0.09	-0.04	± 0.07	-0.03	± 0.05					0.01	± 0.07			0.01	± 0.07						
04/05/93	0.04	± 0.08	-0.07	± 0.06	0.0	± 0.1					-0.20	± 0.08			-0.02	± 0.05						
04/19/93	-0.02	± 0.04	-0.08	± 0.06	-0.03	± 0.04					-0.05	± 0.04			-0.01	± 0.04						
05/03/93	0.00	± 0.05	0.02	± 0.06	-0.01	± 0.04					0.00	± 0.05			-0.02	± 0.07						
05/17/93	0.07	± 0.10	0.05	± 0.05	-0.02	± 0.05	-0.03	± 0.06	0.03	± 0.04	-0.01	± 0.05	0.00	± 0.06	-0.02	± 0.06	0.05	± 0.06	-0.01	± 0.06	0.07	± 0.05
05/31/93	-0.02	± 0.04	0.01	± 0.04	0.01	± 0.04					0.01	± 0.05			-0.06	± 0.10						
06/14/93	0.04	± 0.05	0.04	± 0.07	-0.01	± 0.05					-0.03	± 0.06			-0.04	± 0.07						
06/25/93	0.00	± 0.06	0.07	± 0.09	0.00	± 0.06					-0.07	± 0.05			0.04	± 0.07						
07/12/93	0.0	± 0.1	-0.1	± 0.1	-0.1	± 0.1					-0.12	± 0.09			0.04	± 0.08						
07/26/93	0.0	± 0.3	-0.01	± 0.07	-0.03	± 0.07					0.04	± 0.06			0.00	± 0.06						
08/09/93	-0.01	± 0.05	0.04	± 0.05	0.00	± 0.08					-0.04	± 0.07			0.02	± 0.07						
08/23/93			-0.03	± 0.04			0.02	± 0.06	0.01	± 0.05	0.00	± 0.04	-0.04	± 0.05					-0.03	± 0.05	-0.01	± 0.05
08/24/93	0.03	± 0.04			0.00	± 0.05									0.01	± 0.04	0.04	± 0.06				
09/06/93	0.00	± 0.05	-0.02	± 0.05	-0.01	± 0.04					0.05	± 0.05			-0.04	± 0.04						
09/20/93	0.00	± 0.05	0.04	± 0.06	0.01	± 0.05					0.02	± 0.06			-0.06	± 0.05						
10/04/93	-0.02	± 0.05	-0.1	± 0.1	0.01	± 0.06					-0.02	± 0.07			0.03	± 0.07						
10/18/93	0.04	± 0.05	0.02	± 0.06	0.03	± 0.06					0.00	± 0.05			-0.01	± 0.05						
11/01/93	-0.04	± 0.05	-0.03	± 0.05	0.00	± 0.05	-0.01	± 0.05	0.00	± 0.06	0.00	± 0.04	-0.10	± 0.07	0.03	± 0.05	-0.02	± 0.05	0.02	± 0.05	0.03	± 0.07
11/15/93	0.03	± 0.06	-0.07	± 0.06	-0.03	± 0.07					-0.08	± 0.05			-0.04	± 0.05						
MEAN	0.01	± 0.06	-0.02	± 0.11	-0.02	± 0.07	-0.01	± 0.04	0.00	± 0.06	-0.02	± 0.13	-0.04	± 0.08	-0.01	± 0.07	0.00	± 0.10	-0.01	± 0.05	0.00	± 0.12

TABLE C-VII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40		CS-134		CS-137		BA-140		LA-140	
A	02/08-02/08/93	1300	± 100	-2	± 2	0	± 2	-5	± 9	-1	± 3
	05/17-05/17/93	1400	± 100	-3	± 2	3	± 2	-4	± 9	-2	± 3
	08/24-08/24/93	1400	± 100	-3	± 2	2	± 2	0	± 8	1	± 3
	11/01-11/01/93	1400	± 100	0	± 2	4	± 2	-9	± 8	-2	± 3
	MEAN	1400	± 100	-2	± 3	2	± 4	-4	± 7	-1	± 3
G	02/08-02/08/93	1500	± 200	-1	± 2	3	± 2	2	± 8	0	± 3
	05/17-05/17/93	1400	± 100	0	± 2	0	± 2	6	± 8	-1	± 3
	08/24-08/24/93	1400	± 100	-1	± 2	1	± 2	-5	± 7	2	± 3
	11/01-11/01/93	1400	± 100	1	± 2	1	± 2	2	± 8	2	± 4
	MEAN	1400	± 100	0	± 2	1	± 2	1	± 9	1	± 3
J	02/08-02/08/93	1400	± 100	1	± 2	1	± 2	-1	± 9	1	± 4
	05/17-05/17/93	1500	± 100	1	± 3	3	± 2	-4	± 8	-3	± 3
	08/23-08/23/93	1100	± 100	-3	± 3	-1	± 3	0	± 10	1	± 4
	11/01-11/01/93	1300	± 100	0	± 3	2	± 3	0	± 10	0	± 4
	MEAN	1300	± 300	0	± 4	1	± 3	0	± 6	0	± 4
N	02/08-02/08/93	1400	± 100	-1	± 2	1	± 2	6	± 8	-2	± 4
	05/17-05/17/93	1500	± 100	0	± 3	-1	± 3	0	± 10	2	± 4
	08/23-08/23/93	1400	± 100	1	± 2	2	± 2	3	± 7	-1	± 3
	11/01-11/01/93	1400	± 100	-1	± 2	1	± 2	-1	± 7	2	± 3
	MEAN	1400	± 100	0	± 2	1	± 2	1	± 8	0	± 4
O	02/08-02/08/93	1300	± 100	2	± 3	1	± 3	10	± 10	5	± 4
	05/17-05/17/93	1400	± 100	2	± 2	2	± 2	-3	± 7	-2	± 2
	08/24-08/24/93	1500	± 100	0	± 2	1	± 2	5	± 8	0	± 3
	11/01-11/01/93	1300	± 100	-1	± 2	1	± 2	-6	± 8	-1	± 4
	MEAN	1400	± 200	1	± 3	1	± 1	1	± 12	0	± 6

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1993
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	6.1 ± 2.4	5.3 ± 0.4	5.8 ± 0.3	5.0 ± 0.4	5.9 ± 0.3	5.8 ± 0.2	6.9 ± 0.3	6.9 ± 0.7	5.5 ± 0.6	6.0 ± 0.5	5.7 ± 0.4	7.2 ± 1.3	9.2 ± 0.2
1B	5.8 ± 2.2	5.5 ± 0.2	5.4 ± 0.3	4.9 ± 0.3	5.8 ± 0.5	5.3 ± 0.4	6.5 ± 0.4	5.9 ± 0.7	5.3 ± 0.2	5.9 ± 0.7	5.5 ± 0.3	6.9 ± 0.6	8.9 ± 1.3
1C	6.7 ± 2.3	6.3 ± 0.1	6.3 ± 0.6	5.6 ± 0.7	6.6 ± 0.5	6.2 ± 0.2	5.5 ± 0.6	7.5 ± 0.7	6.5 ± 0.8	7.3 ± 0.5	6.8 ± 0.7	6.6 ± 0.6	9.8 ± 2.0
1D	6.4 ± 2.2	5.9 ± 0.5	7.5 ± 1.2	5.2 ± 0.5	6.2 ± 0.5	5.8 ± 0.2	5.5 ± 0.9	7.1 ± 0.7	6.3 ± 0.5	6.3 ± 0.5	5.8 ± 0.8	6.3 ± 0.8	9.2 ± 1.6
1E	8.4 ± 3.0	5.9 ± 0.5	5.9 ± 0.6	5.6 ± 0.5	6.3 ± 0.9	5.7 ± 0.3	5.2 ± 0.5	6.8 ± 0.7	6.0 ± 0.4	6.4 ± 0.4	6.1 ± 0.7	6.0 ± 0.5	11.0 ± 2.8
1F	7.5 ± 2.7	6.9 ± 0.6	7.0 ± 0.6	6.7 ± 0.3	7.1 ± 0.7	6.8 ± 0.6	6.6 ± 0.6	8.3 ± 0.8	7.0 ± 0.5	7.8 ± 0.3	7.6 ± 0.6	7.3 ± 0.4	11.5 ± 2.3
1G	5.0 ± 2.3	4.5 ± 0.2	4.7 ± 0.3	4.3 ± 0.3	5.0 ± 0.6	4.4 ± 0.2	3.9 ± 0.6	5.7 ± 0.8	4.8 ± 0.3	4.6 ± 0.3	4.9 ± 0.2	4.8 ± 0.2	8.4 ± 1.8
1H	6.9 ± 2.9	6.0 ± 0.4	6.1 ± 0.3	5.5 ± 0.2	6.4 ± 0.4	6.5 ± 0.7	5.9 ± 1.2	7.4 ± 0.5	7.5 ± 0.3	6.7 ± 0.6	7.8 ± 0.8	6.6 ± 1.0	10.9 ± 2.5
1I	5.7 ± 2.1	4.9 ± 0.5	5.4 ± 0.3	4.5 ± 0.3	5.3 ± 0.5	4.8 ± 0.3	5.2 ± 0.4	6.0 ± 0.7	6.1 ± 0.4	5.9 ± 0.6	6.9 ± 0.6	5.2 ± 0.6	8.3 ± 1.0
1J	7.2 ± 2.3	6.8 ± 0.4	6.4 ± 0.6	5.2 ± 2.1	7.5 ± 0.8	6.8 ± 0.3	6.6 ± 0.8	8.2 ± 0.6	7.3 ± 0.3	7.4 ± 0.7	7.2 ± 0.6	7.3 ± 0.9	10.1 ± 2.8
1L	5.0 ± 2.0	4.6 ± 0.6	5.1 ± 0.2	4.2 ± 0.2	5.1 ± 0.1	4.6 ± 0.2	4.2 ± 0.2	5.2 ± 0.3	4.8 ± 0.3	4.7 ± 0.7	4.5 ± 0.2	4.6 ± 0.2	8.0 ± 2.1
1M	4.3 ± 2.4	3.7 ± 0.1	4.2 ± 0.2	3.3 ± 0.4	4.2 ± 0.2	5.7 ± 0.5	3.0 ± 0.3	4.7 ± 0.6	3.6 ± 0.1	4.3 ± 0.2	4.1 ± 0.2	3.6 ± 0.2	7.5 ± 0.7
2	6.1 ± 2.5	5.7 ± 0.5	5.9 ± 0.5	5.3 ± 0.4	6.1 ± 0.6	3.4 ± 0.2	5.3 ± 0.7	7.2 ± 0.4	6.1 ± 0.6	6.7 ± 0.8	6.2 ± 0.6	6.0 ± 0.4	8.8 ± 0.9
3A	4.8 ± 2.6	4.6 ± 0.3	4.5 ± 0.4	4.4 ± 0.9	4.8 ± 0.4	4.0 ± 0.4	3.6 ± 0.4	5.2 ± 0.6	4.3 ± 0.4	4.9 ± 0.3	4.6 ± 0.3	4.6 ± 0.3	8.4 ± 2.0
4R	4.7 ± 2.3	4.1 ± 0.2	4.6 ± 0.3	4.0 ± 0.4	5.8 ± 0.9	3.7 ± 0.1	3.6 ± 0.7	5.2 ± 0.5	3.9 ± 0.2	4.8 ± 0.2	4.5 ± 0.2	4.2 ± 0.2	7.8 ± 0.9
5	6.2 ± 2.1	5.6 ± 0.3	5.6 ± 0.2	5.2 ± 0.3	6.0 ± 0.4	5.5 ± 0.3	5.4 ± 0.7	7.6 ± 0.7	6.0 ± 0.6	6.4 ± 0.4	6.3 ± 0.5	5.7 ± 0.7	9.0 ± 1.6
6S	5.6 ± 1.8	5.1 ± 0.2	5.5 ± 0.3	4.8 ± 0.1	5.6 ± 0.3	4.7 ± 0.2	4.3 ± 0.6	6.1 ± 1.1	6.3 ± 1.2	5.7 ± 0.4	6.5 ± 0.3	5.0 ± 0.4	7.6 ± 0.8
1NW	7.3 ± 1.7	6.9 ± 0.7	6.9 ± 0.6	6.5 ± 0.7	7.2 ± 0.5	6.4 ± 0.5	6.4 ± 0.7	8.7 ± 1.2	7.4 ± 0.4	7.7 ± 1.4	7.3 ± 0.4	7.4 ± 0.6	9.1 ± 1.3
1A	6.4 ± 1.8	6.0 ± 0.3	6.2 ± 0.4	5.9 ± 0.9	6.1 ± 0.4	5.8 ± 0.5	5.2 ± 0.6	7.4 ± 0.6	5.8 ± 0.5	7.1 ± 0.7	6.7 ± 0.4	6.1 ± 0.6	8.6 ± 1.7
12D	4.8 ± 1.0	3.9 ± 0.4	4.5 ± 0.2	4.6 ± 0.1	4.6 ± 0.4	5.2 ± 0.6	5.2 ± 1.0	5.1 ± 0.3	3.9 ± 0.3	4.9 ± 0.1	5.0 ± 0.4	5.4 ± 0.9	(2)
1S	6.6 ± 2.1	6.2 ± 0.5	6.1 ± 0.6	5.7 ± 0.3	6.5 ± 0.6	6.1 ± 0.4	5.5 ± 0.6	7.6 ± 0.6	6.3 ± 0.6	6.7 ± 0.6	6.6 ± 0.4	6.2 ± 0.2	9.4 ± 2.0
1E	6.5 ± 2.1	6.1 ± 0.6	6.5 ± 0.5	5.2 ± 0.7	6.3 ± 0.6	5.9 ± 0.4	5.7 ± 0.6	7.6 ± 1.2	6.3 ± 0.3	6.5 ± 0.5	6.6 ± 0.5	6.2 ± 0.5	9.4 ± 1.5
1T	7.2 ± 2.0	6.7 ± 0.3	6.6 ± 0.5	6.4 ± 0.8	7.3 ± 0.7	6.8 ± 0.7	6.2 ± 0.7	8.3 ± 0.7	6.6 ± 0.5	7.5 ± 1.0	7.6 ± 0.7	6.9 ± 0.7	9.7 ± 0.9
1U	6.9 ± 2.4	6.3 ± 0.6	6.7 ± 0.5	5.5 ± 0.7	6.6 ± 0.6	5.9 ± 0.5	5.8 ± 0.6	7.9 ± 1.2	6.8 ± 1.3	7.2 ± 0.5	6.6 ± 1.0	6.4 ± 0.5	9.5 ± 0.9

