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Exelon Nuclear

May 31, 2011

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Peach Bottom Atomic Power Station Unit Nos. 2 and 3
Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

SUBJECT: Annual Radiological Environmental Operating Report No. 68
January 1, 2010 through December 31, 2010

In accordance with the requirements of Section 5.6.2 of the Peach Bottom Atomic Power Station, Units 2 and 3 Technical Specifications, this letter submits the Annual Radiological Environmental Operating Report No. 68. This report provides the 2010 results for the Radiological Environmental Monitoring Program (REMP) as called for in the Offsite Dose Calculation Manual.

In assessing the data collected for the REMP, we have concluded that the operation of PBAPS, Units 2 and 3, had no adverse impact on the environment. There are no commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

Garey L. Stathes, Plant Manager
Peach Bottom Atomic Power Station

GLS/RJR/GRS/JCC/bcb

Enclosure

ccn 11-51

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, PBAPS

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NRR

May 31, 2011
U.S. Nuclear Regulatory Commission
Annual Radiological Environmental Operating Report No. 68
January 1, 2010 through December 31, 2010

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Docket No: 50-277
50-278

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 and 3

Annual Radiological
Environmental Operating Report

Report No. 68
1 January Through 31 December 2010

Prepared By

Exelon SM
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Peach Bottom Atomic Power Station
Delta, PA 17314

May 2011

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I. Executive Summary

In 2010, the dose from both liquid and gaseous effluents was conservatively calculated for the Maximum Exposed Member of the Public for PBAPS. The results of those calculations and their comparison to the allowable limits were as follows:

Effluent	Applicable Organ	Estimated Dose	Age Group	Location		% of Applicable Limit	Limit	Unit
				Distance (meters)	Direction (toward)			
Noble Gas	Gamma - Air Dose	1.78E-01	All	1097	SSE	8.90E-01	20	mrad
Noble Gas	Beta – Air Dose	1.21E-01	All	1097	SSE	3.03E-01	40	mrad
Noble Gas	Total Body (Gamma)	2.68E-01	All	1097	SSE	2.68E+00	10	mrem
Noble Gas	Skin (Beta)	4.89E-01	All	1097	SSE	1.63E+00	30	mrem
Iodine, Particulate, Carbon-14 & Tritium	Bone	5.49E-01	Child	1097	SSE	1.83E+00	30	mrem
Liquid	Total Body	1.18E-05	Adult	Site Boundary		1.97E-04	6	mrem
Liquid	Liver	1.85E-05	Teen			9.25E-05	20	mrem
Direct Radiation	Total Body	<LLD	All	1150	SSE	<LLD	22	mrem
40 CFR Part 190 Compliance								
Total Dose	Total Body	2.68E-01	All	1148	SSE	1.07E+00	25	mrem
Total Dose	Thyroid	6.50E-01	All	1148	SSE	2.60E+00	25	mrem
Total Dose	Bone	6.50E-01	All	1148	SSE	8.67E-01	75	mrem
Total Dose	Bone	6.50E-01	All	1148	SSE	2.17E+01	3	mrem
Total Dose	Liver	1.85E-05	All	1148	SSE	6.17E-04	3	mrem
Total Dose	Thyroid	6.50E-01	All	1148	SSE	1.18E+00	55	mrem

Doses calculated were well below all ODCM limits.

This report on the Radiological Environmental Monitoring Program conducted for the Peach Bottom Atomic Power Station (PBAPS) by Exelon Nuclear covers the period 1 January 2010 through 31 December 2010. During that time period, 1,184 analyses were performed on 959 samples.

Surface water samples were analyzed for concentrations of tritium and gamma emitting nuclides. No tritium, fission or activation products were found.

Drinking water samples were analyzed for concentrations of gross beta, tritium, and gamma emitting nuclides. No fission or activation products were found. Gross beta and tritium activities detected were consistent with those observed in previous years. Tritium was not detected in drinking water.

Precipitation samples were analyzed for concentrations of tritium. No tritium was detected above the Exelon specified LLD of 200 pCi/l.

The remaining sample media representing the aquatic environment included fish and sediment samples. These media were analyzed for concentrations of gamma emitting nuclides. Fish samples showed no detectable fission or activation products from the operation of PBAPS. Cesium-137 activity was found at two of three sediment locations and was 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. No fission or activation products were found. The gross beta results were consistent with results from the previous years. Furthermore, no notable differences between control and indicator locations 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 and food product samples. Milk samples were analyzed for low level concentrations of Iodine-131 and gamma emitting nuclides. No activation or fission products were found. Food product samples were analyzed for concentrations of gamma emitting nuclides. No Peach Bottom activation or fission products were detected.

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

The results of the TLD monitoring program were used to confirm that the Independent Spent Fuel Storage Installation (ISFSI) had no measurable impact on the dose rate in the environs.

In assessing all the data gathered for this report and comparing these results with preoperational data, it was evident that the operation of PBAPS had no adverse radiological impact on the environment.

The fifth Annual Radiological Groundwater Protection Program Report (ARGPPR) is found in Appendix G.

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 1170 MWe. 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 Radiological Environmental Monitoring Program (REMP) for PBAPS was initiated in 1966. This report covers those analyses performed by Teledyne Brown Engineering (TBE), Mirion Tecnologies, and Environmental Inc. (Midwest Labs) on samples collected during the period 01 January 2010 through 31 December 2010.

A. Objectives

The objectives of the REMP are:

1. Provide data on measurable levels of radiation and radioactive materials in the site environs.

2. Evaluate the relationship between quantities of radioactive material released from the plant and resultant radiation doses to individuals from principal pathways of exposure.

B. Implementation of the Objectives

Implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

2. Establishing baseline radiological data of media within those pathways.

3. Continuously monitoring those media before and during plant operation to assess station radiological effects (if any) on man and the environment.

III. Program Description

A. Sample Collection

Normandeau Associates Inc., (NAI), collected samples for the PBAPS REMP for Exelon Nuclear. This section describes the general collection methods used by NAI to obtain environmental samples for the PBAPS REMP in 2010. Sample locations and descriptions can be found in Table B-1, and Figures B-1 through B-3, Appendix B. The collection procedures used by NAI are listed in Table B-2, Appendix B.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, drinking water, precipitation, fish, and sediment. Surface water from two locations (1LL and 1MM) and drinking water from three locations (13B, 4L and 6I) were collected weekly by automatic sampling equipment. Weekly samples from each of the surface and drinking water locations were composited into a separate monthly sample for analysis. Approximately two quarts of water were removed from the weekly sample container and placed into a clean two-gallon polyethylene bottle to form a monthly composite. Control locations were 1LL and 6I. Precipitation samples from three locations (1A, 1B, 4M) were collected monthly. Fish samples comprising the flesh from two groups: Bottom Feeder (channel catfish, flathead catfish, and shorthead redhorse) and Predator (smallmouth bass, largemouth bass, walleye, bluegill, and redbreast sunfish) were collected semiannually from two locations (4 and 6; 6 is the control). Sediment samples composed of recently deposited substrate were collected semiannually at three locations (4J, 4T and 6F; 6F is the control).

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on air particulate, airborne iodine and milk samples. Air particulate and air iodine samples were collected and analyzed weekly from five locations (1B, 1C, 1Z, 3A, and 5H2; 5H2 is the control). Airborne iodine and particulate samples were obtained at each location using a vacuum pump with charcoal and glass fiber filters attached. The pumps were run continuously and sampled air at the rate of approximately 1 cubic foot per

minute. The filters were replaced weekly and sent to the laboratory for analysis. Milk samples were collected biweekly at five locations (J, R, S, U and V; V is the control) from April through November and monthly from December through March. Six additional locations (C, D, E, L, P and W; C and E are the controls) were sampled quarterly. All samples were collected in new unused two gallon plastic bottles from the bulk tank at each location, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food product samples were collected annually at three locations (1Q, 2B, and 55; 55 is the control) in October. All samples were collected in new unused plastic bags and shipped promptly to the laboratory.

Ambient Gamma Radiation

Direct radiation measurements were made using Panasonic 814 calcium sulfate ($CaSO_4$) thermoluminescent dosimeters (TLD). The TLD locations were placed on and around the PBAPS site as follows:

A site boundary ring, consisting of 20 locations (1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1NN, 1P, 1Q, 1R, 2, 2B, and 40), near and within the site perimeter representing fence post doses (i.e., at locations where the doses will be potentially greater than maximum annual off-site doses) from PBAPS releases.

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

The balance of four locations (16, 18, 19, and 24) representing control and special interests areas such as population centers, schools, etc.

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. And near the dwelling closest to the vents in the prevailing down wind direction.

Two TLDs – each comprised of three $CaSO_4$ themoluminescent phosphors enclosed in plastic – were placed at each location in a Formica "birdhouse" or polyethylene jar located approximately six feet above ground level. The TLD sets were exchanged quarterly, then sent to the laboratory for analysis.

B. Sample Analysis

This section describes the general analytical methods used by Teledyne Brown Engineering and Environmental Inc. to analyze the environmental samples for radioactivity for the PBAPS REMP in 2010. The analytical procedures used by the laboratories are listed in Table B-2, Appendix B.

In order to achieve the stated objectives, the current program includes the following analyses:

1. Concentrations of beta emitters in drinking water and air particulates.
2. Concentrations of gamma emitting nuclides in surface and drinking water, air particulates, milk, fish, sediment and food products.
3. Concentrations of tritium in surface, drinking water and precipitation water.
4. Concentrations of I-131 in air and milk.
5. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

The radiological and direct radiation data collected prior to PBAPS becoming operational was used as a baseline with which these operational data were compared. For the purpose of this report, PBAPS was considered operational at initial criticality. In addition, data were compared to previous years' operational data for consistency and trending. Several factors are important in the interpretation of the data.

1. Lower Limit of Detection and Minimum Detectable Concentration

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 PBAPS detection capabilities for environmental sample analysis. The minimum detectable concentration (MDC) is defined above with the exception that the measurement is an after the fact estimate of the presence of activity.

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. An MDC was reported in all cases where positive activity was not detected.

Gamma spectroscopy results for each type of sample were grouped as follows:

For surface and drinking 12 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, I-131, Cs-134, Cs-137, Ba-140, and La-140 were reported.

For fish eight nuclides, K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Cs-134, and Cs-137 were reported.

For sediment six nuclides, K-40, Mn-54, Co-58, Co-60, Cs-134, and Cs-137 were reported.

For air particulate six nuclides, Be-7, Mn-54, Co-58, Co-60, Cs-134, and Cs-137 were reported.

For milk five nuclides, K-40, Cs-134, Cs-137, Ba-140, and La-140 were reported.

For food product seven nuclides, Be-7, Mn-54, Co-58, Co-60, I-131, Cs-134, and Cs-137 were reported.

Means and standard deviations of the results were calculated. The standard deviations represent the variability of measured results for different samples rather than single analysis uncertainty.

D. Program Exceptions

For 2010 the PBAPS REMP had a sample collection recovery rate of better than 99%. The exceptions to this program are listed below:

1. The TLD for Sample Station 22 was vandalized and removed. Therefore, there was no TLD analysis for the first quarter of 2010 for Sample Station 22. (IR# 1072636)

   01/01/10 – 04/01/10

2. Air samples were not collected within 7 days ± 25% during the week of February 8 due to a severe snow storm. (IR# 1080610)

3. During the collection of TLD badges, it was discovered that the badge for Sample Station 15 was found on the ground and the badge for Sample Station 22 was vandalized and removed. Therefore, there was no reading for the second quarter for Sample Station 22. (IR# 1121160)

   04/01/10 – 07/01/10

4. During the sample collection for Station 1Z/1A, it was discovered that the pump was not operating due to a blown fuse. Therefore, no sample for Air Particulate/Air Iodine for Sample Station 1Z/1A for week 26 was analyzed. (IR# 1121154)

   06/24/10 – 07/01/10

5. Sample Station 3A did not have a filter in it when the filter was changed out for week 24. Therefore, no sample for Air Particulate for sample Station 3A was analyzed. (IR# 1121149)

   06/10/10 – 06/17/10

6. When conducting the weekly REMP sampling, the technician noticed that the pump and timer were not operating for Sample Station 1Z. The sample volume for that week was less than 85 cubic meters, making the sample invalid. Therefore, no sample was analyzed for Sample Station 1Z for week 18. (IR# 1121152)

   04/29/10 – 05/06/10

7. The composite sampler at Sample Station 13B, owned and operated by the Chester Water Authority, was removed from service from late

July through early September. Gross beta and gamma isotopic samples for August could not be analyzed. The tritium composite sample for the third quarter was analyzed, without input from August. (IR# 1149902)

07/29/10 – 09/02/10

8. The TLD for Sample Station 48 was vandalized and removed. Therefore, there was no TLD analysis for the fourth quarter of 2010 for Sample Station 48. (IR# 1193238)

   10/01/10 – 01/01/11

9. Cs-137 was detected in Upstream (6F)/Downstream (4T) collection points; however, there was no Cs-137 discovered in the ODCM sample point 4J. This small quantity of Cs-137 is attributed to weapons testing from the 1980's and not the plant. (IR#1193315)

   06/06/10 & 12/10/10, Location 4T
   12/10/10, Location 6F

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.

E. Program Changes

There were no program changes in 2010.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken from a continuous sampler at two locations (1LL and 1MM) on a monthly schedule. Of these locations, 1MM located downstream, could be affected by Peach Bottom's effluent releases. The following analyses were performed:

Tritium

Monthly samples from both locations were composited quarterly and analyzed for tritium activity (Table C-I.1, Appendix C). No

tritium activity was detected.