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.1 MONTHLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1993
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	7.1 ± 1.3	6.8 ± 0.2	7.2 ± 0.2	6.1 ± 0.6	6.8 ± 0.8	6.1 ± 0.2	7.0 ± 0.8	7.3 ± 0.7	6.3 ± 0.2	7.3 ± 0.6	7.0 ± 0.5	7.0 ± 0.4	10.5 ± 0.9
20	6.1 ± 2.3	5.4 ± 0.5	6.8 ± 1.0	5.1 ± 0.6	5.7 ± 0.7	4.9 ± 0.2	5.9 ± 0.3	7.7 ± 2.5	5.4 ± 0.3	6.3 ± 0.3	5.8 ± 0.2	5.1 ± 0.3	8.8 ± 1.4
21B	6.4 ± 1.9	6.2 ± 0.1	6.4 ± 0.3	5.7 ± 0.8	6.4 ± 0.6	5.7 ± 0.4	5.5 ± 0.7	7.3 ± 0.5	5.9 ± 0.1	6.3 ± 0.2	6.5 ± 0.5	6.1 ± 0.7	9.0 ± 1.4
22	7.2 ± 2.6	6.6 ± 0.5	6.5 ± 0.6	6.4 ± 0.4	8.1 ± 0.7	(2)	5.9 ± 0.5	9.4 ± 2.0	6.2 ± 0.3	6.8 ± 1.3	6.7 ± 0.4	7.1 ± 0.4	9.9 ± 1.8
23	6.9 ± 1.8	6.4 ± 0.3	6.4 ± 0.4	6.3 ± 0.7	6.7 ± 0.4	6.1 ± 0.4	5.8 ± 0.5	8.7 ± 1.5	6.3 ± 0.4	7.8 ± 1.0	7.0 ± 0.5	6.8 ± 0.6	8.2 ± 0.4
24	5.5 ± 2.4	5.0 ± 0.4	5.3 ± 0.3	4.8 ± 0.2	5.1 ± 0.5	4.7 ± 0.2	4.2 ± 0.3	6.9 ± 0.5	4.8 ± 0.3	5.6 ± 0.3	5.8 ± 1.0	5.4 ± 0.6	8.6 ± 1.8
26	7.3 ± 2.0	7.0 ± 0.2	6.8 ± 0.5	6.3 ± 0.5	7.2 ± 0.8	6.8 ± 0.4	6.6 ± 0.7	8.4 ± 1.0	6.9 ± 0.9	7.4 ± 0.8	7.0 ± 1.1	7.6 ± 0.4	10.0 ± 0.8
27	7.0 ± 2.6	6.4 ± 0.3	6.5 ± 0.4	6.2 ± 0.6	6.6 ± 0.6	6.0 ± 0.3	5.8 ± 1.1	8.4 ± 0.5	6.2 ± 0.9	7.4 ± 0.6	7.0 ± 0.4	6.7 ± 0.5	10.4 ± 1.5
32	7.2 ± 2.5	6.8 ± 0.4	6.7 ± 0.5	6.3 ± 0.3	7.0 ± 0.5	6.5 ± 0.5	6.1 ± 0.9	8.0 ± 0.6	6.4 ± 0.7	7.3 ± 0.5	7.2 ± 0.3	7.3 ± 0.4	10.8 ± 1.2
31A	5.5 ± 2.5	5.0 ± 0.1	5.3 ± 0.3	4.7 ± 0.3	5.4 ± 0.5	4.8 ± 0.3	4.5 ± 0.6	6.9 ± 0.5	4.8 ± 0.2	5.7 ± 0.4	5.2 ± 0.3	5.2 ± 0.8	8.9 ± 2.0
33A	5.3 ± 2.3	4.8 ± 0.2	6.8 ± 0.8	4.6 ± 0.8	4.9 ± 0.3	4.5 ± 0.2	3.8 ± 0.4	6.2 ± 0.9	4.5 ± 0.4	5.4 ± 0.3	5.4 ± 0.3	5.1 ± 0.1	8.0 ± 1.5
38	7.0 ± 2.1	6.5 ± 0.5	6.4 ± 0.4	6.0 ± 0.4	6.7 ± 0.7	6.4 ± 0.5	6.3 ± 0.4	7.9 ± 0.5	7.0 ± 0.4	7.2 ± 0.1	6.7 ± 0.5	7.1 ± 0.6	10.0 ± 2.7
40	7.6 ± 2.8	6.8 ± 0.1	7.2 ± 0.7	6.8 ± 0.5	7.2 ± 0.3	7.0 ± 0.4	7.0 ± 0.3	8.6 ± 0.7	7.6 ± 0.2	6.1 ± 0.3	7.5 ± 0.7	7.8 ± 1.2	11.6 ± 1.0
42	5.7 ± 1.9	5.3 ± 0.3	5.9 ± 0.3	5.3 ± 0.6	5.9 ± 1.0	4.8 ± 0.3	4.6 ± 0.4	6.2 ± 0.2	5.2 ± 0.6	5.5 ± 0.8	5.5 ± 0.3	5.9 ± 1.4	8.3 ± 1.2
43	7.3 ± 1.9	7.0 ± 0.4	6.8 ± 0.4	6.5 ± 0.4	7.3 ± 0.9	6.7 ± 0.7	6.4 ± 0.5	8.1 ± 0.4	7.1 ± 0.5	7.7 ± 0.9	7.2 ± 0.4	7.5 ± 0.7	9.9 ± 1.0
44	6.3 ± 1.8	6.1 ± 0.5	5.9 ± 0.4	5.5 ± 0.6	6.2 ± 0.3	5.6 ± 0.4	5.4 ± 0.9	7.4 ± 0.6	5.8 ± 0.3	6.4 ± 0.6	6.2 ± 0.4	6.3 ± 0.4	8.7 ± 0.4
45	7.1 ± 3.1	6.7 ± 0.6	6.7 ± 0.4	5.9 ± 0.4	6.8 ± 0.6	6.3 ± 0.6	5.8 ± 0.6	8.1 ± 0.6	6.9 ± 0.5	7.0 ± 0.5	6.8 ± 0.7	7.0 ± 0.6	11.7 ± 1.0
46	6.5 ± 2.2	6.0 ± 0.5	6.2 ± 0.4	5.8 ± 1.0	6.4 ± 0.4	5.6 ± 0.3	5.4 ± 0.7	7.4 ± 0.7	6.4 ± 0.8	6.7 ± 0.4	6.3 ± 0.3	6.5 ± 0.3	9.5 ± 1.3
47	7.5 ± 1.6	7.1 ± 0.5	6.9 ± 0.3	7.5 ± 0.8	7.3 ± 0.6	6.5 ± 0.6	6.7 ± 0.6	8.6 ± 0.7	7.0 ± 0.5	8.7 ± 0.9	7.5 ± 0.3	7.4 ± 0.4	9.0 ± 0.9
48	6.8 ± 1.7	6.3 ± 0.6	6.5 ± 0.5	6.2 ± 0.7	6.9 ± 0.6	5.9 ± 0.7	6.3 ± 0.8	8.2 ± 0.5	6.7 ± 0.7	7.2 ± 0.2	6.5 ± 0.7	6.6 ± 0.8	8.7 ± 1.4
49	7.0 ± 2.3	6.7 ± 0.5	6.4 ± 0.7	5.8 ± 0.5	8.2 ± 1.3	6.1 ± 0.4	6.2 ± 0.8	7.7 ± 0.6	7.0 ± 0.4	7.2 ± 0.4	6.5 ± 0.6	6.9 ± 0.4	9.9 ± 2.8
50	7.8 ± 1.9	7.4 ± 0.6	7.1 ± 0.4	6.9 ± 0.6	7.9 ± 0.6	7.4 ± 0.8	6.9 ± 0.5	9.1 ± 1.2	7.5 ± 0.5	8.1 ± 0.5	8.0 ± 1.0	7.8 ± 0.5	10.1 ± 0.9
51	7.2 ± 3.0	6.8 ± 0.4	6.7 ± 0.5	6.1 ± 0.3	7.2 ± 0.2	6.2 ± 0.4	7.5 ± 3.2	8.0 ± 0.5	6.9 ± 0.6	7.4 ± 0.4	6.9 ± 0.4	7.2 ± 0.6	10.0 ± 1.5

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE MONTHLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.2 QUARTERLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1993
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	6.5 ± 5.2	5.1 ± 0.3	5.0 ± 0.4	5.7 ± 0.4	10.4 ± 3.1
1B	7.3 ± 8.6	4.5 ± 0.9	5.3 ± 0.3	5.6 ± 0.6	13.7 ± 6.3
1C	7.8 ± 4.8	6.5 ± 0.2	6.7 ± 0.3	6.6 ± 0.5	11.4 ± 2.9
1D	7.8 ± 6.4	5.4 ± 0.5	6.3 ± 0.7	7.1 ± 0.8	12.5 ± 2.8
1E	5.9 ± 1.2	5.2 ± 0.5	6.3 ± 0.4	6.1 ± 0.6	(2)
1F	8.8 ± 7.5	6.2 ± 0.2	7.2 ± 0.5	7.5 ± 0.6	14.4 ± 0.5
1G	5.3 ± 3.0	4.2 ± 0.2	5.0 ± 0.2	4.6 ± 0.1	7.5 ± 0.5
1H	7.0 ± 4.0	5.3 ± 0.2	6.4 ± 0.4	6.5 ± 0.4	9.9 ± 0.3
1I	6.1 ± 4.6	4.4 ± 0.2	5.3 ± 0.1	5.2 ± 0.4	9.5 ± 7.9
1J	8.5 ± 6.1	6.2 ± 0.5	7.5 ± 0.2	7.2 ± 0.4	13.0 ± 2.4
1L	5.9 ± 5.1	4.0 ± 0.2	5.2 ± 0.2	4.8 ± 0.3	9.7 ± 6.8
1M	4.0 ± 2.2	3.4 ± 0.1	3.2 ± 0.1	3.7 ± 0.3	5.6 ± 2.4
2	7.0 ± 4.4	5.2 ± 0.4	6.6 ± 0.4	6.1 ± 0.4	10.2 ± 0.3
3A	5.4 ± 4.1	3.8 ± 0.2	5.0 ± 0.2	4.5 ± 0.2	8.4 ± 1.9
4K	4.0 ± 0.6	3.8 ± 0.2	3.7 ± 0.1	4.3 ± 0.5	4.2 ± 0.7
5	7.1 ± 5.5	5.0 ± 0.2	6.3 ± 0.6	6.1 ± 0.2	11.2 ± 1.1
6B	5.0 ± 0.9	4.4 ± 0.4	5.3 ± 0.3	5.3 ± 0.3	5.1 ± 1.1
1NN	6.8 ± 1.0	6.2 ± 0.3	7.3 ± 0.5	7.0 ± 0.5	6.6 ± 1.5
14	6.1 ± 1.7	5.4 ± 0.2	5.3 ± 0.3	6.5 ± 0.4	7.1 ± 0.3
12D	3.8 ± 0.5	3.6 ± 0.2	3.8 ± 0.3	4.1 ± 0.1	(2)
15	7.0 ± 4.3	5.5 ± 0.2	6.5 ± 0.1	6.0 ± 0.6	10.2 ± 1.9
16	7.5 ± 5.9	5.2 ± 0.3	6.6 ± 0.4	6.3 ± 0.6	11.8 ± 4.5
17	7.3 ± 3.3	6.1 ± 0.3	6.3 ± 0.4	7.1 ± 0.9	9.7 ± 2.5
18	7.0 ± 3.5	6.0 ± 0.6	5.9 ± 0.5	6.6 ± 0.4	9.6 ± 4.7

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE QUARTERLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.2 QUARTERLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 1993
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	6.7 ± 1.5	5.8 ± 0.2	7.2 ± 0.5	7.0 ± 0.4	(2)
20	6.5 ± 4.8	4.8 ± 0.3	5.5 ± 0.2	5.6 ± 0.8	10.0 ± 1.0
21B	6.3 ± 0.6	5.9 ± 0.4	6.4 ± 0.3	6.5 ± 0.4	6.6 ± 1.1
22	6.9 ± 1.9	5.9 ± 0.3	(2)	7.1 ± 0.4	7.8 ± 2.0
23	6.8 ± 2.9	5.7 ± 0.2	5.9 ± 0.2	6.9 ± 0.4	8.9 ± 3.7
24	5.5 ± 2.8	4.6 ± 0.1	4.5 ± 0.1	5.4 ± 0.9	7.5 ± 3.9
26	7.8 ± 4.7	6.0 ± 0.5	6.5 ± 0.5	7.3 ± 0.3	11.2 ± 4.2
27	7.3 ± 3.7	5.8 ± 0.4	5.8 ± 0.2	7.7 ± 2.1	9.7 ± 2.0
32	7.5 ± 4.6	6.0 ± 0.3	6.2 ± 0.3	6.8 ± 0.4	10.9 ± 1.7
31A	6.1 ± 4.2	4.6 ± 0.4	5.4 ± 0.2	5.1 ± 0.1	9.2 ± 2.5
33A	5.0 ± 1.9	4.5 ± 0.2	4.3 ± 0.1	5.0 ± 0.2	6.4 ± 1.3
38	7.1 ± 3.4	6.1 ± 0.2	6.1 ± 0.3	6.6 ± 0.3	9.6 ± 2.8
40	7.8 ± 3.0	7.7 ± 0.5	6.6 ± 0.6	7.1 ± 0.6	10.0 ± 1.9
42	5.8 ± 1.0	5.2 ± 0.2	5.6 ± 0.4	6.4 ± 0.2	6.0 ± 1.8
43	7.1 ± 2.3	6.2 ± 0.5	6.4 ± 0.4	7.1 ± 0.6	8.7 ± 1.0
44	5.8 ± 1.1	5.4 ± 0.4	5.3 ± 0.2	6.1 ± 0.4	6.5 ± 0.1
45	6.8 ± 1.6	5.8 ± 0.5	7.0 ± 0.5	6.8 ± 0.6	7.8 ± 1.0
46	7.0 ± 5.5	5.2 ± 0.4	5.5 ± 0.2	6.3 ± 0.5	11.1 ± 1.5
47	8.0 ± 4.3	6.6 ± 1.3	7.0 ± 0.5	7.4 ± 0.5	11.2 ± 2.8
48	7.3 ± 3.2	5.8 ± 0.5	6.9 ± 0.8	6.9 ± 0.5	9.6 ± 0.7
49	7.0 ± 1.7	6.5 ± 0.8	6.7 ± 0.4	6.6 ± 0.6	8.3 ± 1.2
50	7.7 ± 1.9	6.7 ± 0.3	7.3 ± 0.6	8.9 ± 0.9	7.9 ± 1.4
51	6.9 ± 2.7	5.7 ± 0.3	5.9 ± 0.5	7.6 ± 1.6	8.5 ± 1.2

1. MEAN AND TWO TIMES THE STANDARD DEVIATION OF THE QUARTERLY RESULTS.
2. SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION.

TABLE C-VIII.3 1993 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 1993	5.8 ± 2.0	6.1 ± 1.8	5.7 ± 2.0
	FEB 1993	6.0 ± 2.0	6.2 ± 1.4	6.5 ± 2.7
	MAR 1993	5.3 ± 2.0	5.8 ± 1.6	5.3 ± 1.0
	APR 1993	6.2 ± 2.0	6.6 ± 1.8	5.9 ± 1.6
	MAY 1993	5.7 ± 2.1	5.8 ± 1.9	5.5 ± 1.1
	JUN 1993	5.3 ± 2.3	5.6 ± 2.0	5.6 ± 1.7
	JUL 1993	7.0 ± 2.6	7.6 ± 2.2	7.1 ± 1.9
	AUG 1993	6.2 ± 2.5	6.2 ± 1.9	5.6 ± 2.0
	SEP 1993	6.3 ± 2.3	6.8 ± 2.0	6.3 ± 1.7
	OCT 1993	6.3 ± 2.5	6.5 ± 1.7	6.2 ± 1.4
	NOV 1993	6.2 ± 2.5	6.4 ± 2.0	5.9 ± 1.3
	DEC 1993	9.6 ± 2.7	9.3 ± 2.0	9.3 ± 1.4
QUARTERLY	JAN-MAR 1993	5.4 ± 2.4	5.5 ± 1.6	5.1 ± 1.7
	APR-JUN 1993	6.1 ± 2.4	5.9 ± 1.7	5.7 ± 2.4
	JUL-SEP 1993	6.1 ± 2.3	6.5 ± 2.1	5.9 ± 2.0
	OCT-DEC 1993	10.4 ± 5.6	8.5 ± 3.9	9.1 ± 4.1

TABLE C-VIII.4 SUMMARY OF THE 1993 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	3.0	11.6	6.3 ± 3.1	5.3 ± 2.2
	MIDDLE RING	299	3.6	11.7	6.6 ± 2.7	6.0 ± 2.0
	OUTER RING	83	3.9	10.5	6.2 ± 2.5	6.2 ± 1.4
QUARTERLY	SITE	51	3.2	14.4	6.9 ± 5.1	5.4 ± 1.7
	MIDDLE RING	99	3.7	11.2	6.6 ± 3.4	5.3 ± 1.3
	OUTER RING	26	3.6	11.8	6.3 ± 3.8	5.7 ± 1.8

(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, 1993

SURFACE WATER (GROSS BETA AND GAMMA)

COLLECTION PERIOD	13A	13B	1LL	1MM
JAN 93	02/06-02/06	01/22-01/22	12/30-02/04	12/30-02/04
FEB 93	03/06-03/06	02/19-02/19	02/04-03/04	02/04-03/04
MAR 93	04/03-04/03	03/26-03/26	03/04-04/01	03/04-04/01
APR 93	05/01-05/01		04/01-04/28	04/01-04/28
MAY 93	06/05-06/05	05/22-05/22	04/28-06/03	04/28-06/03
JUN 93	07/05-07/05	07/06-07/06	06/03-07/01	06/03-07/01
JUL 93	07/31-07/31	08/05-08/05	07/01-07/29	07/01-07/29
AUG 93	09/04-09/04		07/29-09/02	07/29-09/02
SEP 93	10/01-10/01	09/10-09/10	09/02-09/29	09/02-09/29
OCT 93	11/06-11/06	10/18-10/18	09/29-11/03	09/29-11/03
NOV 93	12/06-12/06		11/03-12/01	11/03-12/01
DEC 93	01/10-01/10	12/10-12/10	12/01-01/05	12/01-01/05

SURFACE WATER (TRITIUM)

JAN-MAR 93	02/06-04/03	12/30-04/01	12/30-04/01
APR-JUN 93	05/01-07/05	04/01-07/01	04/01-07/01
JUL-SEP 93	07/31-10/01	07/01-09/29	07/01-09/29
OCT-DEC 93	11/06-01/10	09/29-01/05	09/29-01/05

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

COLLECTION PERIOD	4L	6I	4L	6I
JAN 93	01/02-02/05	01/03-02/06	01/29-02/05	01/30-02/06
FEB 93	02/05-03/05	02/06-03/06	02/26-03/05	03/06-03/06
MAR 93	03/05-04/02	03/06-04/03	03/27-04/02	03/27-04/03
APR 93	04/02-04/30	04/03-05/01	04/27-04/30	04/24-05/01
MAY 93	04/30-06/04	05/01-06/05	05/28-06/04	05/28-06/05
JUN 93	06/04-07/04	06/05-07/05	06/25-07/04	06/25-07/05
JUL 93	07/04-07/30	07/05-07/31	07/23-07/30	07/23-07/31
AUG 93	07/30-09/03	07/31-09/04	08/27-09/03	08/27-09/04
SEP 93	09/03-09/30	09/04-10/01	09/24-09/30	09/24-10/01
OCT 93	09/30-11/05	10/01-11/06	10/29-11/05	10/29-11/06
NOV 93	11/05-12/05	11/06-12/06	11/26-12/05	12/06-12/06
DEC 93	01/09-01/09	01/10-01/10	12/05-01/09	12/06-01/10

DRINKING WATER (TRITIUM)

JAN-MAR 93	01/02-04/02	01/03-04/03
APR-JUN 93	04/02-07/04	04/03-07/05
JUL-SEP 93	07/04-09/30	07/05-10/01
OCT-DEC 93	09/30-01/09	10/01-01/10

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

AIR PARTICULATE AND AIR IODINE

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

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

AIR PARTICULATE AND AIR IODINE

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

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

AIR PARTICULATE AND AIR IODINE

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

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

TLD - MONTHLY

STATION CODE	JAN 1993	FEB 1993	MAR 1993	APR 1993	MAY 1993	JUN 1993	JUL 1993	AUG 1993	SEP 1993	OCT 1993	NOV 1993	DEC 1993
1A	01/02-03/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
1B	01/02-03/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
1C	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/08
1D	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
1E	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
1F	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
1G	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
1H	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/08
1I	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
1J	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
1L	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
1M	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
3	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
3A	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
4E	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
5	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
6B	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
12NW	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
14	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
12D	01/11-02/01	02/01-03/01	03/01-04/05	04/05-05/05	05/06-06/01	06/01-07/06	07/06-08/02	08/02-09/07	09/10-10/04	10/04-11/01	11/01-12/06	
15	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
16	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/08
17	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
18	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/08
19	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/08
20	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/08
21B	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
22	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01		06/06-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
23	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/08
24	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/08
26	01/03-02/07	02/07-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
27	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/08
32	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
31A	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
33A	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
38	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/10
40	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
42	01/03-02/07	02/07-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/08
43	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09
44	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/05-01/08
45	01/03-02/06	02/06-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
46	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/09
47	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
48	01/03-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
49	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
50	01/02-02/05	02/05-03/05	03/05-04/02	04/02-04/30	04/30-06/04	06/04-07/04	07/04-07/30	07/30-09/03	09/03-09/30	09/30-11/05	11/05-12/05	12/05-01/07
51	01/03-02/07	02/07-03/06	03/06-04/03	04/03-05/01	05/01-06/05	06/05-07/05	07/05-07/31	07/31-09/04	09/04-10/01	10/01-11/06	11/06-12/06	12/06-01/09

TABLE C-IX.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

TLD - QUARTERLY

STATION CODE	JAN-MAR 1993	APR-JUN 1993	JUL-SEP 1993	OCT-DEC 1993
1A	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
1B	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
1C	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/08
1D	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
1E	01/02-04/02	04/02-07/04	07/04-09/30	
1F	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
1G	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
1H	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
1I	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/08
1J	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
1L	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
1M	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
2	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
3A	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
4K	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
5	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
6B	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
1NN	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
14	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
12D	01/11-04/05	04/05-07/06	07/06-10/04	
15	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
16	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
17	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
18	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
19	01/03-04/03	04/03-07/05	07/05-10/01	
20	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/08
21B	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
22	01/03-04/03		07/05-10/01	10/01-01/10
23	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
24	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
26	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
27	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/08
32	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
31A	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
33A	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
38	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
40	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
42	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/10
43	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
44	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/08
45	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09
46	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/08
47	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
48	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/09
49	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
50	01/02-04/02	04/02-07/04	07/04-09/30	09/30-01/07
51	01/03-04/03	04/03-07/05	07/05-10/01	10/01-01/09

FIGURE C-1

MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1993

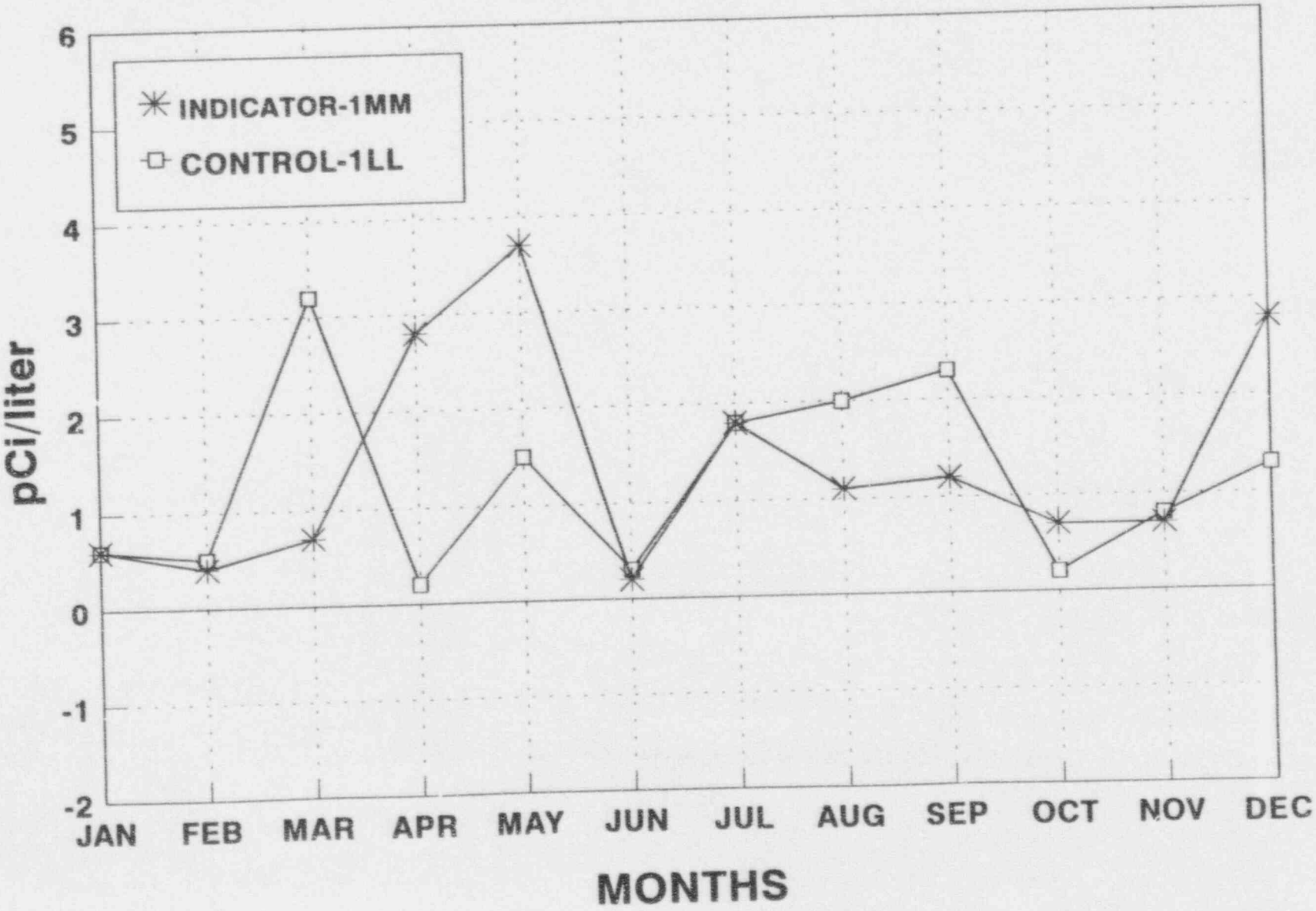


FIGURE C-2

MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1993

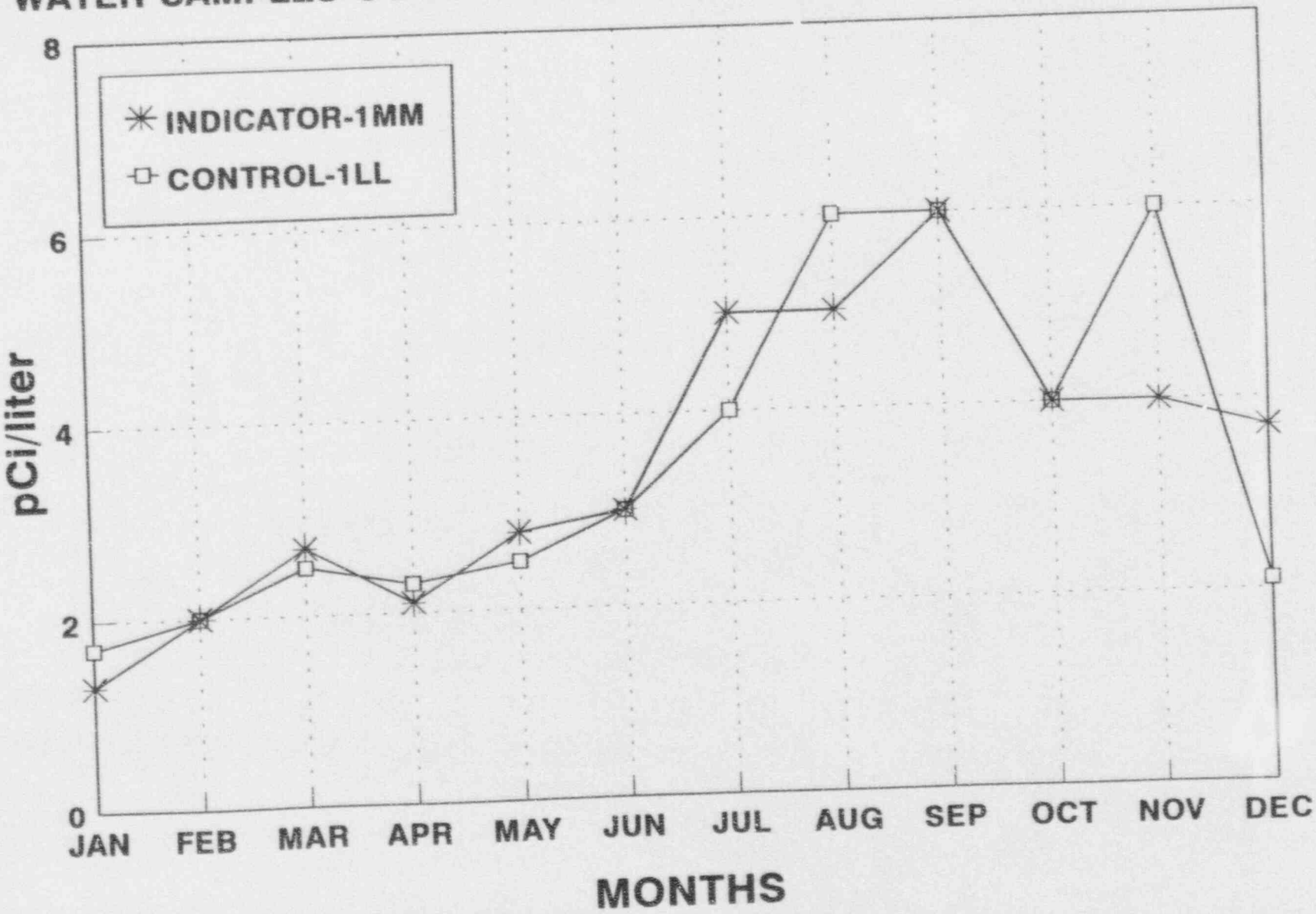


FIGURE C-3
MONTHLY INSOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1993

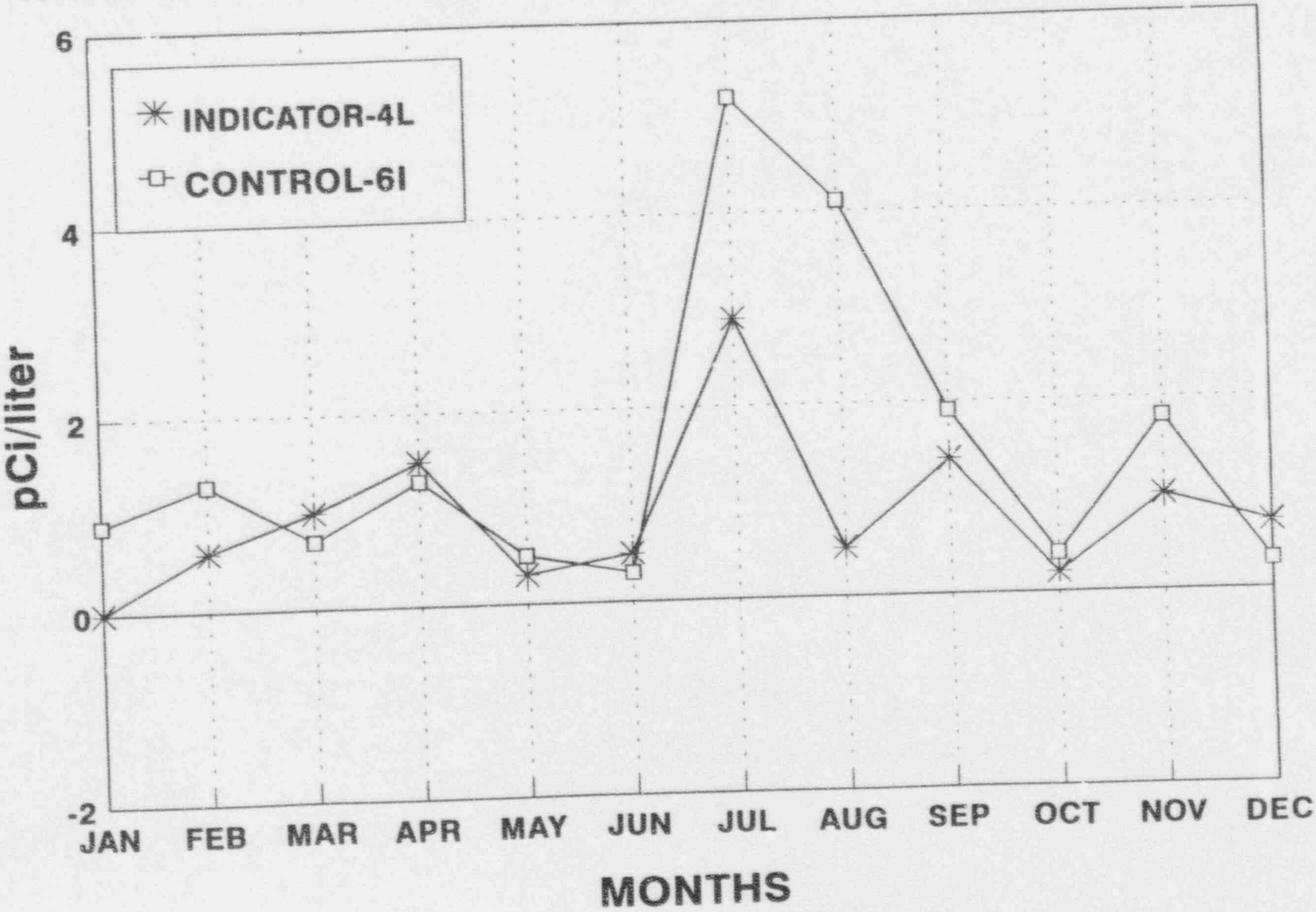


FIGURE C-4
MONTHLY SOLUBLE GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1993