Gamma Spectrometry

Samples from both locations were analyzed for gamma emitting nuclides (Table C-I.2, Appendix C). All nuclides were less than the MDC.

2. Drinking Water

Monthly samples were collected from continuous water samplers at three locations (13B, 4L and 6I). Two locations (13B and 4L) could be affected by Peach Bottom's effluent releases. The following analyses were performed:

Gross Beta

Samples from both locations were analyzed for concentrations of total gross beta activity (Tables C-II.1 and Figures C-1 Appendix C). Gross beta was detected in 19 of 35 samples. The values ranged from 2.2 to 7.0 pCi/l. Concentrations detected were generally below those detected in previous years.

Tritium

Monthly samples from both locations were composited quarterly and analyzed for tritium activity (Table C-II.2, Appendix C). Tritium activity was not detected in any samples.

Gamma Spectrometry

Samples from both locations were analyzed for gamma emitting nuclides (Table C-II.3, Appendix C). All nuclides were less than the MDC.

3. Precipitation

Samples were collected monthly at three locations (1A, 1B, and 4M). The following analysis was performed:

Tritium

Monthly samples from three locations were analyzed for tritium activity (Table C-III.1, Appendix C). Tritium activity was not detected in any samples.

4. Fish

Fish samples comprised of bottom feeder and predator were collected at two locations (4 and 6) semiannually. Location 4 could be affected by Peach Bottom's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from both locations was analyzed for gamma emitting nuclides (Table C-IV.1, Appendix C). Naturally occurring K-40 was found at all stations and ranged from 1,050 to 3,470 pCi/kg wet and was consistent with levels detected in previous years. No Peach Bottom fission or activation products were found in 2010. Historical levels of Cs-137 are shown in Figure C-2, Appendix C.

5. Sediment

Aquatic samples were collected at three locations (4J, 4T and 6F) semiannually. Of these locations two, 4J and 4T located downstream, could be affected by Peach Bottom's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from all three locations were analyzed for gamma emitting nuclides (Table C-V.1, Appendix C). Potassium-40 was found in all locations and ranged from 11,200 to 20,100 pCi/kg dry. The fission product Cs-137 was detected in three of six samples and ranged from 95 to 186 pCi/kg. The activity of Cs-137 detected was consistent with those detected in the preoperational years. Historical levels of Cs-137 are shown in Figure C-3, Appendix C. No other Peach Bottom fission or activation products were found.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from five locations on a weekly basis. The five locations were separated into three groups: Group I represents locations within the PBAPS site boundary (1B, 1C and 1Z), Group II

represents the location at an intermediate distance from the PBAPS site (3A), and Group III represents the control location at a remote distance from PBAPS (5H2). The following analyses were performed.

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Tables C-VI.1 and C-VI.2 and Figures C-5 and C-6, Appendix C).

Detectable gross beta activity was observed at all locations. Comparison of results among the three groups aid in determining the effects, if any, resulting from the operation of PBAPS. The results from the On-Site locations (Group I) ranged from 4 to 43 E-3 pCi/m3, with a mean of 18 E-3 pCi/m3. The results from the Intermediate Distance location (Group II) ranged from 6 to 32 E-3 pCi/m3 with a mean of 16 E-3 pCi/m3. The results from the Distant location (Group III) ranged from 7 to 35 E-3 pCi/m3 with a mean of 16 E-3 pCi/m3. A comparison of the weekly mean values for 2010 indicate no notable differences among the three groups (Figure C-5, Appendix C). In addition, a comparison of the 2010 air particulate data with previous years data indicate no effects from the operation of PBAPS (Figure C-4, Appendix C).

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C-VI.3, Appendix C). Naturally occurring Be-7 due to cosmic ray activity was detected in all samples. These values ranged from 56 to 117 E-3 pCi/m^3. All other nuclides were less than the MDC.

b. Airborne Iodine

Continuous air samples were collected from five locations (1B, 1Z, 1C, 3A, and 5H2) and analyzed weekly for I-131 (Table C-VII.1, Appendix C). All results were less than the MDC.

2. Terrestrial

a. Milk

Samples were collected from five locations (J, R, S, U and V) biweekly April through November and monthly December through March. Samples from six additional locations (C, D, E, L, P and W) were taken quarterly. The following analyses were performed:

Iodine-131

Milk samples from all locations were analyzed for concentrations of I-131 (Tables C-VIII.1, Appendix C). All results were less than the MDC.

Gamma Spectrometry

Each milk sample from locations J, R, S, U and V was analyzed for concentrations of gamma emitting nuclides (Table C-VIII.2, Appendix C).

Naturally occurring K-40 was found in all samples and ranged from 1,030 to 1,560 pCi/l. All other nuclides were less than the MDC. Comparison of the 2010 Cs-137 milk data with previous years data indicate no effects from the operation of PBAPS (Figure C-6, Appendix C).

b. Food Products

Food product samples were collected at three locations (1Q, 2B and 55) when available. Of these locations two, 2B and 55, could be affected by Peach Bottom's effluent releases. The following analysis was performed:

Gamma Spectrometry

Each food product sample from locations 1Q, 2B and 55 was analyzed for concentrations of gamma emitting nuclides (Table C-IX.1, Appendix C).

Nuclides detected were naturally occurring Be-7, and K-40. Beryllium-7 activity was found in 24 of 38 samples and ranged from 42 to 1,650 pCi/kg wet. Potassium-40 activity was found

in all samples and ranged from 1,450 to 12,800 pCi/kg wet. All other nuclides were less than the MDC.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured using Panasonic 814 ($CaSO_4$) thermoluminescent dosimeters. Forty-seven TLD locations were established around the site. Results of TLD measurements are listed in Tables C-X.1 through C-X.3 and Figure C-7, Appendix C.

Most TLD measurements were below 10 mR per standard month, with a range of 2.8 to 12.3 mR per standard month. A comparison of the Site Boundary and Intermediate Distance data to the Control locations data indicate that the ambient gamma radiation levels from the Control locations 16, 18, 19 and 24 were essentially the same as the other locations. The historical ambient gamma radiation data from the Control locations was plotted along with similar data from the Site and the Intermediate Distance locations (Figure C-7, Appendix C)

D. Independent Spent Fuel Storage Installation (ISFSI)

The Independent Spent Fuel Storage Installation (ISFSI) was utilized beginning June 2000. During 2010, a total of 5 TN-68 casks, each loaded with 68 fuel bundles, were added to the ISFSI pad. Onsite location 1R, which is located on the hillside overlooking the ISFSI showed a general increase of 1 to 2 mR per standard month from pre-IFSFI loading (Figure C-8, Appendix C). Location 2B, which represents the nearest residence, showed no effect in dose rate from the IFSFI pad. Data from location 2B is used to demonstrate compliance to both 40CFR190 and 10CFR72.104 limits.

E. Land Use Census

A Land Use Survey conducted during the 2010 growing season around the Peach Bottom Atomic Power Station (PBAPS) was performed by Normandeau Associates, Inc., NAI Environmental Services Division for Exelon Nuclear to comply with Section 3.8.E.2 of PBAPS's Offsite Dose Calculation Manual Specifications (ODCMS) and Bases. The purpose of the survey was to document the nearest milk producing animal in each of the sixteen meteorological sectors out to five miles. In addition, the nearest residence and garden of >500 square feet were documented. The distance and direction of all locations were positioned using Global Positioning System (GPS) technology. The results of this survey are summarized below.

Distance in Miles from the PBAPS Reactor Buildings			
Sector	Residence Feet	Garden Feet	Milk Farm Feet
1 N	12,522	13,433	14,450
2 NNE	11,142	11,142	10,874
3 NE	10,080	10,080	10,492
4 ENE	10,524	12,417	10,871
5 E	10,369	14,577	14,540
6 ESE	16,085	20,430	20,210
7 SE	19,412	19,412	19,176
8 SSE	3,918	3,918	-
9 S	5,515	5,515	-
10 SSW	6,365	8,252	11,602
11 SW	4,771	4,771	4,860
12 WSW	4,041	18,887	-
13 W	5,242	5,242	5,147
14 WNW	2,903	3,977	22,068
15 NW	2,930	9,427	9,427
16 NNW	5,093	-	-

F. Errata Data

In 2011, it was discovered that the IR# in the 2009 AREOR for the following deviation was incorrectly listed as IR# 999869 instead of IR# 991349:

14. A drinking water sample was temporarily unavailable because Chester Water Authority was shut down for the following period and location (IR# 999869):

    12/03/09 – 12/31/09, Locations 1LL, 1MM

G. Summary of Results – Inter-Laboratory Comparison Program

The primary and secondary laboratories analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, food products and water matrices (Appendix E). The PE samples, supplied by Analytics Inc., Environmental Resource Associates (ERA) and DOE's Mixed Analyte Performance Evaluation Program (MAPEP), were evaluated against the following pre-set acceptance criteria:

1. Analytics Evaluation Criteria

   Analytics' evaluation report provides a ratio of laboratory results and Analytics' known value. Since flag values are not assigned by Analytics, TBE-ES evaluates the reported ratios based on internal QC requirements, which are based on the DOE MAPEP criteria.

2. ERA Evaluation Criteria

ERA's evaluation report provides an acceptance range for control and warning limits with associated flag values. ERA's acceptance limits are established per the USEPA, NELAC, state specific PT program requirements or ERA's SOP for the Generation of Performance Acceptance Limits, as applicable. The acceptance limits are either determined by a regression equation specific to each analyte or a fixed percentage limit promulgated under the appropriate regulatory document.

3. DOE Evaluation Criteria

MAPEP's evaluation report provides an acceptance range with associated flag values.
The MAPEP defines three levels of performance: Acceptable (flag = "A"), Acceptable with Warning (flag = "W"), and Not Acceptable (flag = "N"). Performance is considered acceptable when a mean result for the specified analyte is ± 20% of the reference value. Performance is acceptable with warning when a mean result falls in the range from ±20% to ±30% of the reference value (i.e., 20% < bias < 30%). If the bias is greater than 30%, the results are deemed not acceptable.

For the primary laboratory, 16 out of 18 analytes met the specified acceptance criteria. Two analytes did not meet the specified acceptance criteria for the following reason:

1. Teledyne Brown Engineering's ERA November 2010 Sr-89 in water result of 77.8 pCi/L was higher than the known value of 68.5 pCi/L, resulting in a found to known ratio of 1.14. NCR 10-09 was initiated to investigate this failure. Since the ratio of 1.14 fell within an acceptance range of 20%, Teledyne considers this an acceptable result.
2. Teledyne Brown Engineering's ERA November 2010 Zn-65 in water result of 11.0 pCi/L was lower than the known value of 102 pCi/L. NCR 10-09 was initiated to investigate this failure. The Zn-65 result of 111 was incorrectly reported as 11.0.

For the secondary laboratory, Environmental, Inc., 14 out of 14 analytes met the specified acceptance criteria.

The Inter-Laboratory Comparison Program provides evidence of "in control" counting systems and methods, and that the laboratories are

producing accurate and reliable data.

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.

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: *YORK COUNTY PA* ***REPORTING PERIOD:*** *2010*

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	H-3	8	200	<LLD	<LLD	-		0
	GAMMA	24						
	MN-54		15	<LLD	<LLD	-		0
	CO-58		15	<LLD	<LLD	-		0
	FE-59		30	<LLD	<LLD	-		0
	CO-60		15	<LLD	<LLD	-		0
	ZN-65		30	<LLD	<LLD	-		0
	NB-95		15	<LLD	<LLD	-		0
	ZR-95		30	<LLD	<LLD	-		0

THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	I-131		15	<LLD	<LLD	-		0
	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
DRINKING WATER (PCI/LITER)	GR-B	35	4	3.6 (14/23) (2.2/7.0)	3.8 (5/12) (2.8/6.3)	4 (7/11) (2.4/7.0)	13B INDICATOR CWA SUSQUEHANNA PUMPING STATION 13,306 FEET ESE OF SITE	0
	H-3	12	200	<LLD	<LLD	-		0
	GAMMA	35						
	MN-54		15	<LLD	<LLD	-		0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR *THE PEACH BOTTOM ATOMIC POWER STATION, 2010*

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	CO-58		15	<LLD	<LLD	-		0
	FE-59		30	<LLD	<LLD	-		0
	CO-60		15	<LLD	<LLD	-		0
	ZN-65		30	<LLD	<LLD	-		0
	NB-95		15	<LLD	<LLD	-		0
	ZR-95		30	<LLD	<LLD	-		0
	I-131		15	<LLD	<LLD	-		0
	CS-134		15	<LLD	<LLD	-		0

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
PRECIPITATION WATER (PCI/LITER)	H-3	36	NA	<LLD	NA	-		0
BOTTOM FEEDER (PCI/KG WET)	GAMMA	4						
	K-40		NA	2765 (2/2) (2630/2900)	3165 (2/2) (2940/3390)	3165 (2/2) (2940/3390)	6 CONTROL HOLTWOOD POND 57,347 FEET NW OF SITE	0
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: *YORK COUNTY PA* ***REPORTING PERIOD:*** *2010*

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
BOTTOM FEEDER (PCI/KG WET)	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
PREDATOR (PCI/KG WET)	GAMMA	4						
	K-40		NA	2260 (2/2) (1050/3470)	3425 (2/2) (3380/3470)	3425 (2/2) (3380/3470)	6 CONTROL HOLTWOOD POND 57,347 FEET NW OF SITE	0
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0

THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

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MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PREDATOR (PCI/KG WET)	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
SEDIMENT (PCI/KG DRY)	GAMMA	6						
	K-40		NA	16975 (4/4) (13400/20100)	13200 (2/2) (11200/15200)	19100 (2/2) (18100/20100)	4T INDICATOR CONOWINGO POND NEAR CONOWINGO DAM 41,818 FEET SE OF SITE	0
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0

THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

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Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SEDIMENT (PCI/KG DRY)	CS-134		150	<LLD	<LLD	-		0
	CS-137		180	163 (2/4) (139/186)	95 (1/2)	163 (2/2) (139/186)	4T INDICATOR CONOWINGO POND NEAR CONOWINGO DAM 41,818 FEET SE OF SITE	0
AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	254	10	17 (250/254) (4/43)	NA	18 (50/51) (4/43)	1Z INDICATOR WEATHER STATION #1 1,396 FEET SE OF SITE	0
	GAMMA	20						
	BE-7		NA	83 (20/20) (56/117)	NA	88 (4/4) (60/112)	1Z INDICATOR WEATHER STATION #1 1,396 FEET SE OF SITE	0
	MN-54		NA	<LLD	NA	-		0
	CO-58		NA	<LLD	NA	-		0
	CO-60		NA	<LLD	NA	-		0
	CS-134		50	<LLD	NA	-		0

THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

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Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR PARTICULATE (E-3 PCI/CU.METER)	CS-137		60	<LLD	NA	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	255	70	<LLD	NA	-		0
MILK (PCI/LITER)	I-131	134	1	<LLD	<LLD	-		0
	GAMMA K-40	134	NA	1286 (104/104) (1030/1560)	1351 (30/30) (1180/1520)	1357 (22/22) (1180/1520)	V CONTROL 34,584 FEET W OF SITE	0
	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0

THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING BOTH THE MDAs AND THE POSITIVE VALUES
FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE PEACH BOTTOM ATOMIC POWER STATION, 2010

Name of Facility: PEACH BOTTOM ATOMIC POWER STATION **DOCKET NUMBER:** 50-277 & 50-278
Location of Facility: YORK COUNTY PA **REPORTING PERIOD:** 2010

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSES PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION (PCI/KG WET)	GAMMA	38						
	BE-7		NA	401 (15/23) (42/1650)	406 (9/15) (125/1150)	524 (8/11) (144/1650)	1Q INDICATOR 4,171 FEET NW OF SITE	0
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
DIRECT RADIATION (MILLI-ROENTGEN/STD.MO.)	TLD-QUARTERLY	186	NA	5.4 (170/170) (2.8/12.3)	5.2 (16/16) (3.9/6.2)	7.9 (4/4) (5.6/12.3)	50 INDICATOR TRANSCO PUMPING STATION 25,677 FEET W OF SITE	0

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FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES (F)

APPENDIX B

SAMPLE DESIGNATION AND LOCATIONS

TABLE B-1 Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction from Reactor Buildings, Peach Bottom Atomic Power Station, 2010

Location	Location Description	Distance & Direction from Site
A. Surface Water		
1LL	Peach Bottom Units 2 and 3 Intake - Composite (*Control*)	1,256 feet NE
1MM	Peach Bottom Canal Discharge -Composite	5,470 feet SE
B. Drinking (Potable) Water		
4L	Conowingo Dam EL 33' MSL - Composite	45,721 feet SE
6I	Holtwood Dam Hydroelectric Station - Composite (Control)	30,337 feet NW
13B	Chester Water Authority (CWA) Susquehanna Pumping Station- Composite	13,306 feet ESE
C. Precipitation		
1A		1,396 feet SE
1B		2,587 feet NW
4M		45,989 feet SE
D. Fish		
4	Conowingo Pond	7,162 feet SE
6	Holtwood Pond (Control)	57,347 feet NW
E. Sediment		
4J	Conowingo Pond near Berkin's Run	7,346 feet SE
4T	Conowingo Pond near Conowingo Dam	41,818 feet SE
6F	Holtwood Dam (Control)	31,469 feet NW
F. Air Particulate - Air Iodine		
1B	Weather Station #2	2,587 feet NW
1Z	Weather Station #1	1,396 feet SE
1A	Weather Station #1	1,396 feet SE
1C	Peach Bottom South Sub Station	4,513 feet SSE
3A	Delta, PA – Substation	19,144 feet SW
5H2	Manor Substation (Control)	162,565 feet NE
G. Milk – bi-weekly / monthly		
J		5,119 feet W
R		4,694 feet WSW
S		19,061 feet SE
U		11,414 feet SSW
V	(Control)	34,584 feet W
H. Milk – quarterly		
C	(Control)	5,037 feet NW
D		18,533 feet NE

TABLE B-1 Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction from Reactor Buildings, Peach Bottom Atomic Power Station, 2010

Location	Location Description	Distance & Direction from Site
H. Milk – quarterly (cont'd)		
E	(Control)	46,147 feet N
L		11,194 feet NE
P		10,982 feet ENE
W		89,232 feet S
I. Food Products – monthly when available		
1Q		4,171 feet NW
2B		3,854 feet SSE
55	(Control)	52,272 feet NE
J. Environmental Dosimetry - TLD		
Site Boundary		
1L	Peach Bottom Unit 3 Intake	1,256 feet NE
1P	Tower B & C Fence	2,112 feet ESE
1A	Weather Station #1	1,396 feet SE
1Q	Tower D & E Fence	3,274 feet SE
1D	140° Sector	3,538 feet SE
2	Peach Bottom 130° Sector Hill	4,661 feet SE
2B	Burk Property	3,749 feet SSE
1M	Discharge	5,438 feet SE
1R	Transmission Line Hill	2,798 feet SSE
1I	Peach Bottom South Substation	2,851 feet SSE
1C	Peach Bottom South Substation	4,513 feet SSE
1J	Peach Bottom 180° Sector Hill	3,755 feet S
1K	Peach Bottom Site Area	4,604 feet SW
1F	Peach Bottom 200° Sector Hill	2,707 feet SSW
40	Peach Bottom Site Area	7,709 feet SW
1NN	Peach Bottom Site	2,547 feet WSW
1H	Peach Bottom 270° Sector Hill	3,104 feet W
1G	Peach Bottom North Substation	3,173 feet WNW
1B	Weather Station #2	2,587 feet NW
1E	Peach Bottom 350° Sector Hill	3,136 feet NNW
Intermediate Distance		
5	Wakefield, PA	24,499 feet E
15	Silver Spring Rd	19,449 feet N
22	Eagle Road	13,230 feet NNE
44	Goshen Mill Rd	27,480 feet NE
32	Slate Hill Rd	15,213 feet ENE
45	PB-Keeney Line	18,524 feet ENE
14	Peters Creek	10,397 feet E
17	Riverview Rd	21,966 feet ESE
31A	Eckman Rd	24,105 feet SE
4K	Conowingo Dam Power House Roof	45,721 feet SE
23	Peach Bottom 150° Sector Hill	5,276 feet SSE
27	N. Cooper Road	13,859 feet S
48	Macton Substation	26,347 feet SSW

TABLE B-1 Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction from Reactor Buildings, Peach Bottom Atomic Power Station, 2010

Location	Location Description	Distance & Direction from Site
J. Environmental Dosimetry – TLD (cont'd)		
Intermediate Distance (cont'd)		
3A	Delta, PA Substation	19,114 feet SW
49	PB-Conastone Line	20,673 feet WSW
50	TRANSCO Pumping Station	25,677 feet W
51	Fin Substation	20,511 feet WNW
26	Slab Road	22,093 feet NW
6B	Holtwood Dam Power House Roof	30,538 feet NW
42	Muddy Run Environ. Laboratory	21,954 feet NNW
43	Drumore Township School	26,931 feet NNE
46	Broad Creek	23,483 feet SSE
47	Broad Creek Scout Camp	22,153 feet S
Control		
16	Nottingham, PA Substation (Control)	67,788 feet E
24	Harrisville, MD Substation (Control)	58,048 feet ESE
18	Fawn Grove, PA (Control)	51,413 feet W
19	Red Lion, PA (Control)	106,354 feet WNW

TABLE B-2 Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Peach Bottom Atomic Power Station, 2010

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	NAI-ER15 Collection of water samples for radiological analysis (Peach Bottom Atomic Power Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Surface Water	Tritium	Quarterly composite from a continuous water compositor.	NAI-ER15 Collection of water samples for radiological analysis (Peach Bottom Atomic Power Station)	500 ml	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Drinking Water	Gross Beta	Monthly composite from a continuous water compositor.	NAI-ER15 Collection of water samples for radiological analysis (Peach Bottom Atomic Power Station)	2 gallon	TBE, TBE-2008 Gross alpha and/or gross beta activity in various matrices Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue)
Drinking Water	Gamma Spectroscopy	Monthly composite from a continuous water compositor.	NAI-ER15 Collection of water samples for radiological analysis (Peach Bottom Atomic Power Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Drinking Water	Tritium	Quarterly composite from a continuous water compositor.	NAI-ER15 Collection of water samples for radiological analysis (Peach Bottom Atomic Power Station)	500 ml	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Fish	Gamma Spectroscopy	Semi-annual samples collected via electroshocking or other techniques	NAI-ER3 Collection of fish samples for radiological analysis (Peach Bottom Atomic Power Station)	1000 grams (wet)	TBE, TBE-2007 Gamma emitting radioisotope analysis
Sediment	Gamma Spectroscopy	Semi-annual grab samples	NAI-ER2 Collection of sediment samples for radiological analysis (Peach Bottom Atomic Power Station)	500 grams (dry)	TBE, TBE-2007 Gamma emitting radioisotope analysis
Air Particulates	Gross Beta	One-week composite of continuous air sampling through glass fiber filter paper	NAI-ER16 Collection of air particulate and air iodine samples for radiological analysis (Peach Bottom Atomic Power Station)	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2008 Gross alpha and/or gross beta activity in various matrices Env. Inc., AP-02 Determination of gross alpha and/or gross beta in air particulate filters

TABLE B-2 Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Peach Bottom Atomic Power Station, 2010

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2023 Compositing of samples Env. Inc., AP-03 Procedure for compositing air particulate filters for gamma spectroscopic analysis	13 filters (approximately 3600 cubic meters)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Iodine	Gamma Spectroscopy	One-week composite of continuous air sampling through charcoal filter	NAI-ER8 Collection of air particulate and air iodine samples for radiological analysis (Peach Bottom Atomic Power Station)	1 filter (approximately 280 cubic meters weekly)	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., I-131-02 Determination of I-131 in charcoal canisters by gamma spectroscopy (batch method).
Milk	I-131	Bi-weekly grab sample when cows are on pasture. Monthly all other times	NAI-ER10 Collection of milk samples for radiological analysis (Peach Bottom Atomic Power Station)	2 gallon	TBE, TBE-2012 Radioiodine in various matrices Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange
Milk	Gamma Spectroscopy	Bi-weekly grab sample when cows are on pasture. Monthly all other times	NAI-ER10 Collection of milk samples for radiological analysis (Peach Bottom Atomic Power Station)	2 gallon	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Food Products	Gamma Spectroscopy	Monthly when available	NAI-ER12 Collection of vegetation samples for radiological analysis (Peach Bottom Atomic Power Station)	1000 grams	TBE, TBE-2007 Gamma emitting radioisotope analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
TLD	Thermoluminescence Dosimetry	Quarterly TLDs comprised of two Panasonic 814 (containing 3 each $CaSO_4$ elements)	NAI-ER9 Collection of TLD samples for radiological analysis (Peach Bottom Atomic Power Station)	2 dosimeters	Mirion Tecnologies

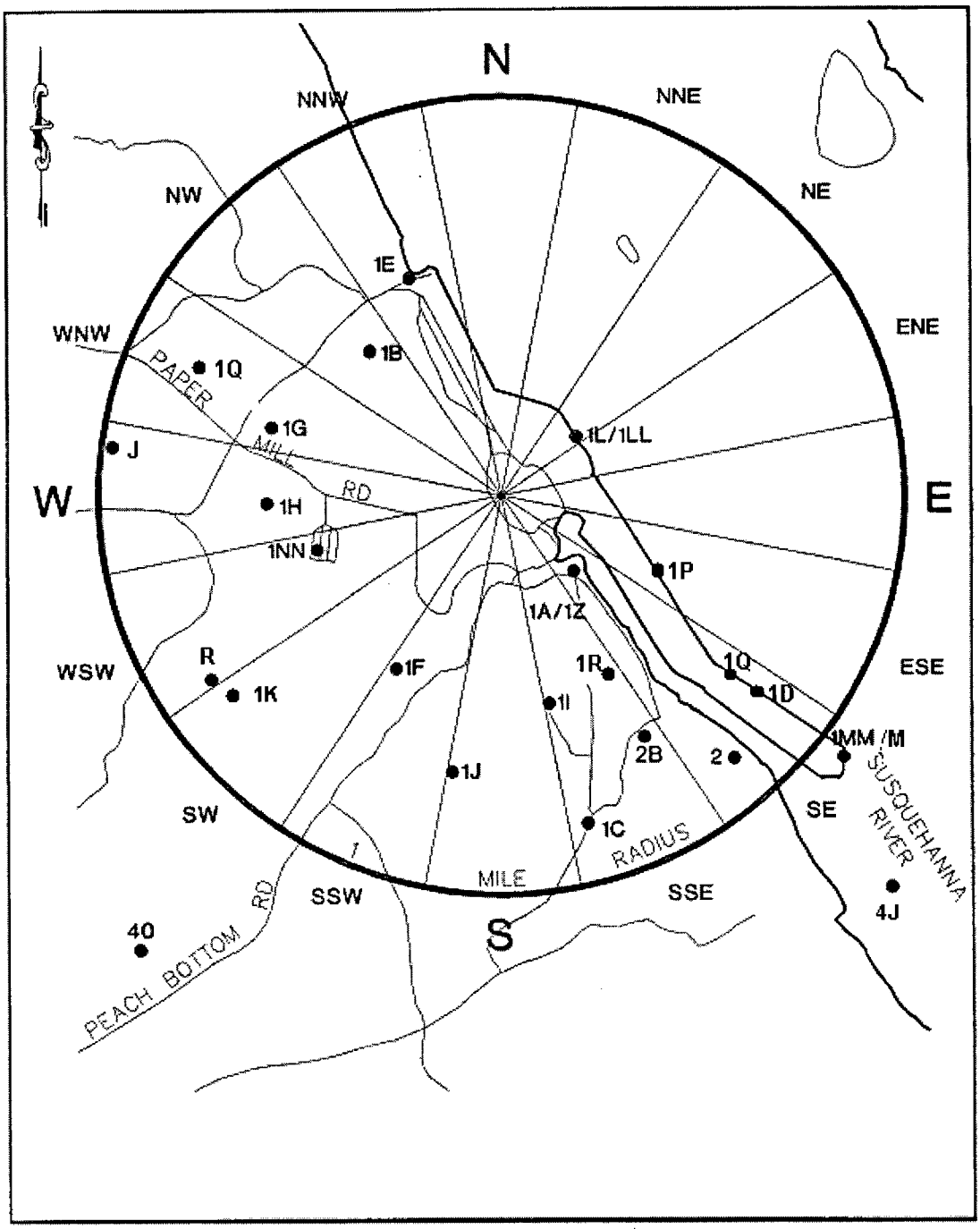


Figure B-1
Environmental Sampling Locations Between Within One Mile of the Peach Bottom Atomic Power Station, 2010