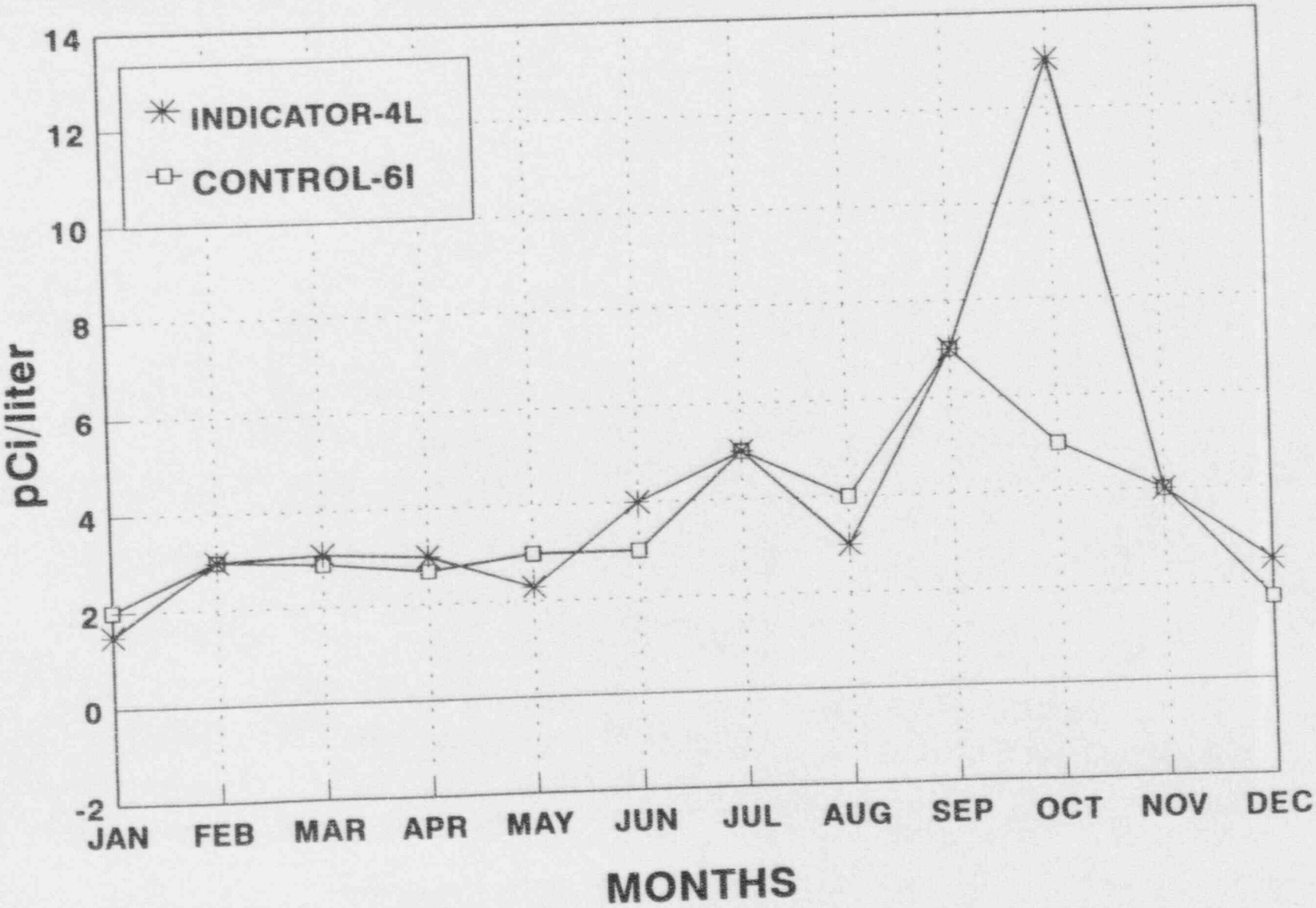


FIGURE C-7

MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1993

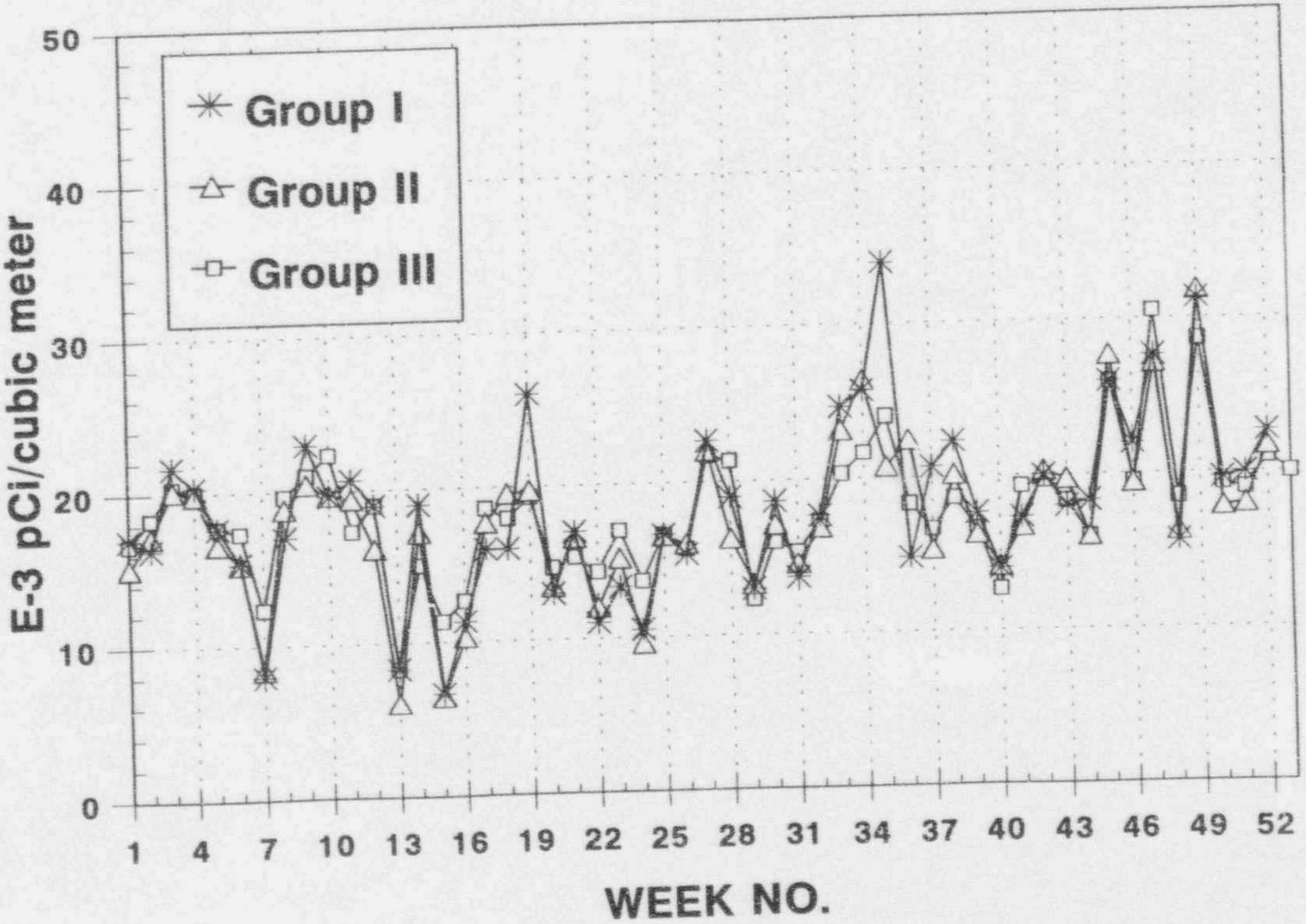


FIGURE C-8
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1970 - 1993

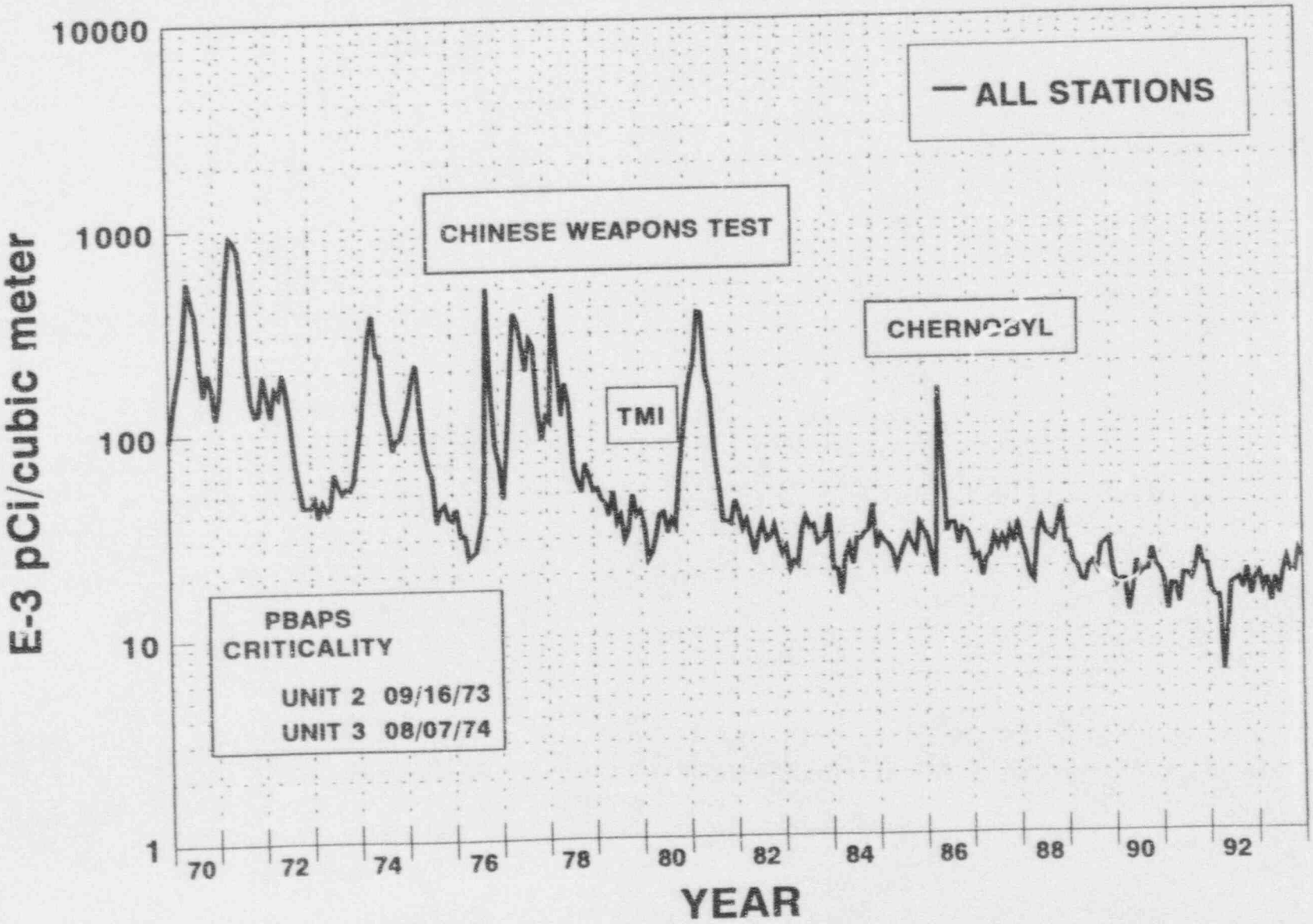


FIGURE C-5
MEAN ANNUAL CS-137 CONCENTRATIONS IN FISH SAMPLES
COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1993

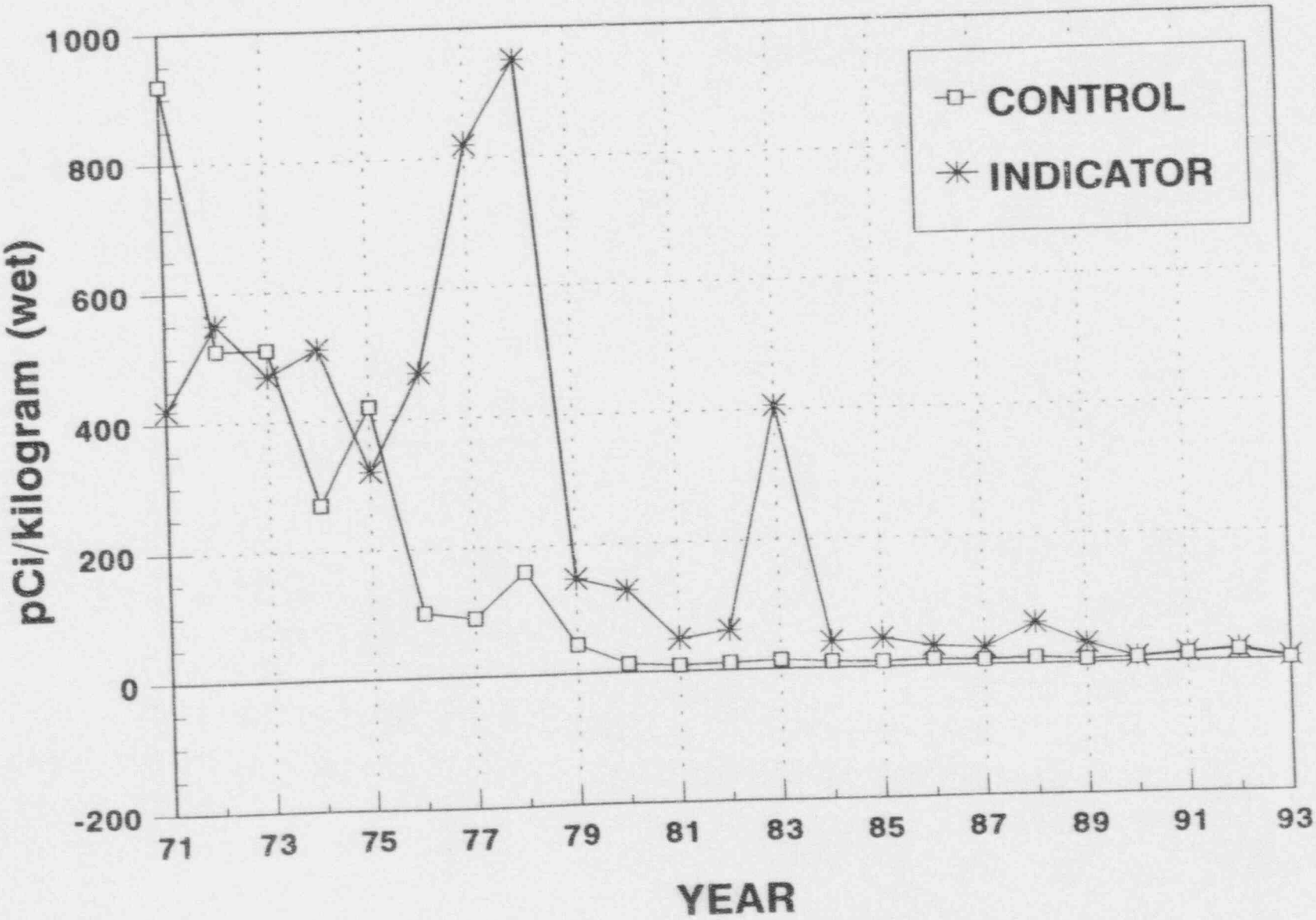
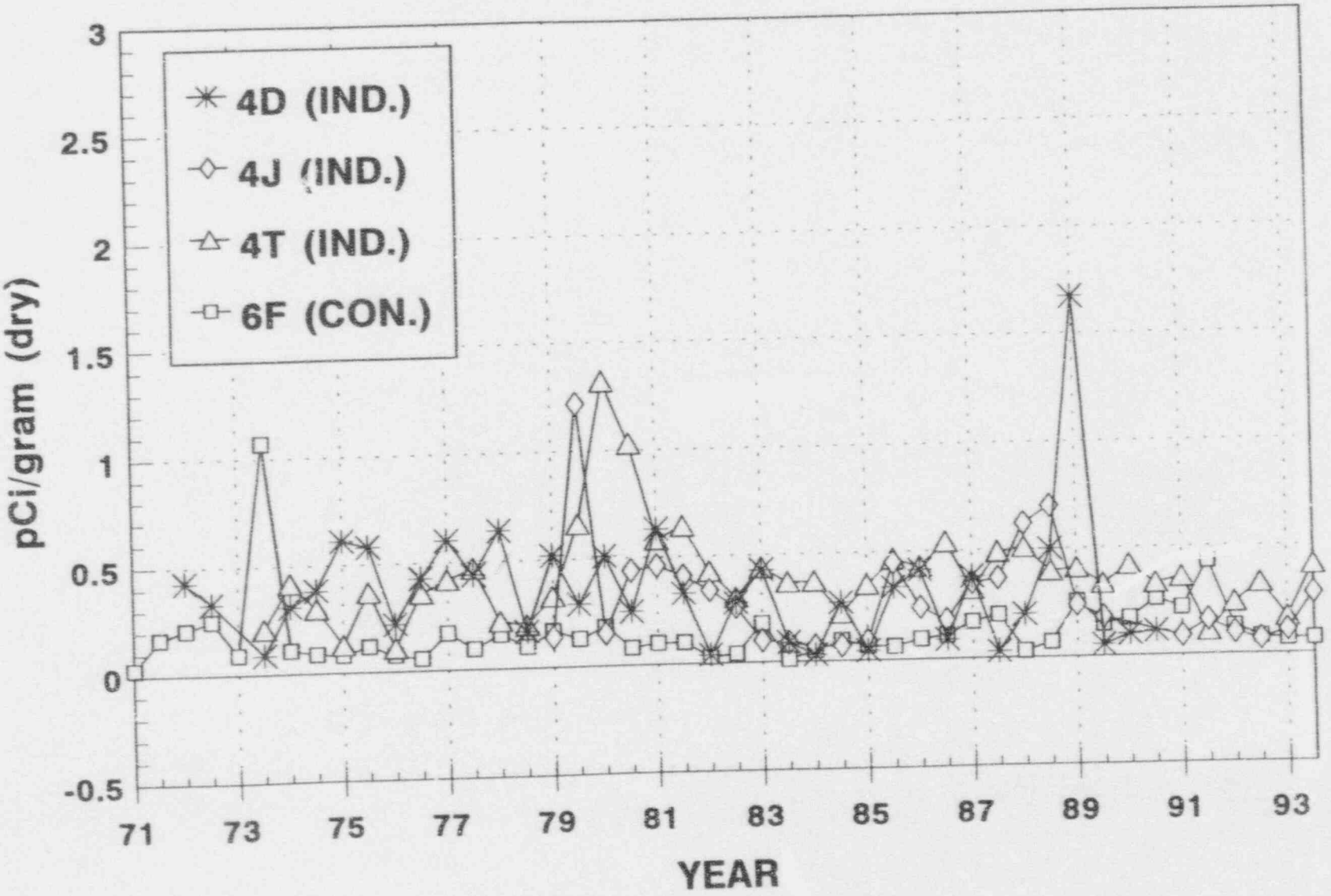


FIGURE C-6
SEMI-ANNUAL CS-137 CONCENTRATIONS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1993



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

FIGURE C-9
MEAN ANNUAL CS-137 CONCENTRATIONS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 - 1993

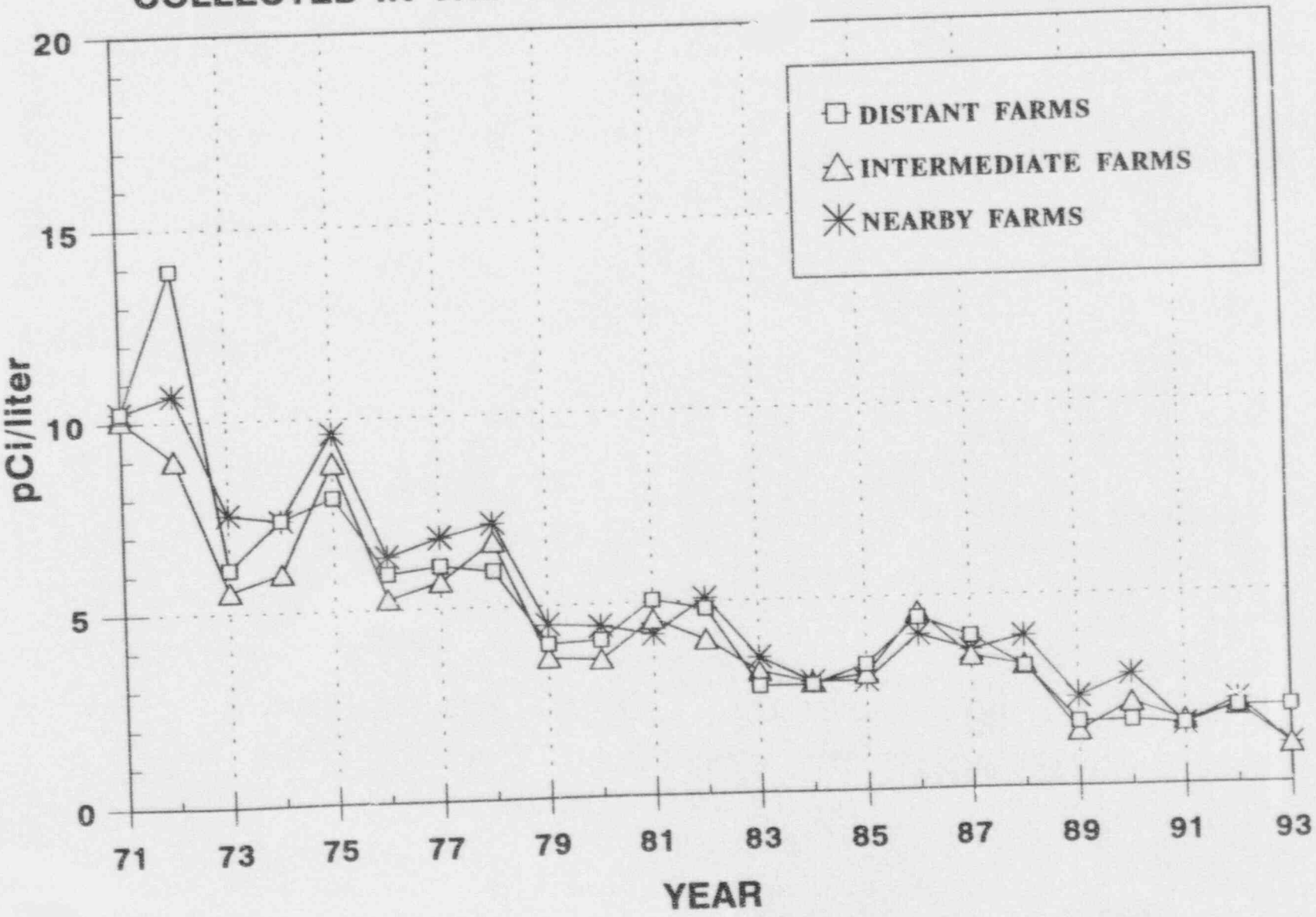
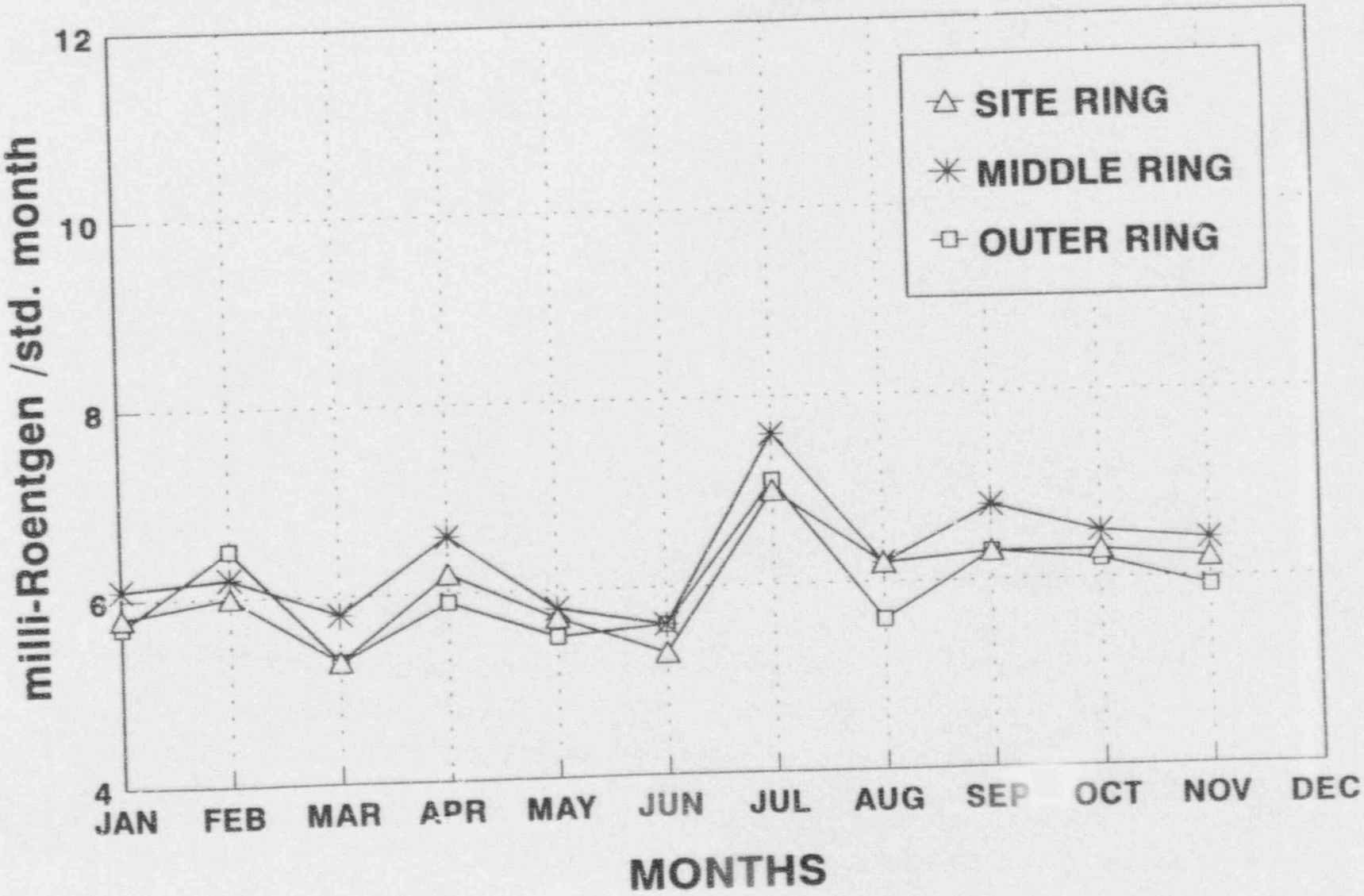
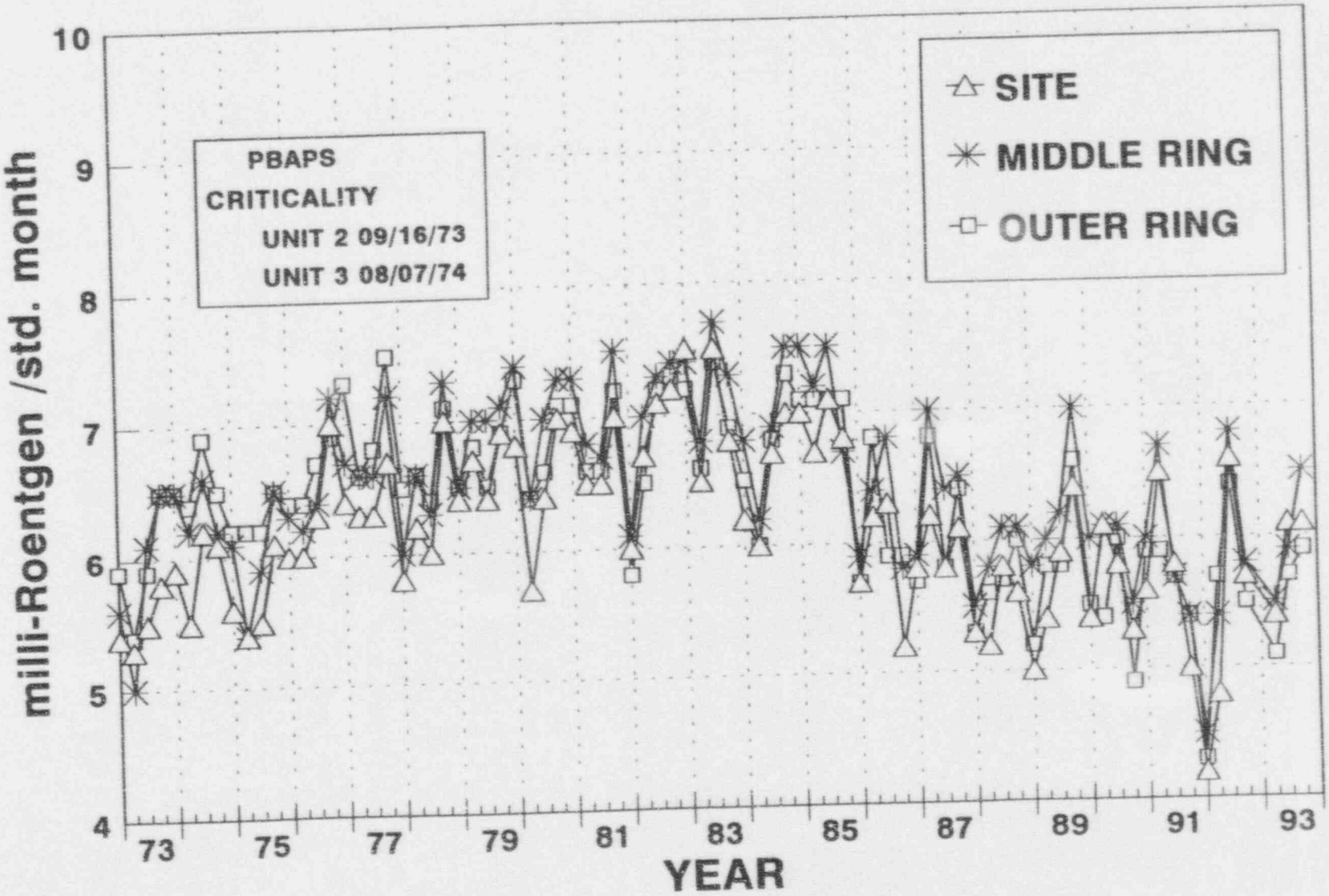


FIGURE C-10
MEAN MONTHLY AMBIENT GAMMA RADIATION (TLD) LEVELS IN THE VICINITY OF PBAPS, 1993



Level is not presented due to laboratory error in processing TLDs

FIGURE C-11
MEAN QUARTERLY AMBIENT GAMMA RADIATION (TLD) LEVELS IN THE VICINITY OF PBAPS, 1973 - 1993



Fourth Quarter 1993 data not presented due to laboratory error in processing the TLDs

DATA TABLES AND FIGURES
COMPARISON LABORATORY

APPENDIX D: DATA TABLES AND FIGURES - COMPARISON LABORATORY

TABLES

Table D-I.1 Concentrations of Gross Beta Insoluble in Surface and Drinking Water Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

Table D-I.2 Concentration of Gross Beta Soluble in Surface and Drinking Water Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

Table D-I.3 Concentrations of Gamma Emitters in Surface and Drinking Water Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

Table D-II.1 Concentrations of Gross Beta in Air Particulate Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

Table D-II.2 Concentrations of Gamma Emitters in Air Particulate Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

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, 1993.

Table D-IV.1 Summary of Collected Dates for Samples Collected in the Vicinity of Peach Bottom Atomic Power Station, 1993.

FIGURES

Figure D-1 Weekly Gross Beta Concentrations in Air Particulate Samples Collected from PBAPS Locations 1A and 1Z, 1993.

Figure D-2 Weekly Gross Beta Concentrations in Air Particulate Samples Collected from PBAPS Locations 4A and 4B, 1993.