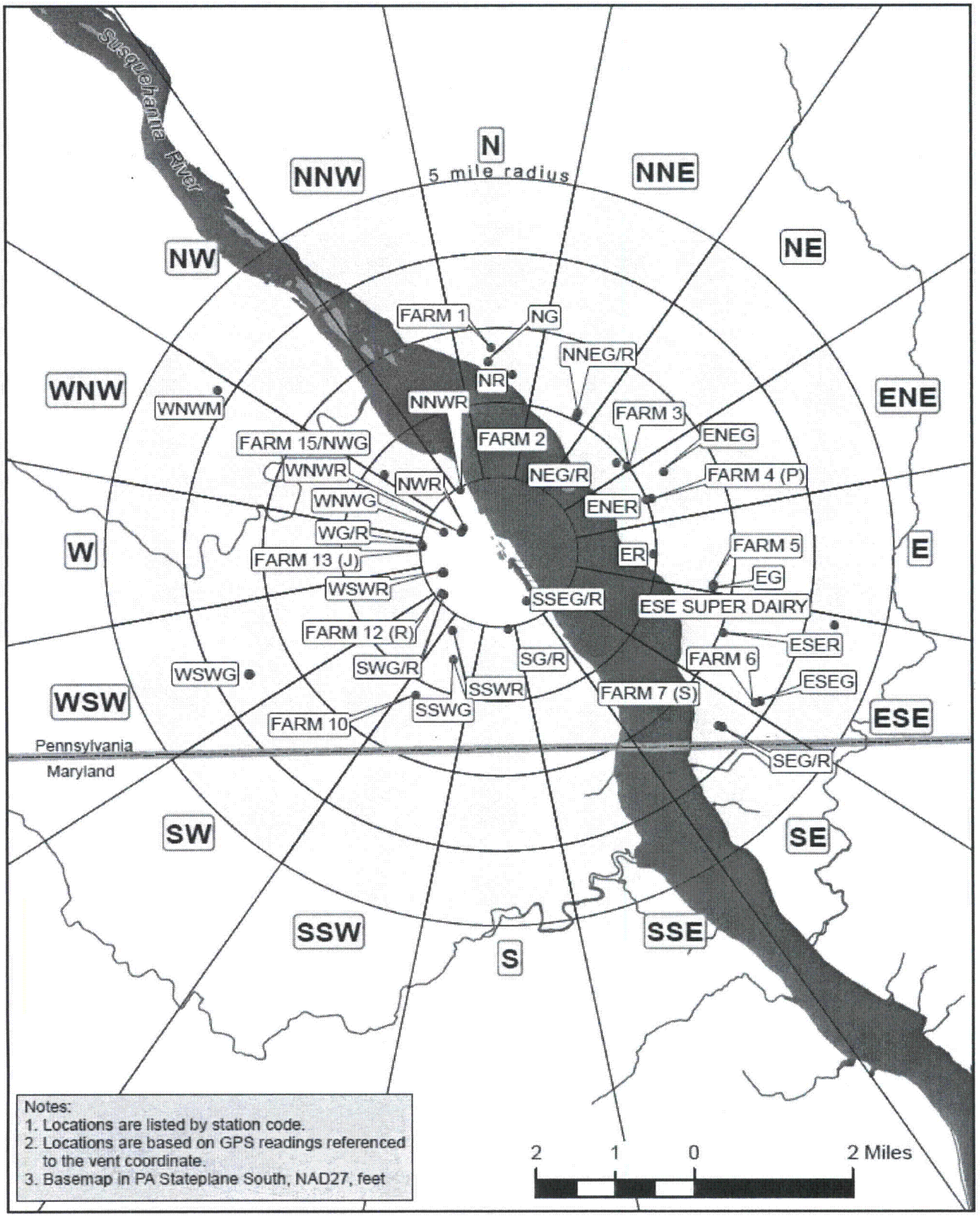


Figure B-2
Environmental Sampling Locations Between One and Approximately Five Miles of the Peach Bottom Atomic Power Station, 2010

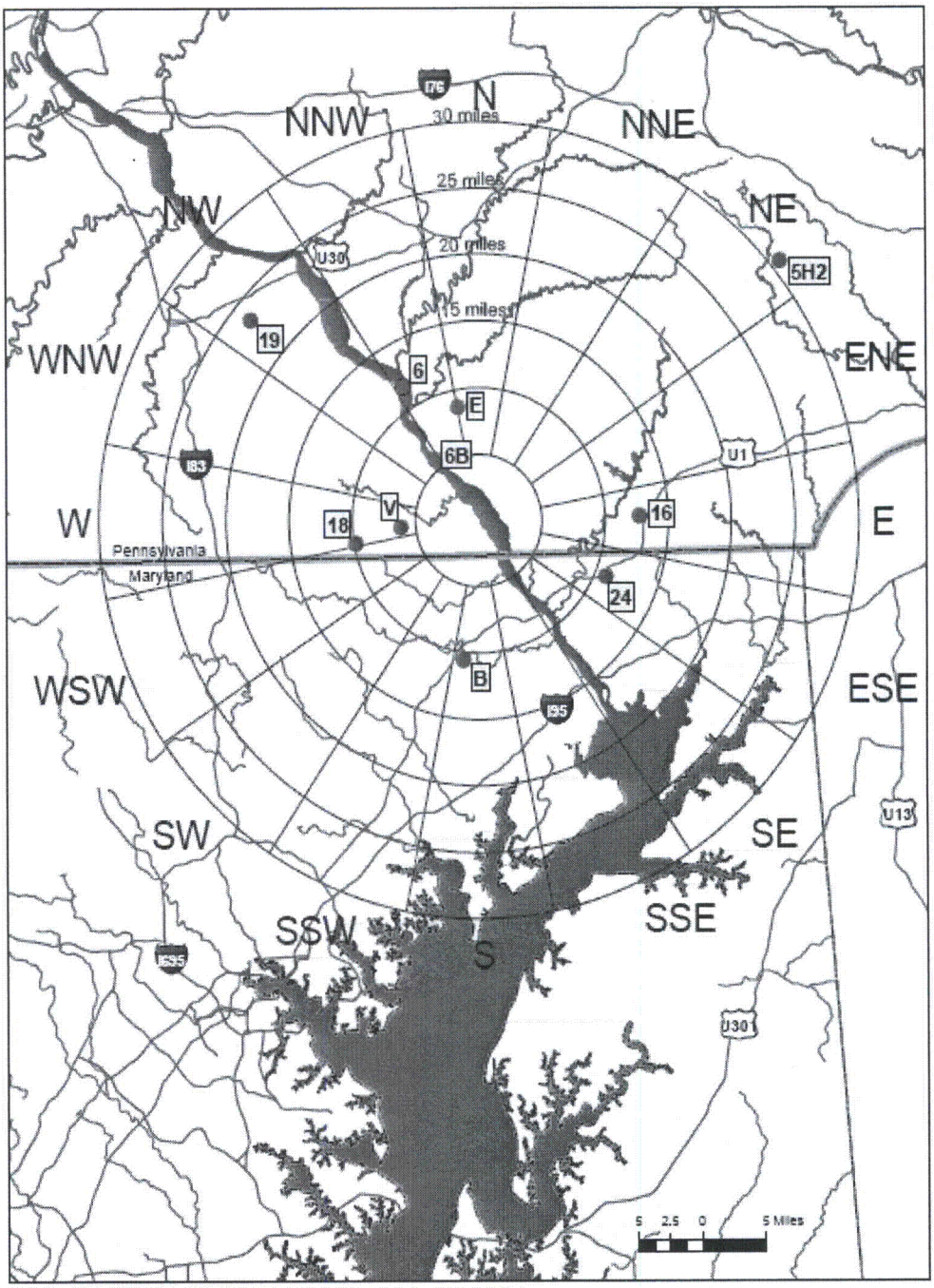


Figure B-3
Environmental Sampling Locations Greater Than
Five Miles from the Peach Bottom Atomic Power Station, 2010

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

TABLE C-I.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1LL	1MM
12/30/09 - 03/31/10	< 163	< 166
03/31/10 - 06/30/10	< 156	< 168
06/30/10 - 09/29/10	< 184	< 188
09/29/10 - 12/29/10	< 172	< 175
MEAN	-	-

TABLE C-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
1LL	12/30/09 - 01/27/10	< 7	< 7	< 11	< 8	< 12	< 7	< 12	< 12	< 6	< 7	< 35	< 10
	01/27/10 - 02/24/10	< 6	< 6	< 11	< 4	< 12	< 6	< 12	< 13	< 5	< 7	< 35	< 13
	02/24/10 - 03/31/10	< 5	< 4	< 9	< 4	< 9	< 5	< 8	< 14	< 4	< 5	< 31	< 10
	03/31/10 - 04/28/10	< 2	< 3	< 5	< 2	< 5	< 3	< 5	< 13	< 2	< 3	< 26	< 6
	04/28/10 - 06/02/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 22	< 6
	06/02/10 - 06/30/10	< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 7	< 2	< 2	< 15	< 5
	06/30/10 - 07/28/10	< 4	< 4	< 9	< 4	< 10	< 6	< 9	< 13	< 5	< 4	< 30	< 10
	07/28/10 - 09/01/10	< 2	< 4	< 9	< 4	< 6	< 4	< 5	< 12	< 4	< 4	< 25	< 9
	09/01/10 - 09/29/10	< 7	< 6	< 14	< 7	< 13	< 7	< 15	< 13	< 6	< 7	< 33	< 9
	09/29/10 - 10/27/10	< 5	< 6	< 13	< 7	< 10	< 6	< 10	< 11	< 5	< 6	< 33	< 8
	10/27/10 - 12/01/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 18	< 5
	12/01/10 - 12/29/10	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 13	< 4	< 5	< 29	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
1MM	12/30/09 - 01/27/10	< 4	< 5	< 13	< 6	< 11	< 5	< 9	< 9	< 4	< 5	< 25	< 9
	01/27/10 - 02/24/10	< 7	< 7	< 15	< 8	< 18	< 11	< 12	< 14	< 8	< 7	< 36	< 13
	02/24/10 - 03/31/10	< 5	< 5	< 12	< 5	< 9	< 6	< 9	< 14	< 5	< 5	< 36	< 14
	03/31/10 - 04/28/10	< 2	< 2	< 6	< 2	< 6	< 2	< 4	< 13	< 2	< 3	< 24	< 7
	04/28/10 - 06/02/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 15	< 2	< 2	< 25	< 7
	06/02/10 - 06/30/10	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 16	< 4
	06/30/10 - 07/28/10	< 5	< 6	< 13	< 6	< 15	< 7	< 11	< 15	< 7	< 6	< 36	< 12
	07/28/10 - 09/01/10	< 3	< 4	< 10	< 4	< 9	< 5	< 8	< 15	< 5	< 4	< 28	< 8
	09/01/10 - 09/29/10	< 6	< 7	< 10	< 5	< 11	< 6	< 12	< 14	< 6	< 7	< 30	< 8
	09/29/10 - 10/27/10	< 4	< 4	< 7	< 4	< 9	< 5	< 6	< 8	< 4	< 4	< 25	< 7
	10/27/10 - 12/01/10	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 15	< 5
	12/01/10 - 12/29/10	< 4	< 5	< 10	< 6	< 8	< 5	< 7	< 14	< 4	< 5	< 31	< 11
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.1 **CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13B	4L	6I
01/12/10 - 01/26/10	6.2 ± 1.7	3.8 ± 1.6	3.6 ± 1.6
02/03/10 - 02/22/10	2.7 ± 1.6	< 2.3	< 2.3
03/01/10 - 03/31/10	7.0 ± 2.8	< 3.3	< 3.2
04/07/10 - 04/27/10	< 2.5	< 2.5	< 2.5
05/04/10 - 06/02/10	4.0 ± 1.5	4.3 ± 1.6	2.8 ± 1.6
06/08/10 - 06/29/10	< 2.5	< 2.5	< 2.5
07/06/10 - 07/06/10	< 2.4	3.4 ± 1.8	6.3 ± 2.0
07/29/10 - 09/02/10	(1)	2.6 ± 1.7	< 2.6
09/13/10 - 09/27/10	2.5 ± 1.6	3.5 ± 1.7	3.1 ± 1.7
10/06/10 - 10/25/10	3.0 ± 1.4	3.2 ± 1.4	3.0 ± 1.4
11/01/10 - 11/22/10	2.4 ± 1.5	2.2 ± 1.5	< 2.1
12/07/10 - 12/28/10	< 3.2	< 3.2	< 3.2
MEAN	4.0 ± 3.8	3.3 ± 1.4	3.8 ± 2.9