The following section contains data and figures iilustrating 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 and soluble in surface and drinking water samples (Table D-I.2) were generally lower than the results from Teledyne Isotopes (Tables C-I.1, C-I.2, C-II.1 and C-II.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-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1LL		1MM		4L		6I	
FEB 93	1.6	± 0.5	1.4	± 0.5	1.7	± 0.5	2.1	± 0.6
MAY 93	0.3	± 0.4	0.2	± 0.4	0.0	± 0.4	0.0	± 0.4
AUG 93	0.4	± 0.4	0.3	± 0.4	0.7	± 0.4	0.4	± 0.4
NOV 93	1.3	± 0.5	0.3	± 0.5	0.3	± 0.5	1.5	± 0.6
MEAN	0.9	± 1.3	0.6	± 1.1	0.7	± 1.5	1.0	± 1.9

TABLE D-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1LL		1MM		4L		6I	
FEB 93	0.7	± 0.4	0.3	± 0.4	0.2	± 0.4	0.8	± 0.4
MAY 93	0.4	± 0.4	0.4	± 0.4	1.5	± 0.5	1.7	± 0.5
AUG 93	3.7	± 0.7	3.3	± 0.6	4.4	± 0.7	3.0	± 0.6
NOV 93	2.1	± 0.6	2.1	± 0.6	2.5	± 0.6	2.7	± 0.6
MEAN	1.7	± 3.0	1.5	± 2.9	2.2	± 3.5	2.1	± 2.0

TABLE D-I.3 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	MN-54	CO-58	FE-59	CO-60	ZN-65
1LL	FEB 93	< 10	< 0.5	< 0.3	< 0.9	< 0.3	< 0.7
	MAY 93	< 20	< 0.6	< 1	< 3	< 2	< 2
	AUG 93	< 10	< 0.8	< 0.9	< 1	< 0.7	< 1
	NOV 93	< 50	< 0.9	< 0.3	< 3	< 0.8	< 2
	MEAN	< 20	< 0.7	< 0.6	< 2.0	< 1.0	< 1.4
1MM	FEB 93	< 20	< 0.4	< 0.9	< 0.6	< 0.8	< 2
	MAY 93	60 ± 20	< 2	< 0.4	< 0.8	< 0.6	< 0.7
	AUG 93	50 ± 20	< 0.4	< 0.2	< 0.7	< 0.3	< 0.9
	NOV 93	< 40	< 0.4	< 0.3	< 0.6	< 1	< 2
	MEAN	40 ± 40	< 0.8	< 0.5	< 0.7	< 0.7	< 1.4
4L	FEB 93	< 40	< 0.9	< 1	< 2	< 1	< 2
	MAY 93	< 50	< 0.5	< 0.5	< 0.9	< 0.8	< 0.8
	AUG 93	< 10	< 0.6	< 0.8	< 2	< 0.6	< 1
	NOV 93	50 ± 20	< 0.4	< 0.9	< 1.0	< 0.5	< 1
	MEAN	40 ± 30	< 0.6	< 0.8	< 1.5	< 0.7	< 1.2
6I	FEB 93	60 ± 20	< 0.5	< 0.6	< 2	< 0.7	< 2
	MAY 93	< 40	< 1	< 1	< 0.9	< 0.9	< 2
	AUG 93	< 50	< 1	< 2	< 2	< 0.8	< 2
	NOV 93	< 20	< 0.9	< 1	< 2	< 0.5	< 2
	MEAN	40 ± 30	< 0.9	< 1.2	< 1.7	< 0.7	< 2

TABLE D-I.3 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE AND DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	ZR-95	NB-95	CS-134	CS-137	BA-140	LA-140
1LL	FEB 93	< 2	< 0.4	< 0.6	< 0.8	< 4	< 7
	MAY 93	< 2	< 2	< 0.4	< 1	< 6	< 10
	AUG 93	< 1	< 0.4	< 0.4	< 0.6	< 2	< 9
	NOV 93	< 1	< 0.8	< 0.4	< 0.7	< 2	< 10
	MEAN	< 2	< 0.9	< 0.5	< 0.8	< 4	< 10
1MM	FEB 93	< 2	< 1.0	< 0.7	< 0.4	< 2	< 10
	MAY 93	< 2	< 0.9	< 0.7	< 0.8	< 2	< 9
	AUG 93	< 0.8	< 0.8	< 0.6	< 0.6	< 3	< 8
	NOV 93	< 1	< 0.5	< 0.5	< 0.8	< 4	< 8
	MEAN	< 1.5	< 0.8	< 0.6	< 0.7	< 3	< 10
4L	FEB 93	< 2	< 0.4	< 0.7	< 0.9	< 5	< 4
	MAY 93	< 2	< 0.8	< 0.4	< 0.3	< 4	< 5
	AUG 93	< 2	< 0.4	< 0.6	< 0.8	< 4	< 7
	NOV 93	< 2	< 0.5	< 0.7	< 0.4	< 5	< 7
	MEAN	< 2	< 0.5	< 0.6	< 0.6	< 5	< 6
6I	FEB 93	< 2	< 0.4	< 0.4	< 1	< 3	< 3
	MAY 93	< 2	< 0.7	< 1	< 0.9	< 8	< 4
	AUG 93	< 2	< 0.9	< 1	< 10	< 4	< 7
	NOV 93	< 2	< 0.5	< 0.9	< 2	< 2	< 3
	MEAN	< 2	< 0.6	< 0.8	< 3.5	< 4	< 4

TABLE D-II.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

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

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

(1) 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, 1993

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

STC	COLLECTION PERIOD	BE-7	K-40	CS-134	CS-137	RA-226	TH-228
1A	12/26-03/27/93	64 ± 6	< 10	< 0.2	< 0.2	< 0.6	< 0.9
	03/27-06/25/93	81 ± 7	< 6	< 0.4	< 0.2	< 0.7	< 1
	06/25-09/24/93	83 ± 6	< 3	< 0.1	< 0.2	< 0.6	< 0.9
	09/24-12/24/93	61 ± 6	< 4	< 0.2	< 0.1	< 0.5	< 0.5
	MEAN	72 ± 23	< 6	< 0.2	< 0.2	< 0.6	< 0.8
4B	12/26-03/27/93	69 ± 6	13 ± 4	< 0.2	< 0.2	< 0.6	< 0.7
	03/27-06/25/93	74 ± 6	12 ± 4	< 0.2	< 0.2	< 0.6	1.0 ± 0.6
	06/25-09/24/93	77 ± 7	17 ± 4	< 0.2	< 0.10	< 0.6	< 0.8
	09/24-12/24/93	63 ± 5	12 ± 4	< 0.1	< 0.3	< 0.5	< 2
	MEAN	71 ± 12	14 ± 5	< 0.2	< 0.20	< 0.6	1.1 ± 1.2

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, 1993

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	CS-134	CS-137	BA-140	LA-140
A	02/08-02/08/93	< 0.3	1310 ± 80	< 1.0	< 2	< 5	< 2
	05/17-05/17/93	< 0.3	1340 ± 90	< 3	< 1.0	< 5	< 3
	08/24-08/24/93	< 0.3	1320 ± 100	< 1	< 2	< 5	< 2
	11/01-11/01/93	< 0.2	1400 ± 100	< 1	< 3	< 5	< 3
	MEAN	< 0.3	1350 ± 90	< 1.5	< 2.0	< 5	< 3
J	02/08-02/08/93	< 0.3	1200 ± 100	< 1	< 0.9	< 2	< 3
	05/17-05/17/93	< 0.2	1160 ± 80	< 0.9	< 0.9	< 5	< 2
	08/23-08/23/93	< 0.2	1350 ± 80	< 0.8	< 2	< 3	< 2
	11/01-11/01/93	< 0.3	1460 ± 70	< 0.7	< 2	< 2	< 2
	MEAN	< 0.3	1290 ± 280	< 0.9	< 1.5	< 3	< 2
N	02/08-02/08/93	< 0.2	1400 ± 80	< 1	< 2	< 5	< 5
	05/17-05/17/93	< 0.3	1310 ± 80	< 2	< 2	< 4	< 4
	08/23-08/23/93	< 0.3	1400 ± 90	< 3	< 2	< 3	< 2
	11/01-11/01/93	< 0.2	1370 ± 70	< 0.9	< 2	< 4	< 5
	MEAN	< 0.3	1370 ± 80	< 1.7	< 2	< 4	< 4

TABLE D-IV.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 1993

SURFACE AND DRINKING WATER

COLLECTION PERIOD	1LL	1MM	4L	6I
FEB 93	02/04-03/04	02/04-03/04	02/05-03/05	02/06-03/06
MAY 93	04/28-06/03	04/28-06/03	04/30-06/04	05/01-06/05
AUG 93	07/29-09/02	07/29-09/02	07/30-09/03	07/31-09/04
NOV 93	11/03-12/01	11/03-12/01	11/05-12/05	11/06-12/06

AIR PARTICULATES

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

FIGURE D-1

WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM PBAPS LOCATIONS 1A AND 1Z, 1993

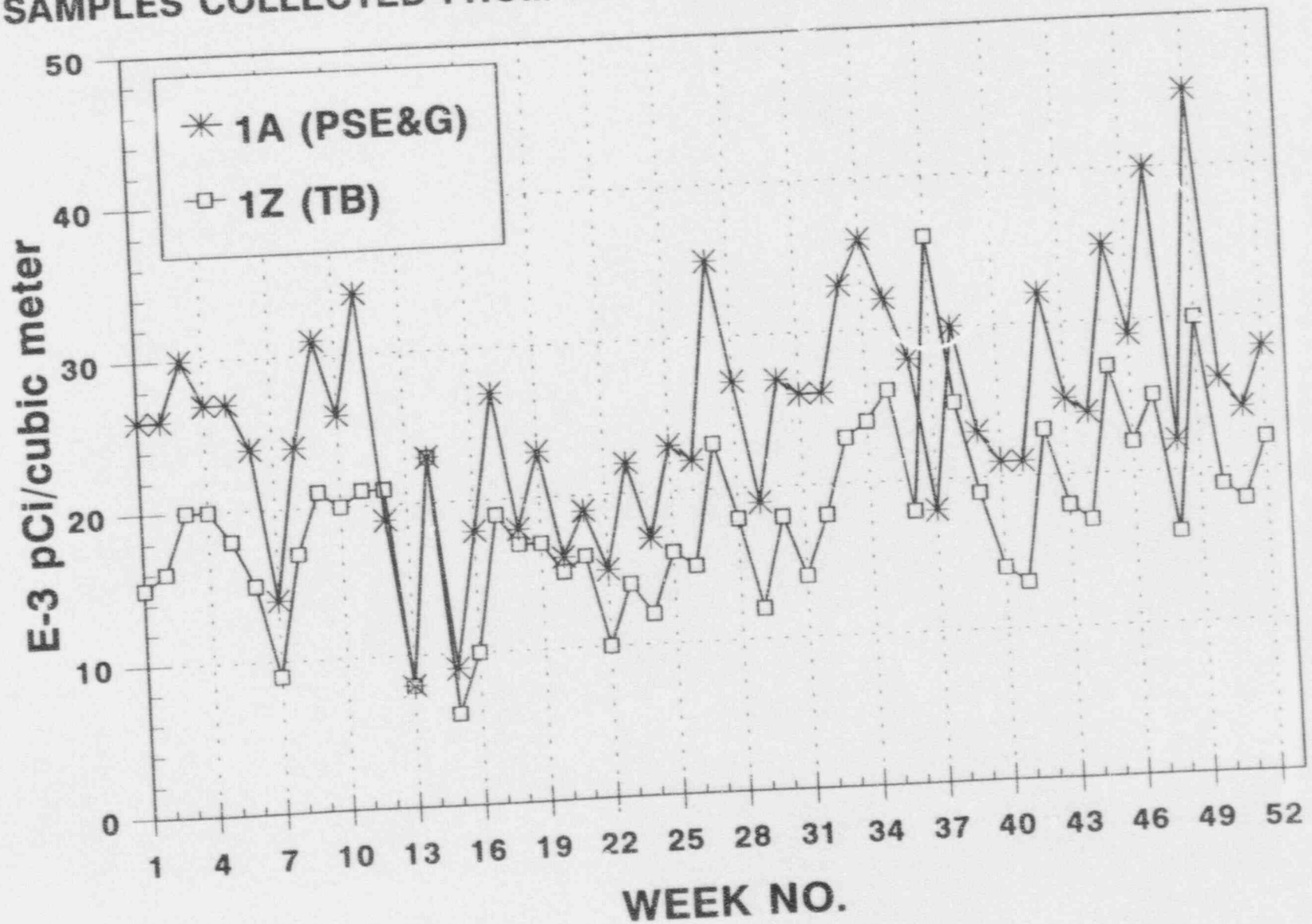
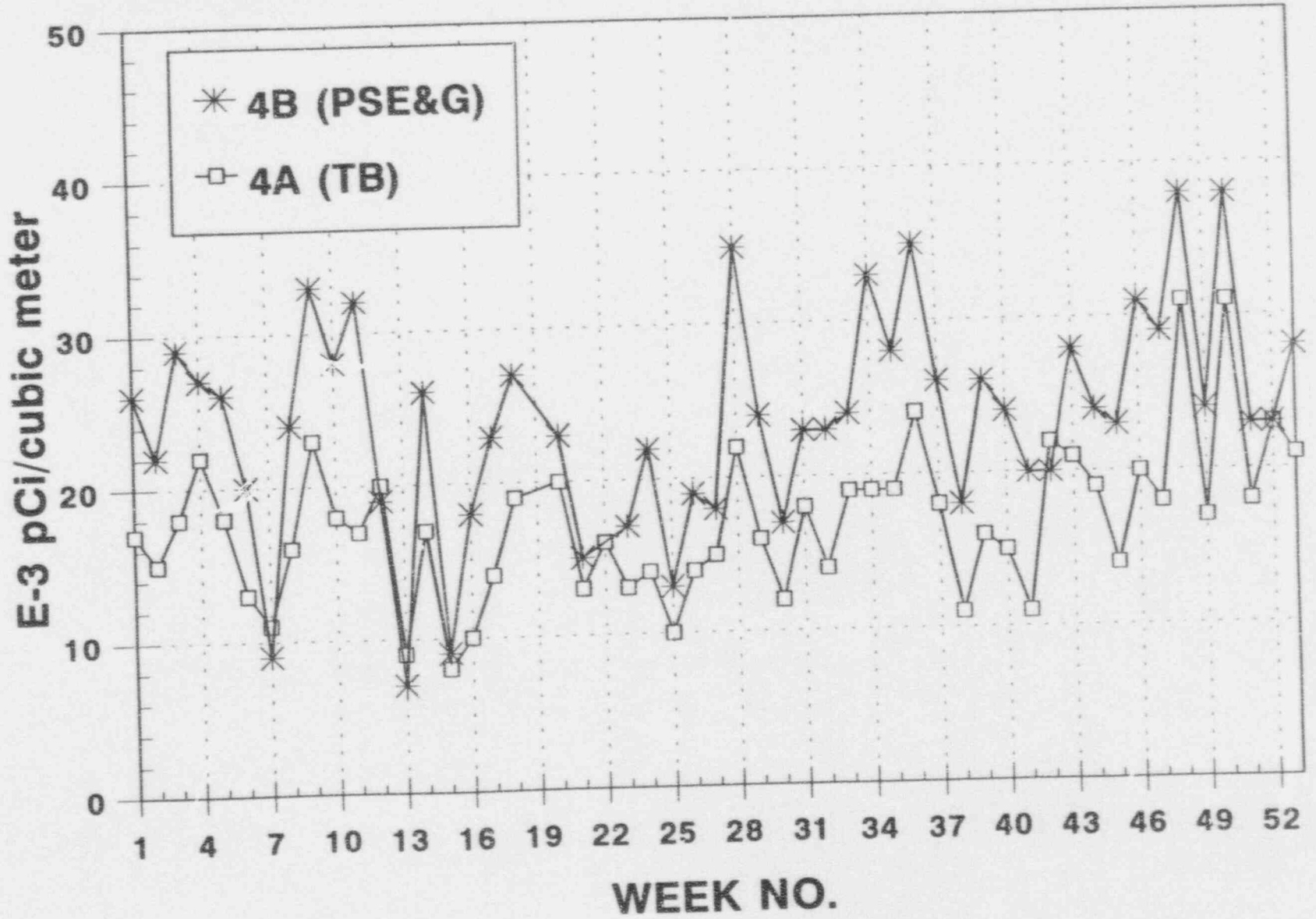


FIGURE D-2

WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED FROM PBAPS LOCATIONS 4B AND 4A, 1993



SYNOPSIS OF ANALYTICAL PROCEDURES

APPENDIX E: SYNOPSIS OF ANALYTICAL PROCEDURES

The following section contains a description of the analytical laboratory procedures along with an explanation of the analytical calculation methods used by Teledyne Brown Engineering and Public Service Electric & Gas to obtain the sample activities.