TABLE C-II.2 **CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	13B	4L	6I
01/12/10 - 03/31/10	< 165	< 165	< 164
04/07/10 - 06/29/10	< 169	< 172	< 169
07/06/10 - 09/27/10	< 199	< 188	< 185
10/06/10 - 12/28/10	< 152	< 152	< 170
MEAN	-	-	-

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-II.3 **CONCENTRATIONS OF GAMMA EMITTER IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
13B	01/12/10 - 01/26/10	< 6	< 5	< 9	< 5	< 13	< 6	< 11	< 11	< 5	< 5	< 25	< 8
	02/03/10 - 02/22/10	< 5	< 6	< 9	< 6	< 12	< 5	< 11	< 15	< 5	< 8	< 35	< 13
	03/01/10 - 03/31/10	< 4	< 4	< 9	< 4	< 10	< 5	< 9	< 14	< 3	< 4	< 32	< 8
	04/07/10 - 04/27/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 22	< 7
	05/04/10 - 06/02/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 22	< 6
	06/08/10 - 06/29/10	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 13	< 4
	07/06/10 - 07/06/10	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 20	< 1	< 1	< 24	< 8
	08/01/10 - 08/30/10	(1)											
	09/13/10 - 09/27/10	< 6	< 6	< 9	< 6	< 15	< 8	< 9	< 14	< 6	< 7	< 35	< 9
	10/06/10 - 10/25/10	< 5	< 5	< 11	< 5	< 9	< 6	< 9	< 12	< 5	< 4	< 29	< 11
	11/01/10 - 11/22/10	< 3	< 3	< 7	< 2	< 6	< 3	< 5	< 9	< 3	< 3	< 40	< 13
	12/07/10 - 12/28/10	< 3	< 4	< 9	< 3	< 7	< 4	< 6	< 12	< 3	< 4	< 24	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
4L	12/30/09 - 01/28/10	< 7	< 6	< 13	< 5	< 16	< 7	< 11	< 12	< 9	< 7	< 34	< 8
	01/28/10 - 02/25/10	< 5	< 6	< 13	< 6	< 14	< 8	< 11	< 12	< 5	< 6	< 32	< 10
	02/25/10 - 04/01/10	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 14	< 4	< 4	< 31	< 9
	04/01/10 - 04/29/10	< 2	< 2	< 5	< 2	< 5	< 3	< 4	< 13	< 2	< 2	< 23	< 7
	04/29/10 - 06/03/10	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 7
	06/03/10 - 07/01/10	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 12	< 5
	07/01/10 - 07/29/10	< 4	< 6	< 12	< 6	< 11	< 6	< 9	< 13	< 4	< 6	< 32	< 9
	07/29/10 - 09/02/10	< 4	< 4	< 11	< 5	< 11	< 5	< 8	< 14	< 4	< 4	< 32	< 8
	09/02/10 - 09/30/10	< 8	< 7	< 12	< 8	< 18	< 8	< 14	< 14	< 9	< 8	< 34	< 15
	09/30/10 - 10/28/10	< 7	< 6	< 15	< 8	< 15	< 7	< 11	< 13	< 6	< 6	< 29	< 10
	10/28/10 - 12/02/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
	12/02/10 - 12/30/10	< 4	< 3	< 8	< 4	< 7	< 4	< 6	< 9	< 4	< 4	< 20	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-II.3 **CONCENTRATIONS OF GAMMA EMITTER IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
6I	12/30/09 - 01/28/10	< 5	< 6	< 12	< 6	< 11	< 6	< 10	< 10	< 6	< 7	< 32	< 10
	01/28/10 - 02/25/10	< 6	< 5	< 12	< 5	< 13	< 5	< 11	< 10	< 5	< 6	< 28	< 8
	02/25/10 - 4/1/2010	< 4	< 5	< 11	< 6	< 11	< 5	< 10	< 14	< 4	< 5	< 31	< 12
	04/01/10 - 04/29/10	< 2	< 3	< 4	< 4	< 5	< 2	< 6	< 11	< 2	< 3	< 16	< 8
	04/29/10 - 06/03/10	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 13	< 2	< 2	< 23	< 6
	06/03/10 - 07/01/10	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 5	< 1	< 1	< 9	< 3
	07/01/10 - 07/29/10	< 4	< 5	< 10	< 4	< 11	< 5	< 8	< 13	< 5	< 5	< 29	< 9
	07/29/10 - 09/02/10	< 5	< 5	< 10	< 4	< 8	< 5	< 10	< 13	< 4	< 5	< 32	< 9
	09/02/10 - 09/30/10	< 10	< 10	< 16	< 9	< 20	< 10	< 16	< 15	< 8	< 9	< 40	< 13
	09/30/10 - 10/28/10	< 7	< 5	< 11	< 7	< 11	< 7	< 11	< 13	< 6	< 8	< 32	< 9
	10/28/10 - 12/02/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 18	< 6
	12/02/10 - 12/30/10	< 5	< 7	< 13	< 5	< 13	< 6	< 10	< 14	< 5	< 6	< 36	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-III.1 **CONCENTRATIONS OF TRITIUM IN PRECIPITATION WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1A	1B	4M
12/30/09 - 01/28/10	< 165	< 139	< 141
01/28/10 - 02/25/10	< 190	< 165	< 169
02/25/10 - 04/01/10	< 171	< 163	< 165
04/01/10 - 04/29/10	< 176	< 169	< 167
04/29/10 - 06/03/10	< 157	< 161	< 158
06/03/10 - 07/01/10	< 158	< 157	< 159
07/01/10 - 07/29/10	< 151	< 153	< 153
07/29/10 - 09/02/10	< 175	< 175	< 173
09/02/10 - 09/30/10	< 200	< 200	< 198
09/30/10 - 10/28/10	< 171	< 168	< 170
10/28/10 - 12/02/10	< 157	< 154	< 151
12/02/10 - 12/30/10	< 175	< 173	< 173
MEAN	-	-	-

TABLE C-IV.1 **CONCENTRATIONS OF GAMMA EMITTERS IN PREDATOR & BOTTOM FEEDER (FISH) SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PC/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								
	06/09/10	1050 ± 248	< 15	< 14	< 39	< 14	< 25	< 10	< 13
	09/23/10	3470 ± 814	< 48	< 53	< 107	< 61	< 104	< 48	< 56
	MEAN	2260 ± 3422	-	-	-	-	-	-	-
4	BOTTOM FEEDER								
	06/09/10	2630 ± 744	< 48	< 51	< 85	< 29	< 102	< 35	< 49
	10/18/10	2900 ± 663	< 41	< 45	< 93	< 40	< 95	< 43	< 36
	MEAN	2765 ± 382	-	-	-	-	-	-	-
6	PREDATOR								
	06/09/10	3470 ± 814	< 47	< 47	< 110	< 50	< 97	< 45	< 46
	10/08/10	3380 ± 741	< 47	< 50	< 125	< 77	< 131	< 46	< 58
	MEAN	3425 ± 127	-	-	-	-	-	-	-
6	BOTTOM FEEDER								
	06/09/10	3390 ± 622	< 54	< 63	< 151	< 44	< 110	< 54	< 51
	10/08/10	2940 ± 930	< 52	< 43	< 149	< 68	< 80	< 44	< 57
	MEAN	3165 ± 636	-	-	-	-	-	-	-

TABLE C-V.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PC/KG DRY ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Mn-54	Co-58	Co-60	Cs-134	Cs-137	
4J	06/16/10	13400 ± 813	< 34	< 32	< 47	< 27	< 40	
	12/10/10	16300 ± 1250	< 59	< 66	< 77	< 48	< 66	
	MEAN	14850 ± 4101	-	-	-	-	-	
4T	06/16/10	18100 ± 1730	< 95	< 75	< 68	< 79	186 ± 69	(1)
	12/10/10	20100 ± 2630	< 124	< 141	< 142	< 103	139 ± 89	(1)
	MEAN	19100 ± 2828	-	-	-	-	163 ± 66	
6F	06/16/10	11200 ± 1100	< 49	< 47	< 59	< 51	< 64	
	12/10/10	15200 ± 1790	< 94	< 110	< 115	< 68	95 ± 75	(1)
	MEAN	13200 ± 5657	-	-	-	-	-	

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VI.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

COLLECTION	GROUP I			GROUP II	GROUP III
PERIOD	1B	1C	1Z	3A	5H2
12/28/09 - 01/04/10					9 ± 5
12/30/09 - 01/06/10	8 ± 5	(1)	10 ± 5	10 ± 5	
01/04/10 - 01/11/10					11 ± 5
01/06/10 - 01/14/10	19 ± 5	21 ± 6	15 ± 5	16 ± 5	
01/11/10 - 01/18/10					20 ± 5
01/14/10 - 01/21/10	29 ± 6	32 ± 6	26 ± 6	22 ± 5	
01/18/10 - 01/26/10					14 ± 5
01/21/10 - 01/28/10	20 ± 5	16 ± 5	18 ± 5	11 ± 5	
01/26/10 - 02/01/10					17 ± 6
01/28/10 - 02/04/10	21 ± 6	19 ± 6	19 ± 6	15 ± 5	
02/01/10 - 02/08/10					20 ± 5
02/04/10 - 02/13/10	16 ± 4	12 ± 4	12 ± 4	12 ± 4	
02/08/10 - 02/15/10					11 ± 4
02/13/10 - 02/18/10	17 ± 7	10 ± 6	15 ± 7	16 ± 7	
02/15/10 - 02/22/10					12 ± 4
02/18/10 - 02/25/10	10 ± 4	8 ± 4	10 ± 5	8 ± 4	
02/22/10 - 03/01/10					< 6
02/25/10 - 03/04/10	< 6	7 ± 4	7 ± 4	8 ± 4	
03/01/10 - 03/08/10					8 ± 4
03/04/10 - 03/11/10	(1)	21 ± 5	22 ± 5	17 ± 5	
03/08/10 - 03/15/10					11 ± 4
03/11/10 - 03/18/10	11 ± 5	14 ± 5	11 ± 5	13 ± 5	
03/15/10 - 03/22/10					18 ± 5
03/18/10 - 03/25/10	19 ± 5	15 ± 5	17 ± 5	18 ± 5	
03/22/10 - 03/29/10					12 ± 5
03/25/10 - 04/01/10	13 ± 5	16 ± 5	16 ± 5	13 ± 5	
03/29/10 - 04/05/10					9 ± 4
04/01/10 - 04/08/10	17 ± 5	< 6	18 ± 5	20 ± 5	
04/05/10 - 04/12/10					20 ± 5
04/08/10 - 04/15/10	10 ± 5	11 ± 5	13 ± 5	12 ± 5	
04/12/10 - 04/19/10					11 ± 4
04/15/10 - 04/22/10	11 ± 5	13 ± 5	14 ± 5	13 ± 5	
04/19/10 - 04/26/10					15 ± 5
04/22/10 - 04/29/10	12 ± 5	11 ± 5	15 ± 5	18 ± 5	
04/26/10 - 05/03/10					20 ± 4
04/29/10 - 05/06/10	22 ± 5	23 ± 5	(1)	24 ± 5	
05/03/10 - 05/10/10					16 ± 4
05/06/10 - 05/13/10	10 ± 5	10 ± 5	12 ± 5	11 ± 5	
05/10/10 - 05/17/10					8 ± 5
05/13/10 - 05/20/10	8 ± 5	7 ± 5	< 7	10 ± 5	
05/17/10 - 05/24/10					9 ± 5
05/20/10 - 05/27/10	14 ± 4	12 ± 4	13 ± 4	15 ± 4	
05/24/10 - 06/01/10					14 ± 4
05/27/10 - 06/03/10	18 ± 4	16 ± 4	16 ± 4	22 ± 4	
06/01/10 - 06/07/10					13 ± 6
06/03/10 - 06/10/10	18 ± 4	19 ± 4	24 ± 5	21 ± 4	
06/07/10 - 06/14/10					11 ± 4
06/10/10 - 06/17/10	17 ± 4	14 ± 4	16 ± 4	(1)	
06/14/10 - 06/21/10					8 ± 5
06/17/10 - 06/24/10	21 ± 5	18 ± 5	20 ± 5	12 ± 5	
06/21/10 - 06/28/10					22 ± 5
06/24/10 - 07/01/10	19 ± 6	14 ± 5	(1)	14 ± 5	
06/28/10 - 07/06/10					13 ± 4
07/01/10 - 07/08/10	25 ± 5	25 ± 4	30 ± 5	24 ± 4	
07/06/10 - 07/12/10					20 ± 5
07/08/10 - 07/15/10	12 ± 5	15 ± 5	15 ± 5	13 ± 5	

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES
(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VI.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

COLLECTION PERIOD	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2
07/12/10 - 07/19/10					21 ± 4
07/15/10 - 07/22/10	9 ± 3	7 ± 3	4 ± 3	6 ± 3	
07/19/10 - 07/26/10					18 ± 4
07/22/10 - 07/29/10	20 ± 7	14 ± 6	14 ± 6	10 ± 6	
07/26/10 - 08/02/10					12 ± 4
07/29/10 - 08/05/10	13 ± 5	12 ± 5	14 ± 5	9 ± 5	
08/02/10 - 08/09/10					18 ± 4
08/05/10 - 08/12/10	30 ± 5	25 ± 5	32 ± 5	32 ± 5	
08/09/10 - 08/16/10					27 ± 4
08/12/10 - 08/19/10	15 ± 5	14 ± 6	14 ± 5	13 ± 4	
08/16/10 - 08/23/10					31 ± 5
08/19/10 - 08/26/10	25 ± 5	(1)	21 ± 5	22 ± 5	
08/23/10 - 08/30/10					13 ± 4
08/26/10 - 09/02/10	40 ± 5	(1)	43 ± 5	(1)	
08/30/10 - 09/06/10					35 ± 6
09/02/10 - 09/09/10	28 ± 4	30 ± 4	32 ± 5	22 ± 5	
09/06/10 - 09/13/10					16 ± 5
09/09/10 - 09/16/10	14 ± 4	12 ± 4	15 ± 4	14 ± 4	
09/13/10 - 09/20/10					27 ± 4
09/16/10 - 09/23/10	25 ± 5	18 ± 5	24 ± 5	16 ± 5	
09/20/10 - 09/27/10					27 ± 5
09/23/10 - 09/30/10	15 ± 5	19 ± 5	21 ± 5	18 ± 6	
09/27/10 - 10/04/10					9 ± 4
09/30/10 - 10/07/10	9 ± 4	8 ± 4	6 ± 3	8 ± 4	
10/04/10 - 10/11/10					18 ± 4
10/07/10 - 10/14/10	28 ± 6	37 ± 6	37 ± 6	24 ± 5	
10/11/10 - 10/18/10					23 ± 4
10/14/10 - 10/21/10	17 ± 4	23 ± 4	21 ± 4	22 ± 4	
10/18/10 - 10/25/10					21 ± 4
10/21/10 - 10/28/10	15 ± 5	11 ± 4	14 ± 5	10 ± 4	
10/25/10 - 11/01/10					11 ± 4
10/28/10 - 11/04/10	14 ± 4	10 ± 4	14 ± 4	13 ± 4	
11/01/10 - 11/08/10					7 ± 4
11/04/10 - 11/11/10	13 ± 4	16 ± 5	14 ± 5	11 ± 4	
11/08/10 - 11/15/10					16 ± 4
11/11/10 - 11/18/10	24 ± 4	23 ± 4	23 ± 4	25 ± 4	
11/15/10 - 11/22/10					16 ± 5
11/18/10 - 11/25/10	20 ± 5	27 ± 5	30 ± 5	24 ± 5	
11/22/10 - 11/29/10					19 ± 4
11/25/10 - 12/02/10	22 ± 4	18 ± 4	20 ± 4	12 ± 4	
11/29/10 - 12/06/10					12 ± 4
12/02/10 - 12/09/10	19 ± 4	14 ± 4	15 ± 4	16 ± 4	
12/06/10 - 12/13/10					13 ± 4
12/09/10 - 12/16/10	17 ± 4	17 ± 4	20 ± 4	20 ± 4	
12/13/10 - 12/20/10					17 ± 5
12/16/10 - 12/22/10	33 ± 6	22 ± 6	28 ± 6	29 ± 6	
12/20/10 - 12/27/10					11 ± 4
12/22/10 - 12/30/10	12 ± 3	11 ± 3	14 ± 3	14 ± 3	
12/27/10 - 01/03/11					21 ± 5
MEAN	18 ± 14	16 ± 13	18 ± 16	16 ± 12	16 ± 12

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VI.2 MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

GROUP I - ON-SITE LOCATIONS				GROUP II - INTERMEDIATE DISTANCE LOCATIONS				GROUP III - CONTROL LOCATIONS			
COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD
12/30/09 - 01/28/10	8	32	19 ± 15	12/30/09 - 01/28/10	10	22	15 ± 11	12/28/09 - 02/01/10	9	20	14 ± 9
01/28/10 - 03/04/10	7	21	13 ± 9	01/28/10 - 03/04/10	8	16	12 ± 7	02/01/10 - 02/22/10	11	20	14 ± 10
03/04/10 - 04/01/10	11	22	16 ± 7	03/04/10 - 04/01/10	13	18	15 ± 5	03/01/10 - 03/29/10	8	18	12 ± 9
04/01/10 - 04/29/10	10	18	13 ± 5	04/01/10 - 04/29/10	12	20	15 ± 8	03/29/10 - 05/03/10	9	20	15 ± 10
04/29/10 - 06/03/10	7	23	14 ± 10	04/29/10 - 06/03/10	10	24	16 ± 13	05/03/10 - 06/01/10	8	16	12 ± 8
06/03/10 - 07/01/10	14	24	18 ± 6	06/03/10 - 07/01/10	12	21	16 ± 9	06/01/10 - 06/28/10	8	22	14 ± 12
07/01/10 - 07/29/10	4	30	16 ± 16	07/01/10 - 07/29/10	6	24	13 ± 16	06/28/10 - 08/02/10	12	21	17 ± 8
07/29/10 - 09/02/10	12	43	23 ± 21	07/29/10 - 08/26/10	9	32	19 ± 20	08/02/10 - 08/30/10	13	31	22 ± 16
09/02/10 - 09/30/10	12	32	21 ± 13	09/03/10 - 09/30/10	14	22	18 ± 6	08/30/10 - 09/27/10	16	35	26 ± 15
09/30/10 - 10/28/10	6	37	19 ± 21	09/30/10 - 10/28/10	8	24	16 ± 16	09/27/10 - 11/01/10	9	23	17 ± 13
10/28/10 - 12/02/10	10	30	19 ± 11	10/28/10 - 12/02/10	11	25	17 ± 13	11/01/10 - 11/29/10	7	19	14 ± 11
12/02/10 - 12/30/10	11	33	19 ± 13	12/02/10 - 12/30/10	14	29	20 ± 14	11/29/10 - 01/03/11	11	21	15 ± 8
12/30/09 - 12/30/10	4	43	18 ± 14	12/30/09 - 12/30/10	6	32	16 ± 12	12/28/09 - 01/03/11	7	35	16 ± 12

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

TABLE C-VI.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

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

STC	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	Cs-134	Cs-137
1B	12/30/09 - 04/01/10	117 ± 37	< 4	< 5	< 3	< 3	< 3
	04/01/10 - 07/01/10	73 ± 34	< 3	< 3	< 5	< 4	< 2
	07/01/10 - 09/30/10	88 ± 24	< 2	< 4	< 2	< 3	< 2
	09/30/10 - 12/30/10	61 ± 20	< 3	< 3	< 2	< 2	< 2
	MEAN	85 ± 48	-	-	-	-	-
1C	12/30/09 - 04/01/10	101 ± 29	< 4	< 4	< 3	< 3	< 3
	04/01/10 - 07/01/10	72 ± 26	< 3	< 3	< 3	< 3	< 3
	07/01/10 - 09/30/10	66 ± 48	< 4	< 5	< 3	< 4	< 4
	09/30/10 - 12/30/10	75 ± 25	< 2	< 2	< 2	< 2	< 2
	MEAN	79 ± 31	-	-	-	-	-
1Z	12/30/09 - 04/01/10	104 ± 28	< 4	< 4	< 3	< 3	< 4
	04/01/10 - 07/01/10	76 ± 42	< 5	< 6	< 5	< 5	< 4
	07/01/10 - 09/30/10	112 ± 32	< 3	< 5	< 3	< 4	< 3
	09/30/10 - 12/30/10	60 ± 17	< 2	< 3	< 3	< 2	< 2
	MEAN	88 ± 49	-	-	-	-	-
3A	12/30/09 - 04/01/10	74 ± 35	< 3	< 4	< 4	< 3	< 3
	04/01/10 - 07/01/10	117 ± 32	< 3	< 5	< 4	< 5	< 5
	07/01/10 - 09/30/10	83 ± 28	< 3	< 5	< 3	< 3	< 3
	09/30/10 - 12/30/10	69 ± 21	< 3	< 4	< 3	< 3	< 3
	MEAN	86 ± 44	-	-	-	-	-
5H2	12/28/09 - 03/29/10	85 ± 28	< 3	< 3	< 2	< 4	< 3
	03/29/10 - 06/28/10	80 ± 30	< 4	< 5	< 3	< 3	< 3
	06/28/10 - 09/27/10	98 ± 26	< 2	< 3	< 3	< 3	< 2
	09/27/10 - 01/03/11	56 ± 22	< 3	< 4	< 2	< 3	< 3
	MEAN	80 ± 35	-	-	-	-	-

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

COLLECTION PERIOD	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2
12/28/09 - 01/04/10					< 27
12/30/09 - 01/06/10	< 55	(1)	< 56	< 53	
01/04/10 - 01/11/10					< 23
01/06/10 - 01/14/10	< 15	< 31	< 27	< 27	
01/11/10 - 01/18/10					< 16
01/14/10 - 01/21/10	< 29	< 16	< 30	< 29	
01/18/10 - 01/26/10					< 21
01/21/10 - 01/28/10	< 46	< 46	< 47	< 46	
01/26/10 - 02/01/10					< 11
01/28/10 - 02/04/10	< 45	< 45	< 46	< 25	
02/01/10 - 02/08/10					< 12
02/04/10 - 02/13/10	< 28	< 32	< 32	< 32	
02/08/10 - 02/15/10					< 23
02/13/10 - 02/18/10	< 67	< 59	< 25	< 58	
02/15/10 - 02/22/10					< 4
02/18/10 - 02/25/10	< 31	< 31	< 17	< 31	
02/22/10 - 03/01/10					< 14
02/25/10 - 03/04/10	< 58	< 58	< 59	< 57	
03/01/10 - 03/08/10					< 17
03/04/10 - 03/11/10	(1)	< 36	< 36	< 36	
03/08/10 - 03/15/10					< 24
03/11/10 - 03/18/10	< 23	< 37	< 38	< 37	
03/12/10 - 03/18/10					< 18
03/18/10 - 03/25/10	< 39	< 22	< 40	< 39	
03/22/10 - 03/29/10					< 15
03/25/10 - 04/01/10	< 29	< 29	< 30	< 16	
03/29/10 - 04/05/10					< 21
04/01/10 - 04/08/10	< 26	< 26	< 27	< 26	
04/05/10 - 04/12/10					< 23
04/08/10 - 04/15/10	< 12	< 12	< 7	< 12	
04/12/10 - 04/19/10					< 16
04/15/10 - 04/22/10	< 44	< 44	< 44	< 43	
04/19/10 - 04/26/10					< 21
04/22/10 - 04/29/10	< 5	< 8	< 8	< 8	
04/26/10 - 05/03/10					< 14
04/29/10 - 05/06/10	< 44	< 44	(1)	< 43	
05/03/10 - 05/10/10					< 14
05/06/10 - 05/13/10	< 35	< 19	< 36	< 35	
05/10/10 - 05/17/10					< 16
05/13/10 - 05/20/10	< 35	< 35	< 36	< 35	
05/17/10 - 05/24/10					< 4
05/20/10 - 05/27/10	< 70	< 70	< 68	< 29	
05/24/10 - 06/01/10					< 35
05/27/10 - 06/03/10	< 39	< 39	< 40	< 39	
06/01/10 - 06/07/10					< 32
06/03/10 - 06/10/10	< 42	< 42	< 24	< 42	
06/07/10 - 06/14/10					< 13
06/10/10 - 06/17/10	< 42	< 42	< 42	< 42	
06/14/10 - 06/21/10					< 14
06/17/10 - 06/24/10	< 13	< 30	< 30	< 30	
06/21/10 - 06/28/10					< 27
06/24/10 - 07/01/10	< 39	< 39	(1)	< 35	
06/28/10 - 07/06/10					< 4
07/01/10 - 07/08/10	< 34	< 15	< 34	< 34	
07/06/10 - 07/12/10					< 28