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

Teledyne Brown Engineering

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:

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

where:

N	=	total counts from sample (counts)
t_s	=	counting time for sample (min)
β	=	background rate of counter (cpm)
t_b	=	counting time for background (min)
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. Less than MDL is reported as the result when this value is greater than the measured result defined above.

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:

$$\frac{Result}{(pCi/l)} = 100\frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{2.22(v)(E)} \pm \frac{1.96\sqrt{\frac{C_s}{T_s^2} + \frac{C_b}{T_b^2}}}{2.22(v)(E)}$$

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. Less than MDL is reported as the result when this value is greater than the net activity.

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

Teledyne Brown Engineering

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:

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

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:

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

where:

N	=	total counts from sample (counts)
t_s	=	counting time for sample (min)
β	=	background rate of counter (cpm)
t_b	=	counting time for background (min)
2.22	=	dpm/pCi
v	=	initial volume (in liters) before enrichment
EF	=	enrichment factor = .030 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. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF TRITIUM IN WATER BY LIQUID SCINTILLATION COUNTING

Teledyne Brown Engineering

Ten (10) milliliters of sample is directly pipetted into a 25 ml vial and mixed with liquid scintillation material and counted for a minimum of 100 minutes to determine its activity. The tritium activity is determined by measuring the count rate in the beta activity energy spectrum from 0 to 18 KeV. Eighteen to 100 KeV represents the carbon-14 energy region. If there is no count rate above background in the carbon-14 energy region, the sample has no contamination and the tritium activity may be calculated directly. If the net count rate in the carbon-14 energy channel is 10% of the tritium count rate or higher, the sample contains contamination that may affect the count rate in the tritium channel, and the sample must be purified by distillation before recounting.

Calculation of Sample Activity and 2 Sigma Error:

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

Net Activity Counting Error

where:

N	=	total counts from sample (counts)
t_s	=	counting time for sample (min)
β	=	background rate of counter (cpm)
t_b	=	counting time for background (min)
2.22	=	dpm/pCi
v	=	sample volume (in liters)
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. Less than MDL is reported as the result when this value is greater than the net activity.

DETERMINATION OF GROSS BETA ACTIVITY IN AIR PARTICULATE SAMPLES

Teledyne Brown Engineering

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:

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

Net Activity — Counting Error

where:

N	=	total counts from sample (counts)
t_s	=	counting time for sample (min)
B	=	background rate of counter (cpm)
t_b	=	counting time for background (min)
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. Less than MDL is reported as the result when this value is greater than the net activity.

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 date 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:

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

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
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 Brown Engineering

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:

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

where:

- N = total counts from sample (counts)
- t_s = counting time for sample (min)
- β = background rate of counter (cpm)
- t_b = counting time for background (min)
- 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. 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

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 Brown Engineering

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 the National Bureau of Standards.

Gamma Spectroscopy Statistically Significant Activity and 2 Sigma Error Calculation for the ND6620 and ND6700 Systems:

$$\frac{Activity}{\left(\frac{pCi}{wgt.\,or\,vol.}\right)} = \frac{AREA * DECAY}{LIVETIME(\text{sec.}) * ABN * EFF * 0.037 * (wgt.\,or\,vol.)}$$

Statistically Significant Activity

$$\pm\ 200 * \frac{\sqrt{2 * BKGND + AREA}}{AREA} * Activity$$

2 Sigma Counting Error

where:

AREA = Net Peak Area (from Nuclide Line Activity Report)

BKGND = Compton Background (from Nuclide Line Activity Report)

DECAY = Decay Correction Factor (from Minimum Detectable Activity Report) (Nuclide Half Life - Collection time to Mid Count time)

LIVE TIME = Elapsed Live Time (from Header Information)

ABN = Nuclide Abundance (from Nuclide Line Activity Report)

EFF = Detector Efficiency (from Nuclide Line Activity Report)

0.037 = Conversion Factor (dps to picocuries)

wgt. or vol. = Sample weight or volume (from Header Information)

Gamma Spectroscopy Statistically Non Significant Activity and 2 Sigma Error Calculation for the ND6620 and ND6700 Systems:

$$\frac{Net\,Activity}{\left(\frac{pCi}{wgt.\ or\ vol.}\right)} = \frac{NET * DECAY}{LIVETIME(\text{sec.}) * (EFF * B.I.) * 0.037 * (wgt.\ or\ vol.)}$$

Statistically Non Significant Activity

$$\pm\ 200 * \frac{\sqrt{2 * BKGND + NET}}{NET} * Net\ Activity$$

2 Sigma Counting Error

where:

NET = Net Peak Area (from Minimum Detectable Activity Report)

BKGND = Compton Background (from Nuclide Line Activity Report)

DECAY = Decay Correction Factor (from Minimum Detectable Activity Report) (Nuclide Half Life - Collection time to Mid Count time)

LIVE TIME = Elapsed Live Time (from Header Information)

(EFF*B.I) = Efficiency * Abundance (from Minimum Detectable Activity Report)

0.037 = Conversion Factor (dps to picocuries)

wgt. or vol. = Sample weight or volume (from Header Information)

Gamma Spectroscopy Minimum Detectable Activity Calculation for the ND6620 and ND6700 Systems:

$$\frac{MDA}{\left(\frac{pCi}{wgt.\ or\ vol.}\right)} = \frac{2.83\sqrt{BKGN} * DECAY}{LIVETIME(\text{sec.}) * (EFF * B.I.) * 0.037 * (wgt.\ or\ vol.)}$$

where:

BKGN = Total Peak Background Area (from Minimum Detectable Activity Report)

DECAY = Decay Correction Factor (from Minimum Detectable Activity Report) (Nuclide Half Life - Collection time to Mid Count time)

LIVE TIME = Elapsed Live Time (from Header Information)

(EFF*B.I) = Efficiency * Abundance (from Minimum Detectable Activity Report)

0.037 = Conversion Factor (dps to picocuries)

wgt. or vol. = Sample weight or volume (from Header Information)

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 (B)(t) is subtracted from N before using the above equation. B 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 Brown Engineering

Teledyne Brown Engineering 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 Brown Engineering 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 Brown Engineering (TB) 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 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 TB's and PSE&G's participation in the EPA cross check program can be found in Tables F-1 and F-2, respectively.

As part of another intercomparison program, Thermoluminescent dosimeters (TLDs) from the NRC, Pennsylvania Department of Environmental Resources and PECO are placed at various distances around the Peach Bottom Power Station. The data were summarized into three categories: 0-2 miles, 2-5 miles and greater than 5 miles from the Peach Bottom Power Station (Figures F-1 through F-3, Appendix F). The data overlap each other, indicating that each TLD system accurately represents the ambient gamma radiation levels in the environs around the Peach Bottom Power Station.

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1993
TELEDYNE BROWN

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Brown Results(b)	Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.
01/15/93	619	Water	Sr-89	15.0 ± 8.66	12.67 ± 3.45	-0.64	-0.81	14.53 ± 6.24
			Sr-90	10.0 ± 8.66	8.33 ± 3.45	-0.46	-0.58	9.66 ± 4.40
01/29/93	616	Water	Gr-Alpha	34.0 ± 15.59	17.33 ± 3.45	0.05	-3.21	17.09 ± 15.08 (c)
			Gr-Beta	44.0 ± 8.66	52.00 ± 3.00	3.47	2.77	41.99 ± 14.82 (d)
02/05/93	618	Water	I-131	100.0 ± 17.32	106.67 ± 17.31	0.92	1.15	101.36 ± 16.40
06/04/93	623	Water	H-3	9844.0 ± 1704.33	9366.67 ± 458.25	-0.40	-0.84	9591.82 ± 1378.20
04/20/93	624	Water	Gr-Beta	177.0 ± 46.77	150.0 ± 0.00	-0.35	-1.73	155.52 ± 36.82
			Sr-89	41.0 ± 8.66	35.33 ± 4.59	-0.78	-1.96	37.59 ± 16.64
			Sr-90	29.0 ± 8.66	27.33 ± 1.74	-0.17	-0.58	27.82 ± 3.45
			Co-60	39.0 ± 8.66	40.67 ± 10.53	0.45	0.58	39.36 ± 5.80
			Cs-134	27.0 ± 8.66	23.67 ± 4.59	-0.60	-1.15	25.40 ± 4.28
			Cs-137	32.0 ± 8.66	34.33 ± 6.24	0.60	0.81	32.60 ± 5.62
			Gr-Alpha	95.0 ± 41.57	94.33 ± 3.45	-0.17	-0.05	96.63 ± 40.34
06/11/93	622	Water	Co-60	15.0 ± 8.66	16.33 ± 4.59	0.50	0.46	14.90 ± 4.16
			Zn-64	103.0 ± 17.32	121.33 ± 60.27	2.39	3.18	107.54 ± 15.66 (e)
			Ru-106	119.0 ± 20.78	106.33 ± 47.67	0.36	-1.83	103.87 ± 25.66
			Cs-134	5.0 ± 8.66	5.67 ± 1.74	0.10	0.23	5.39 ± 3.14
			Cs-137	5.0 ± 8.66	6.67 ± 1.74	0.31	0.58	5.76 ± 2.94
			Ba-133	99.0 ± 17.32	104.33 ± 27.87	1.31	0.92	96.74 ± 13.74
07/16/93	626	Water	Sr-89	34.0 ± 8.66	31.67 ± 7.56	-0.88	-0.81	34.20 ± 13.32
			Sr-90	25.0 ± 8.66	24.00 ± 0.00	-0.01	-0.35	24.02 ± 6.30
07/23/93	625	Water	Gr-Alpha	15.0 ± 8.66	18.67 ± 6.24	2.29	1.27	32.06 ± 8.56
			Gr-Beta	43.0 ± 11.95	42.67 ± 7.56	1.25	-0.08	37.65 ± 16.95
08/27/93	628	Air Filter	Gr-Alpha	19.0 ± 8.66	17.00 ± 0.00	-1.04	-0.69	20.00 ± 6.54
			Gr-Beta	47.0 ± 8.66	49.00 ± 5.19	-0.11	0.69	49.32 ± 9.24
			Sr-90	19.0 ± 8.66	17.67 ± 1.74	-0.17	-0.46	18.17 ± 6.32
			Cs-137	9.0 ± 8.66	9.67 ± 1.74	-0.12	0.23	10.00 ± 3.34
09/24/93	631	Milk	Sr-89	30.0 ± 8.66	35.67 ± 10.53	4.03	1.96	24.03 ± 15.04
			Sr-90	25.00 ± 8.66	24.00 ± 5.19	1.40	-0.35	19.97 ± 10.46
			I-131	120.0 ± 20.78	126.67 ± 17.31	0.95	0.96	120.12 ± 16.74
			Cs-137	49.0 ± 8.66	50.67 ± 3.45	0.22	0.58	50.02 ± 16.00
			K	1679.0 ± 145.49	1620.00 ± 57.96	-1.11	-1.22	1674.07 ± 190.44

TABLE F-1

USEPA
INTER-LABORATORY COMPARISONS - 1993
TELEDYNE BROWN

Collection Date	Sequence No.	Media	Nuclide	EPA Results(a)	Teledyne Brown Results(b)	Normalized Deviation Grand Avg.	Normalized Deviation Known	All Participants Mean ± 2 s.d.
10/08/93	629	Water	I-131	117.0 ± 20.78	103.33 ± 17.31	-2.07	-1.97	117.68 ± 21.24
10/29/93	632	Water	Gr-Alpha	20.0 ± 8.66	20.33 ± 6.24	2.17	0.12	14.08 ± 9.28
			Gr-Beta	15.0 ± 8.66	15.67 ± 6.24	-0.46	0.23	17.01 ± 9.60
11/05/93	633	Water	H-3	7398.0 ± 1281.72	6900.00 ± 300.00	-0.74	-1.17	7215.65 ± 1149.36
11/12/93	634	Water	Co-60	30.0 ± 8.66	28.67 ± 8.67	-0.36	-0.46	29.72 ± 4.66
			Zn-65	150.0 ± 25.98	152.00 ± 27.51	-0.47	0.23	156.07 ± 18.48
			Ru-106	201.0 ± 34.64	177.33 ± 16.53	0.19	-2.05	175.18 ± 36.64 (f)
			Cs-134	59.0 ± 8.66	53.33 ± 14.79	-0.38	-1.96	54.42 ± 9.06
			Cs-137	40.0 ± 8.66	41.33 ± 9.18	-0.28	0.46	42.14 ± 6.08
			Ba-133	79.0 ± 13.86	69.33 ± 9.18	-1.54	-2.09	76.45 ± 12.62 (f)
10/19/93	635	Water	Gr. Beta	58.0 ± 17.32	51.33 ± 9.63	-0.36	-1.15	53.40 ± 12.86
			Sr-89	15.0 ± 8.66	15.00 ± 3.00	0.36	0.00	13.96 ± 6.06
			Sr-90	10.0 ± 8.66	10.00 ± 0.00	-0.09	0.00	10.26 ± 4.04
			Co-60	10.0 ± 8.66	12.00 ± 3.00	0.55	0.69	10.41 ± 3.26
			Cs-134	12.0 ± 8.66	9.00 ± 3.00	-0.27	-1.04	9.78 ± 3.72
			Cs-137	10.0 ± 8.66	12.67 ± 7.56	0.60	0.92	10.93 ± 3.44
			Gr-Alpha	40.0 ± 17.32	39.67 ± 1.74	-0.19	-0.06	40.77 ± 16.54

(a) EPA Results - Expected laboratory preceision (3 sigma). Units are pCi/l for water and milk except K is in mg/l. Units are total pCi for air particulate filters.

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

(c) The EPA switched from Am-241 to Th-230 alpha spike. We calibrated with Th-230, using sodium nitrate to generate a self-absorption curve. The EPA water, however, has minerals whcih have greater self-absorption than the sodium nitrate matrix. Ehe EPA has agreed to send us a gallon of their water which we can use to prepare a self-absorption curve with Th-230.

(d) By oversight, we did not use the special self-absorption curve which we had previously derived using EPA water and Cs-137 standard. We will use the EPA curve in the future. We may also re-derive this curve using a water sample which the the EPA has agreed to send us.

(e) The calculations were checked and found to be correct. The results of six gamma emitting isotopes were reported to the EPA. The results of four were within 1 normalized deviation: a fifth, within 2 normalized deviations. Only the Zn-65 average was outside the control limits. There is no obvious reason whay one isotope should be outside the control limits, while five other isotopes were within the control limits.

(f) An investigation is being conducted.

TABLE F-2
USEPA ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM
PSE&G

Gross Alpha and Gross Beta Analysis
of Water (pCi/L) and Air Particulate (pCi/filter)

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
01-93	EPA-WAT-AB359	Water	Alpha Beta	15±3 39±0.5	34±9 44±5
04-93	EPA-WAT-P361	Water	Alpha Beta	110±5 168±2.4	95±24 177±27
07-93	EPA-WAT-AB365	Water	Alpha Beta	16±0.5 40±2.6	15±5 43±6.9
08-93	EPA-APT-GABS366	APT	Alpha Beta	22±0 48±0.5	19±5 47±5
10-93	EPA-WAT-P369	Water	Alpha Beta	55±1.2 57±1.2	40±10 58±10
10-93	EPA-WAT-AB372	Water	Alpha Beta	18±2.4 20±1.2	20±5 15±5

The results for the January 93 gross alpha in water were not within the EPA limit values of 34 ± 17.3 (two sigma). an examination of the analyses and counting parameters showed no apparent discrepancies in how the results were developed. A review of the performance of other participants in the cross check program indicated that 65% of the responding laboratories developed results outside the EPA control limits with a grand average value of 17.1 pCi/l. In conversations with the EPA it was determined that the Agency recently switched over to using Th-230 as the gross alpha reference standard. Previously the EPA and PSE&G used Am-241. The difference in detector response to Am-241 and Th-230 is approximately a factor of two for our instruments. If Th-230 was used as the gross reference standard the calculated response would have been doubled. A Th-230 standard was obtained from EPA in order to develop a new self-absorption curve and to recalibrate the detectors. Subsequent results have been in agreement.