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

COLLECTION PERIOD	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2
07/08/10 - 07/15/10	< 26	< 26	< 25	< 11	
07/12/10 - 07/19/10					< 11
07/15/10 - 07/22/10	< 27	< 27	< 15	< 27	
07/19/10 - 07/26/10					< 12
07/22/10 - 07/29/10	< 24	< 23	< 23	< 23	
07/26/10 - 08/02/10					< 21
07/29/10 - 08/05/10	< 17	< 30	< 30	< 30	
08/02/10 - 08/09/10					< 14
08/05/10 - 08/12/10	< 23	< 22	< 22	< 22	
08/09/10 - 08/16/10					< 25
08/12/10 - 08/19/10	< 36	< 54	< 19	< 34	
08/16/10 - 08/23/10					< 31
08/19/10 - 08/26/10	< 32	(1)	< 31	< 32	
08/23/10 - 08/30/10					< 30
08/26/10 - 09/02/10	< 17	(1)	< 39	(1)	
08/30/10 - 09/06/10					< 26
09/02/10 - 09/09/10	< 33	< 32	< 32	< 38	
09/06/10 - 09/13/10					< 41
09/09/10 - 09/16/10	< 44	< 24	< 43	< 43	
09/13/10 - 09/20/10					< 23
09/16/10 - 09/23/10	< 24	< 27	< 24	< 24	
09/20/10 - 09/27/10					< 28
09/23/10 - 09/30/10	< 29	< 29	< 29	< 18	
09/27/10 - 10/04/10					< 13
09/30/10 - 10/07/10	< 44	< 44	< 43	< 43	
10/04/10 - 10/11/10					< 17
10/07/10 - 10/14/10	< 41	< 40	< 22	< 40	
10/11/10 - 10/18/10					< 15
10/14/10 - 10/21/10	< 50	< 50	< 49	< 50	
10/18/10 - 10/25/10					< 15
10/21/10 - 10/28/10	< 23	< 53	< 53	< 53	
10/25/10 - 11/01/10					< 36
10/28/10 - 11/04/10	< 51	< 50	< 50	< 50	
11/01/10 - 11/08/10					< 25
11/04/10 - 11/11/10	< 42	< 41	< 42	< 41	
11/08/10 - 11/15/10					< 16
11/11/10 - 11/18/10	< 64	< 64	< 63	< 63	
11/15/10 - 11/22/10					< 17
11/18/10 - 11/25/10	< 67	< 66	< 66	< 66	
11/22/10 - 11/29/10					< 21
11/25/10 - 12/02/10	< 45	< 44	< 44	< 44	
11/29/10 - 12/06/10					< 13
12/02/10 - 12/09/10	< 43	< 43	< 43	< 43	
12/06/10 - 12/13/10					< 14
12/09/10 - 12/16/10	< 62	< 61	< 61	< 33	
12/13/10 - 12/20/10					< 32
12/16/10 - 12/22/10	< 57	< 57	< 31	< 55	
12/20/10 - 12/27/10					< 25
12/22/10 - 12/30/10	< 50	< 49	< 49	< 49	
12/27/10 - 01/03/11					< 19
MEAN	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VIII.1 **CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	CONTROL FARM			INDICATOR FARM							
COLLECTION PERIOD	V	C	E	U	D	J	L	P	R	S	W
01/11/10	< 0.5			< 0.6		< 0.5			< 0.4	< 0.6	
02/09/10	< 0.4	< 0.3	< 0.4	< 0.4	< 0.4	< 0.4	< 0.3	< 0.5	< 0.4	< 0.4	< 0.4
03/08/10	< 0.7			< 0.5		< 0.5			< 0.6	< 0.5	
04/05/10	< 0.7			< 0.7		< 0.6			< 0.7	< 0.7	
04/19/10	< 0.4			< 0.6		< 0.4			< 0.5	< 0.5	
05/04/10	< 0.7	< 0.7	< 0.7	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7	< 0.6	< 0.6	< 0.5
05/17/10	< 0.4			< 0.5		< 0.6			< 0.4	< 0.6	
05/31/10	< 0.6			< 0.3		< 0.4			< 0.4	< 0.4	
06/14/10	< 0.6			< 0.7		< 0.5			< 0.6	< 0.5	
06/28/10	< 0.6			< 0.8		< 0.6			< 0.7	< 0.6	
07/12/10	< 0.6			< 0.5		< 0.5			< 0.9	< 0.5	
07/26/10	< 0.6			< 0.8		< 0.7			< 0.7	< 0.7	
08/09/10	< 0.7	< 0.7	< 0.7	< 0.7	< 0.6	< 0.7	< 0.8	< 0.8	< 0.8	< 0.7	< 0.9
08/23/10	< 0.6			< 0.7		< 0.6			< 0.7	< 0.6	
09/06/10	< 0.6			< 0.8		< 0.7			< 0.7	< 0.8	
09/20/10	< 0.8			< 0.7		< 0.7			< 0.8	< 0.7	
10/04/10	< 0.8			< 0.8		< 0.7			< 0.8	< 0.7	
10/18/10	< 0.8			< 0.8		< 0.7			< 0.8	< 0.8	
11/02/10	< 0.7	< 0.9	< 0.6	< 0.7	< 0.9	< 0.6	< 0.9	< 0.7	< 0.7	< 0.6	< 0.5
11/15/10	< 0.8			< 0.8		< 0.9			< 0.8	< 0.9	
11/29/10	< 0.4			< 0.5		< 0.4			< 0.4	< 0.4	
12/13/10	< 0.7			< 0.9		< 0.7			< 0.8	< 0.7	
MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE C-VIII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
C	02/08/10	1400 ± 189	< 7	< 8	< 38	< 12
	05/04/10	1340 ± 119	< 5	< 5	< 32	< 9
	08/09/10	1320 ± 181	< 7	< 9	< 43	< 15
	11/01/10	1240 ± 115	< 5	< 5	< 28	< 7
	MEAN	1325 ± 132	-	-	-	-
D	02/09/10	1030 ± 130	< 5	< 6	< 26	< 9
	05/03/10	1210 ± 124	< 5	< 6	< 38	< 14
	08/09/10	1280 ± 170	< 7	< 6	< 36	< 13
	11/02/10	1280 ± 128	< 5	< 5	< 25	< 6
	MEAN	1200 ± 236	-	-	-	-
E	02/08/10	1450 ± 167	< 8	< 8	< 38	< 12
	05/03/10	1300 ± 122	< 4	< 5	< 42	< 10
	08/09/10	1370 ± 164	< 6	< 8	< 33	< 8
	11/01/10	1260 ± 100	< 4	< 4	< 19	< 6
	MEAN	1345 ± 167	-	-	-	-
J	01/11/10	1200 ± 115	< 3	< 3	< 22	< 7
	02/08/10	1240 ± 144	< 5	< 7	< 34	< 9
	03/08/10	1560 ± 143	< 8	< 8	< 35	< 11
	04/05/10	1300 ± 137	< 4	< 6	< 41	< 13
	04/19/10	1290 ± 95	< 4	< 4	< 47	< 12
	05/03/10	1350 ± 104	< 6	< 6	< 44	< 13
	05/17/10	1290 ± 154	< 6	< 8	< 37	< 11
	05/31/10	1330 ± 55	< 1	< 1	< 16	< 3
	06/14/10	1380 ± 118	< 5	< 6	< 25	< 9
	06/28/10	1340 ± 175	< 7	< 8	< 28	< 7
	07/12/10	1360 ± 172	< 6	< 7	< 30	< 7
	07/26/10	1220 ± 124	< 7	< 8	< 30	< 6
	08/09/10	1210 ± 125	< 5	< 5	< 27	< 7
	08/23/10	1250 ± 140	< 6	< 6	< 34	< 12
	09/06/10	1140 ± 141	< 6	< 7	< 34	< 9
	09/20/10	1200 ± 134	< 5	< 6	< 41	< 10
	10/04/10	1050 ± 103	< 5	< 6	< 26	< 4
	10/18/10	1230 ± 161	< 6	< 7	< 42	< 14
	11/01/10	1320 ± 105	< 5	< 5	< 28	< 9
	11/15/10	1350 ± 109	< 4	< 5	< 30	< 8
	11/29/10	1260 ± 143	< 7	< 8	< 40	< 12
	12/13/10	1310 ± 96	< 4	< 5	< 32	< 10
	MEAN	1281 ± 201	-	-	-	-
L	02/08/10	1270 ± 174	< 7	< 7	< 37	< 12
	05/03/10	1140 ± 129	< 5	< 5	< 39	< 10
	08/09/10	1060 ± 143	< 4	< 7	< 31	< 7
	11/01/10	1320 ± 123	< 5	< 6	< 28	< 9
	MEAN	1198 ± 238	-	-	-	-

TABLE C-VIII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
P	02/08/10	1390 ± 175	< 6	< 8	< 38	< 11
	05/03/10	1160 ± 82	< 3	< 3	< 32	< 9
	08/09/10	1110 ± 160	< 6	< 7	< 32	< 11
	11/01/10	1290 ± 124	< 5	< 6	< 23	< 8
	MEAN	1238 ± 254	-	-	-	-
R	01/11/10	1410 ± 130	< 3	< 3	< 21	< 9
	02/08/10	1270 ± 161	< 6	< 7	< 32	< 8
	03/08/10	1240 ± 146	< 7	< 7	< 30	< 9
	04/05/10	1270 ± 110	< 4	< 5	< 28	< 8
	04/19/10	1290 ± 50	< 2	< 2	< 23	< 6
	05/03/10	1250 ± 103	< 4	< 5	< 39	< 12
	05/17/10	1450 ± 124	< 8	< 8	< 42	< 10
	05/31/10	1310 ± 44	< 2	< 2	< 19	< 5
	06/14/10	1270 ± 102	< 6	< 6	< 30	< 7
	06/28/10	1250 ± 155	< 9	< 10	< 39	< 10
	07/12/10	1320 ± 178	< 7	< 9	< 31	< 10
	07/26/10	1340 ± 161	< 9	< 9	< 39	< 10
	08/09/10	1260 ± 128	< 5	< 5	< 25	< 7
	08/23/10	1120 ± 126	< 5	< 6	< 29	< 9
	09/06/10	1230 ± 149	< 6	< 7	< 36	< 11
	09/20/10	1200 ± 108	< 4	< 5	< 32	< 9
	10/04/10	1420 ± 147	< 5	< 7	< 26	< 7
	10/18/10	1470 ± 164	< 6	< 7	< 38	< 14
	11/01/10	1250 ± 87	< 4	< 4	< 20	< 7
	11/15/10	1380 ± 112	< 4	< 5	< 33	< 11
	11/29/10	1250 ± 124	< 5	< 5	< 26	< 7
	12/13/10	1320 ± 113	< 4	< 5	< 38	< 9
	MEAN	1299 ± 170	-	-	-	-

TABLE C-VIII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
S	01/11/10	1300 ± 119	< 4	< 5	< 34	< 4
	02/08/10	1300 ± 176	< 7	< 9	< 44	< 13
	03/08/10	1220 ± 126	< 5	< 5	< 24	< 6
	04/05/10	1370 ± 132	< 5	< 6	< 37	< 10
	04/19/10	1390 ± 83	< 4	< 4	< 47	< 11
	05/03/10	1330 ± 164	< 6	< 6	< 54	< 13
	05/17/10	1330 ± 189	< 6	< 9	< 48	< 9
	05/31/10	1370 ± 55	< 2	< 2	< 25	< 8
	06/14/10	1420 ± 103	< 4	< 5	< 21	< 6
	06/28/10	1490 ± 180	< 8	< 8	< 28	< 8
	07/12/10	1360 ± 174	< 7	< 7	< 30	< 9
	07/26/10	1160 ± 133	< 4	< 5	< 24	< 6
	08/09/10	1030 ± 194	< 7	< 9	< 42	< 13
	08/23/10	1270 ± 152	< 4	< 5	< 30	< 8
	09/06/10	1170 ± 163	< 6	< 7	< 41	< 13
	09/20/10	1280 ± 160	< 7	< 7	< 54	< 14
	10/04/10	1250 ± 148	< 6	< 6	< 23	< 6
	10/18/10	1230 ± 134	< 6	< 7	< 39	< 9
	11/01/10	1100 ± 104	< 4	< 5	< 24	< 8
	11/15/10	1390 ± 110	< 4	< 4	< 34	< 11
	11/29/10	1440 ± 139	< 5	< 5	< 30	< 11
	12/13/10	1340 ± 107	< 4	< 5	< 39	< 12
	MEAN	1297 ± 226	-	-	-	-
U	01/11/10	1240 ± 113	< 2	< 3	< 20	< 6
	02/08/10	1090 ± 104	< 3	< 4	< 18	< 4
	03/08/10	1360 ± 165	< 6	< 8	< 28	< 8
	04/05/10	1300 ± 100	< 4	< 4	< 26	< 9
	04/19/10	1260 ± 43	< 3	< 2	< 26	< 8
	05/03/10	1370 ± 115	< 4	< 4	< 38	< 14
	05/17/10	1200 ± 106	< 3	< 5	< 24	< 6
	05/31/10	1320 ± 48	< 2	< 3	< 28	< 7
	06/14/10	1380 ± 116	< 4	< 5	< 22	< 5
	06/28/10	1420 ± 197	< 6	< 8	< 28	< 8
	07/12/10	1280 ± 125	< 5	< 5	< 18	< 4
	07/26/10	1440 ± 138	< 6	< 7	< 28	< 9
	08/09/10	1360 ± 159	< 7	< 8	< 42	< 9
	08/23/10	1230 ± 138	< 5	< 5	< 28	< 9
	09/06/10	1230 ± 156	< 6	< 8	< 35	< 6
	09/20/10	1440 ± 138	< 5	< 6	< 42	< 10
	10/04/10	1370 ± 139	< 5	< 6	< 26	< 7
	10/18/10	1290 ± 158	< 7	< 8	< 39	< 6
	11/01/10	1260 ± 128	< 4	< 6	< 27	< 8
	11/15/10	1500 ± 121	< 5	< 6	< 35	< 11
	11/29/10	1180 ± 135	< 5	< 7	< 31	< 11
	12/13/10	1220 ± 108	< 4	< 5	< 33	< 11
	MEAN	1306 ± 199	-	-	-	-