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

TABLE F-2
USEPA ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM
PSE&G

Gamma Analysis of Milk, Water (pCi/L) and
Air Particulate (pCi/filter)

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
06-93	EPA-WAT-G363	Water	Ba-133	94±2.1	99±10
			Co-60	15±0.5	15±5
			Zn-65	103±2.9	103±10
			Ru-106	100±3.7	119±12
			Cs-134	7±1.6	5±5
			Cs-137	7±0.9	5±5
04-93	EPA-WAT-P361	Water	Cs-134	27±1.2	27±5
			Cs-137	31±1.2	32±5
			Co-60	41±1.6	39±5
08-93	EPA-APT-GABS366	APT	Cs-137	11±0.5	9±5
09-93	EPA-MLK-GS367	Milk	Cs-137	48±1.2	49±5
			K(1)	1640±16	1680±84
			I-131	117±1.4	120±12
10-93	EPA-WAT-P369	Water	Co-60	11±0.5	10±5
			Cs-134	10±0	12±5
			Cs-137	11±0	10±5
11-93	EPA-WAT-G371	Water	Co-60	31±0.9	30±5
			Zn-65	155±2.6	150±15
			Ru-106	200±9.5	201±20
			Cs-134	57±0.9	59±5
			Cs-137	42±0.5	40±5
			Ba-133	76±1.7	79±8

(1) Reported as mg/l of Potassium

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

TABLE F-2
USEPA ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM
PSE&G

Tritium Analysis of Water (pCi/L)

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
06-93	EPA-WAT-H362	Water	H-3	9260±258	9840±980
11-93	EPA-WAT-H370	Water	H-3	7030±33	7400±740

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

TABLE F-2
USEPA ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM
PSE&G

Iodine Analysis of Water (pCi/L)

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
02-93	EPA-WAT-I360	Water	I-131	125±3.3	100±10
10-93	EPA-WAT-I368	Water	I-131	106±1.9	117±12

The results for the February 1993 I-131 in water did not agree with the EPA known. An evaluation of the completed analyses showed no obvious errors by the analyst. A review of the calibration process revealed a gap by a plastic spacer between the source and the detector, sufficient to allow a difference in the solid angle, which altered the results by a factor of 25%. The corrective action taken was to post signs both inside and outside the detector caves, requiring spacers to be inserted at the time of analysis. Future calibrations reverted to counting the sample directly on top of the detector without a spacer. Subsequent results have been in agreement.

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

TABLE F-2
USEPA ENVIRONMENTAL RADIOACTIVITY LABORATORY
INTERCOMPARISON STUDY PROGRAM
PSE&G

Strontium-89 and Strontium-90 Analysis of
Air Particulates (pCi/filter),
Milk (pCi/L) and Water (pCi/L)

DATE MM-YY	ENV SAMPLE CODE	MEDIUM	ANALYSIS	* PSE&G Mean ± s.d.	** EPA Known
01-93	EPA-WAT-S358	Water	Sr-89	16±0.4	15±5
			Sr-90	9±0.2	10±5
04-93	EPA-WAT-P361	Water	Sr-89	44±5.1	41±5
			Sr-90	28±1.4	29±5
07-93	EPA-WAT-S364	Water	Sr-89	35±2.5	34±5
			Sr-90	25±0.8	25±5
08-93	EPA-APT-GABS366	APT	Sr-90	18±0.9	19±5
09-93	EPA-MLK-GS367	Milk	Sr-89	27±0.9	30±5
			Sr-90	24±0.5	25±5
10-93	EPA-WAT-P369	Water	Sr-89	13±0	15±5
			Sr-90	10±0.5	10±5

* s.d. - one standard deviation of three individual analytical results
** known value plus or minus one sigma as reported by EPA

FIGURE F-1
COMPARISON OF PECO, NRC AND DER TLD DATA AT DISTANCES OF 0 - 2 MILES FROM PEACH BOTTOM ATOMIC POWER STATION, 1988 - 1992

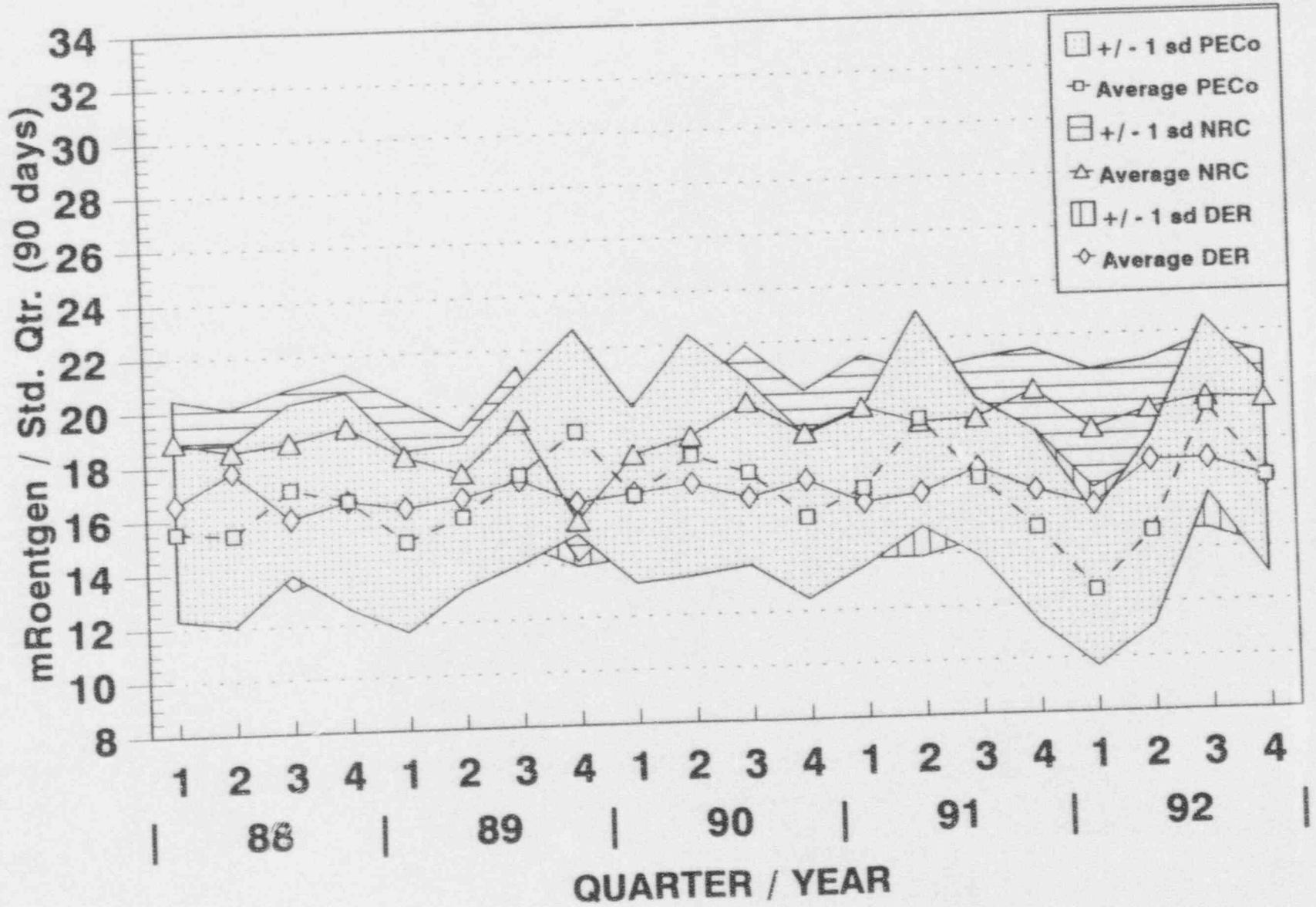


FIGURE F-2
COMPARISON OF PECO, NRC AND DER TLD DATA AT DISTANCES OF 2 - 5 MILES FROM PEACH BOTTOM ATOMIC POWER STATION, 1988 - 1992

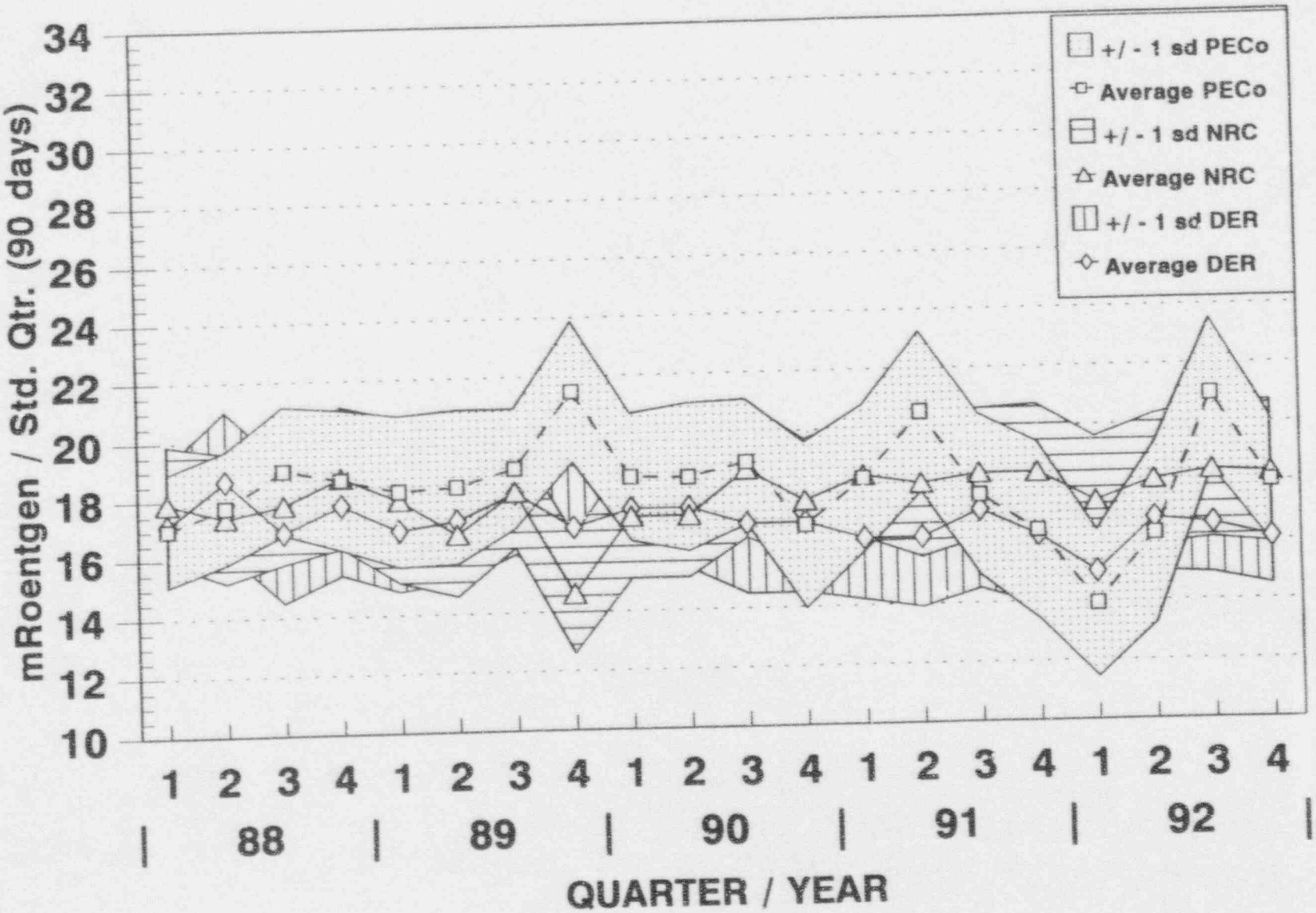
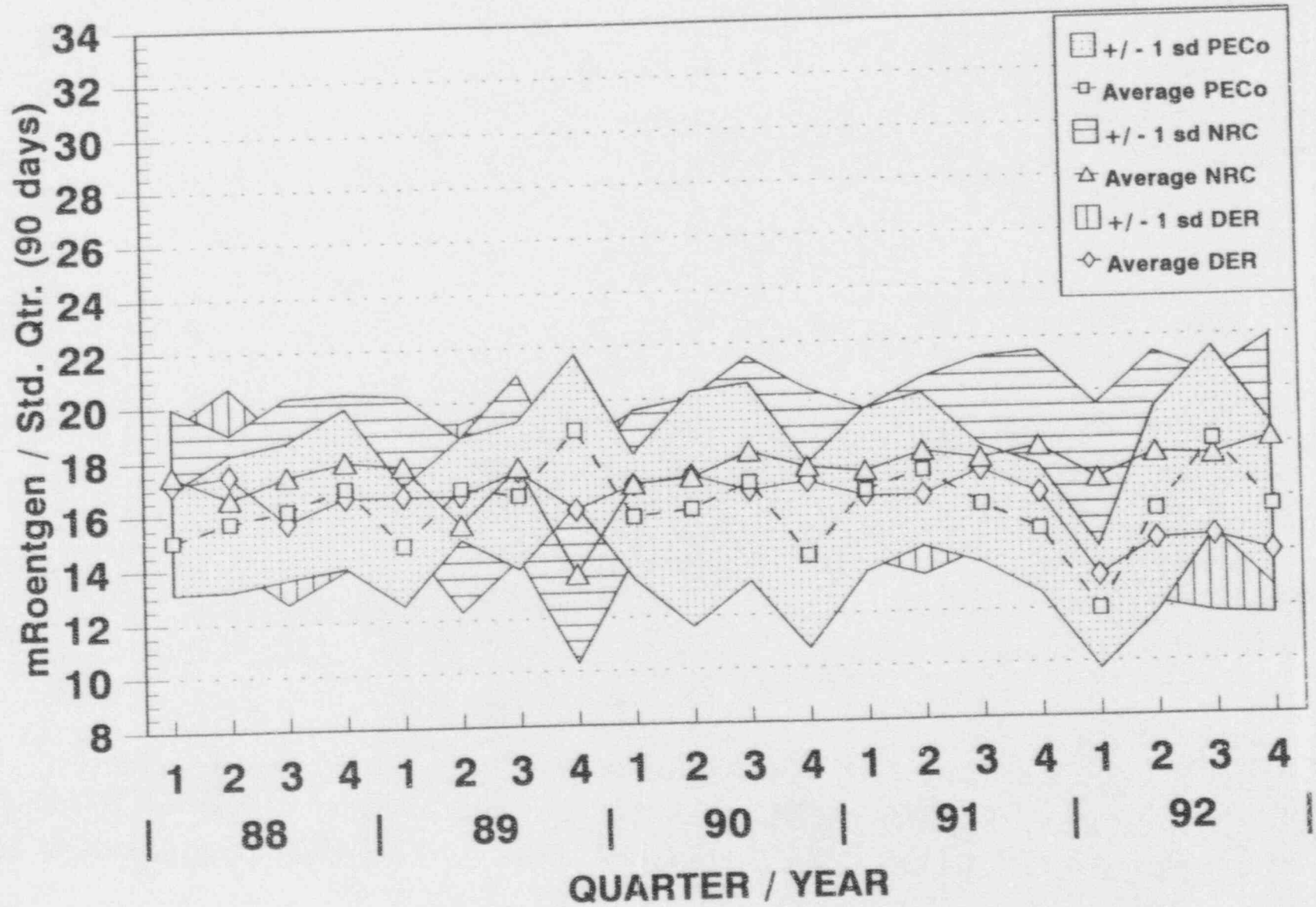


FIGURE F-3
COMPARISON OF PECO, NRC AND DER TLD DATA AT DISTANCES OF > 5 MILES FROM PEACH BOTTOM ATOMIC POWER STATION, 1988 - 1992



PBAPS SURVEY

A Land Use Census around the Peach Bottom Atomic Power Station (PBAPS) was conducted by RMC Environmental Services for PECO Energy to comply with Section 3/4.8.E.2 of PBAPS's Technical Specifications. The survey was conducted during the May to October 1993 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, 1993

Sector	Distance (ft.) from Vents
N	18,500
NNE	10,700
NE	10,900
ENE	10,200
E	15,200
ESE	15,700
SE	25,500
SSE	-
S	15,900
SSW	6,900
SW	11,600
WSW	5,000
W	4,500
WNW	9,700
NW	17,900
NNW	-

- INDICATES NO MILK ANIMALS LOCATED