TABLE C-VIII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	K-40	Cs-134	Cs-137	Ba-140	La-140
V	01/11/10	1320 ± 130	< 3	< 3	< 25	< 9
	02/08/10	1420 ± 127	< 7	< 7	< 32	< 9
	03/08/10	1250 ± 107	< 3	< 4	< 18	< 6
	04/05/10	1180 ± 117	< 5	< 5	< 35	< 11
	04/19/10	1350 ± 49	< 3	< 3	< 30	< 8
	05/03/10	1310 ± 119	< 4	< 5	< 41	< 13
	05/17/10	1250 ± 164	< 7	< 7	< 41	< 14
	05/31/10	1390 ± 55	< 2	< 2	< 26	< 6
	06/14/10	1440 ± 131	< 5	< 5	< 26	< 8
	06/28/10	1450 ± 193	< 9	< 10	< 40	< 7
	07/12/10	1520 ± 213	< 10	< 10	< 38	< 11
	07/26/10	1300 ± 155	< 6	< 6	< 29	< 9
	08/09/10	1420 ± 131	< 5	< 6	< 30	< 8
	08/23/10	1190 ± 125	< 4	< 5	< 28	< 8
	09/06/10	1520 ± 158	< 5	< 7	< 35	< 6
	09/20/10	1280 ± 131	< 5	< 5	< 34	< 12
	10/04/10	1430 ± 140	< 6	< 7	< 25	< 7
	10/18/10	1390 ± 174	< 7	< 7	< 46	< 10
	11/01/10	1360 ± 113	< 4	< 4	< 24	< 4
	11/15/10	1420 ± 103	< 4	< 5	< 33	< 7
	11/29/10	1320 ± 157	< 6	< 6	< 30	< 11
	12/13/10	1350 ± 118	< 5	< 5	< 39	< 12
	MEAN	1357 ± 187	-	-	-	-
W	02/09/10	1290 ± 126	< 5	< 5	< 23	< 8
	05/04/10	1300 ± 128	< 4	< 5	< 39	< 11
	08/09/10	1240 ± 124	< 4	< 5	< 25	< 8
	11/01/10	1300 ± 129	< 5	< 6	< 27	< 8
	MEAN	1283 ± 57	-	-	-	-

TABLE C-IX.1 **CONCENTRATIONS OF GAMMA EMITTERS IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	I-131	Cs-134	Cs-137
1Q								
Green Cabbage Head	06/28/10	< 137	< 13	< 15	< 15	< 19	< 14	< 15
Red Cabbage Head & Leaves	06/28/10	< 268	< 28	< 28	< 29	< 40	< 29	< 32
Green Cabbage	07/26/10	144 ± 72	< 16	< 15	< 17	< 28	< 23	< 17
Swiss Chard	07/26/10	368 ± 53	< 5	< 5	< 6	< 10	< 5	< 6
Turnip Greens	07/26/10	950 ± 156	< 22	< 22	< 22	< 43	< 26	< 25
Green Cabbage	08/23/10	< 150	< 13	< 15	< 15	< 29	< 12	< 15
Red Cabbage	08/23/10	441 ± 179	< 33	< 31	< 28	< 56	< 38	< 29
Zucchini Leaves	08/23/10	1650 ± 300	< 25	< 26	< 26	< 58	< 35	< 28
Cabbage	09/20/10	182 ± 108	< 6	< 6	< 6	< 43	< 5	< 7
Chinese Cabbage	09/20/10	250 ± 92	< 6	< 7	< 7	< 41	< 6	< 6
Red Cabbage	09/20/10	209 ± 150	< 7	< 8	< 7	< 56	< 7	< 9
	MEAN	524 ± 1046	-	-	-	-	-	-
2B								
Green Cabbage Head & Leaves	06/28/10	< 187	< 24	< 19	< 26	< 35	< 26	< 25
Leaf Lettuce	06/28/10	< 165	< 20	< 17	< 22	< 34	< 17	< 22
Pak Choi Leaves	06/28/10	< 174	< 17	< 18	< 20	< 30	< 16	< 16
Green Cabbage	07/26/10	42 ± 33	< 4	< 4	< 5	< 8	< 4	< 5
Leaf Lettuce	07/26/10	133 ± 14	< 2	< 2	< 2	< 2	< 2	< 1
Red Cabbage	07/26/10	< 171	< 17	< 18	< 18	< 31	< 19	< 19
Leaf Lettuce	08/23/10	190 ± 59	< 6	< 6	< 7	< 13	< 7	< 7
Pak Choi	08/23/10	320 ± 146	< 14	< 15	< 17	< 29	< 13	< 15
Red Cabbage	08/23/10	< 194	< 22	< 23	< 24	< 46	< 24	< 24
Pak Choi	09/20/10	297 ± 115	< 5	< 7	< 7	< 44	< 5	< 6
Pepper Leaves	09/20/10	747 ± 92	< 9	< 11	< 14	< 57	< 8	< 9
Red Cabbage	09/20/10	94 ± 55	< 5	< 6	< 7	< 41	< 5	< 6
	MEAN	260 ± 475	-	-	-	-	-	-

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

TABLE C-IX.1

CONCENTRATIONS OF GAMMA EMITTERS IN FOOD PRODUCT SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

STC	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	I-131	Cs-134	Cs-137
55								
Leaf Lettuce (Round)	05/27/10	< 109	< 11	< 12	< 11	< 50	< 11	< 10
Leaf Lettuce (Serrated)	05/27/10	< 90	< 8	< 9	< 8	< 43	< 8	< 10
Red Beet Leaves	05/27/10	125 ± 97	< 11	< 13	< 14	< 59	< 11	< 12
Broccoli Leaves	06/28/10	< 184	< 21	< 20	< 23	< 37	< 21	< 20
Green Cabbage Head	06/28/10	< 219	< 29	< 27	< 39	< 39	< 21	< 28
Leaf Lettuce	06/28/10	< 288	< 31	< 28	< 33	< 49	< 27	< 32
Green Cabbage	07/26/10	725 ± 242	< 18	< 18	< 18	< 36	< 17	< 19
Leaf Lettuce	07/26/10	154 ± 89	< 13	< 13	< 15	< 22	< 13	< 14
Turnip Greens	07/26/10	< 107	< 11	< 12	< 10	< 24	< 12	< 12
Chinese Cabbage	08/23/10	499 ± 162	< 19	< 21	< 18	< 32	< 17	< 19
Pumpkin Leaves	08/23/10	1150 ± 173	< 16	< 19	< 16	< 33	< 17	< 17
Turnip Greens	08/23/10	517 ± 133	< 13	< 12	< 12	< 20	< 10	< 11
Cabbage	09/20/10	140 ± 75	< 7	< 8	< 8	< 53	< 6	< 7
Chinese Cabbage	09/20/10	177 ± 52	< 5	< 6	< 6	< 42	< 5	< 5
Lettuce	09/20/10	166 ± 86	< 7	< 8	< 8	< 56	< 6	< 7
	MEAN	406 ± 707	-	-	-	-	-	-

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

TABLE C-X.1 QUARTERLY TLD RESULTS FOR PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH ± STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
2	5.4 ± 1.1	4.8 ± 0.7	5.5 ± 0.8	6.1 ± 0.7	5.2 ± 1.0
5	5.2 ± 0.9	4.6 ± 0.2	5.2 ± 0.2	5.7 ± 0.7	5.2 ± 1.0
14	5.2 ± 1.1	4.8 ± 0.3	5.1 ± 0.4	6.0 ± 0.8	5.0 ± 0.7
15	5.6 ± 1.4	5.0 ± 0.5	5.4 ± 0.4	6.6 ± 0.7	5.3 ± 0.7
16	5.5 ± 1.1	4.9 ± 0.4	5.5 ± 0.2	6.2 ± 0.4	5.5 ± 0.5
17	6.3 ± 0.9	5.8 ± 0.5	6.0 ± 0.6	6.8 ± 0.7	6.5 ± 0.5
18	5.6 ± 1.0	5.0 ± 0.3	5.4 ± 0.3	6.2 ± 0.5	5.8 ± 1.2
19	5.2 ± 0.9	4.7 ± 0.4	5.1 ± 0.9	5.8 ± 0.5	5.1 ± 0.8
1A	5.4 ± 0.4	5.3 ± 0.6	5.4 ± 0.3	5.7 ± 1.0	5.2 ± 0.5
1B	4.7 ± 1.1	4.0 ± 0.2	4.7 ± 0.2	5.4 ± 0.9	4.7 ± 0.4
1C	5.6 ± 1.2	4.8 ± 0.2	5.7 ± 0.6	6.3 ± 0.7	5.4 ± 0.4
1D	5.6 ± 1.2	5.0 ± 0.6	5.6 ± 0.6	6.4 ± 1.0	5.3 ± 0.5
1E	5.0 ± 1.3	4.4 ± 0.5	4.5 ± 0.4	5.8 ± 0.7	5.1 ± 0.8
1F	6.5 ± 0.9	6.0 ± 0.5	6.4 ± 0.3	7.1 ± 0.8	6.3 ± 0.8
1G	4.0 ± 0.5	3.7 ± 0.2	4.1 ± 0.6	4.3 ± 0.8	3.9 ± 0.5
1H	5.5 ± 1.2	4.9 ± 0.7	5.5 ± 0.6	6.3 ± 0.8	5.2 ± 0.5
1I	4.7 ± 0.7	4.5 ± 0.6	4.9 ± 0.5	5.0 ± 1.0	4.2 ± 0.7
1J	6.5 ± 1.5	5.6 ± 0.2	6.6 ± 0.7	7.4 ± 0.9	6.3 ± 1.0
1K	6.3 ± 1.5	5.4 ± 0.4	6.3 ± 0.5	7.2 ± 1.1	6.3 ± 1.1
1L	4.6 ± 0.8	4.2 ± 0.5	5.1 ± 0.6	4.7 ± 0.3	4.5 ± 0.5
1M	3.0 ± 0.6	2.8 ± 0.5	3.0 ± 0.4	3.4 ± 0.7	2.8 ± 0.5
1P	3.7 ± 0.5	3.6 ± 1.1	3.4 ± 0.3	4.0 ± 0.6	3.6 ± 0.3
1Q	4.4 ± 0.5	4.1 ± 0.4	4.3 ± 0.4	4.7 ± 0.7	4.3 ± 0.3
1R	7.6 ± 1.6	6.7 ± 0.4	7.7 ± 0.6	8.6 ± 1.1	7.4 ± 1.0
22	6.1 ± 0.6	(1)	6.0 ± 0.4	6.4 ± 0.7	5.8 ± 0.6
23	6.0 ± 1.3	5.5 ± 0.5	5.6 ± 0.3	6.9 ± 0.9	5.9 ± 0.8
24	4.4 ± 1.0	3.9 ± 0.4	4.5 ± 0.5	5.0 ± 0.8	4.1 ± 0.2
26	6.3 ± 1.0	5.7 ± 0.5	6.1 ± 0.7	6.8 ± 0.6	6.5 ± 0.9
27	5.7 ± 0.8	5.4 ± 0.5	5.5 ± 0.4	6.3 ± 0.5	5.6 ± 1.2
2B	5.1 ± 0.8	4.7 ± 0.5	4.9 ± 0.6	5.6 ± 0.5	5.1 ± 0.7
32	6.1 ± 1.7	5.2 ± 0.6	5.7 ± 0.4	7.2 ± 0.5	6.3 ± 0.8
3A	3.8 ± 0.7	3.7 ± 0.4	3.8 ± 0.2	4.3 ± 0.6	3.5 ± 0.3
40	6.6 ± 1.6	5.5 ± 0.7	6.8 ± 0.4	7.4 ± 0.9	6.6 ± 0.8
42	4.6 ± 0.8	4.4 ± 0.2	4.7 ± 0.4	5.1 ± 0.3	4.2 ± 0.7
43	6.2 ± 1.4	5.4 ± 0.2	6.1 ± 0.7	7.1 ± 0.6	6.1 ± 1.0
44	5.1 ± 1.3	4.5 ± 0.5	5.0 ± 0.6	6.0 ± 0.9	5.0 ± 0.5
45	6.0 ± 1.0	5.4 ± 0.4	6.0 ± 0.8	6.6 ± 0.6	5.9 ± 0.6
46	4.9 ± 0.8	4.4 ± 0.6	5.0 ± 0.4	5.3 ± 0.8	4.7 ± 0.5
47	6.4 ± 2.3	5.3 ± 0.4	6.2 ± 0.4	8.0 ± 1.8	6.0 ± 1.2
48	5.7 ± 1.1	5.2 ± 0.4	5.7 ± 0.6	6.3 ± 0.5	(1)
49	5.4 ± 0.8	5.1 ± 0.8	5.2 ± 0.4	6.0 ± 0.8	5.4 ± 0.7
4K	3.2 ± 0.6	3.1 ± 0.3	3.0 ± 0.2	3.6 ± 0.3	3.0 ± 0.3
50	7.9 ± 6.2	5.6 ± 0.4	12.3 ± 2.5	7.8 ± 1.1	5.9 ± 0.5
51	5.7 ± 1.0	5.1 ± 0.8	5.8 ± 0.1	6.3 ± 1.0	5.5 ± 0.8
6B	4.4 ± 0.4	4.4 ± 0.7	4.2 ± 0.5	4.7 ± 0.6	4.4 ± 0.8
1NN	5.8 ± 0.8	5.5 ± 0.4	5.7 ± 0.3	6.4 ± 0.7	5.7 ± 0.7
31A	4.3 ± 0.8	4.1 ± 0.5	4.1 ± 0.1	4.9 ± 0.3	4.1 ± 0.4

(1) SEE PROGRAM EXCEPTIOINS SECTION FOR EXPLANATION

TABLE C-X.2 **MEAN QUARTERLY TLD RESULTS FOR THE SITE BOUNDARY, INTERMEDIATE AND CONTROL LOCATIONS FOR PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF MILLI-ROENTGEN/MONTH ± 2 STANDARD DEVIATIONS OF THE STATION DATA

COLLECTION PERIOD	SITE BOUNDARY ± 2 S.D.	INTERMEDIATE	CONTROL
JAN-MAR	4.8 ± 1.8	4.9 ± 1.4	4.6 ± 1.0
APR-JUN	5.3 ± 2.3	5.6 ± 3.4	5.1 ± 0.9
JUL-SEP	5.9 ± 2.6	6.1 ± 2.2	5.8 ± 1.1
OCT-DEC	5.2 ± 2.2	5.3 ± 1.9	5.1 ± 1.5

TABLE C-X.3 **SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF MILLI-ROENTGEN/STD. MONTH

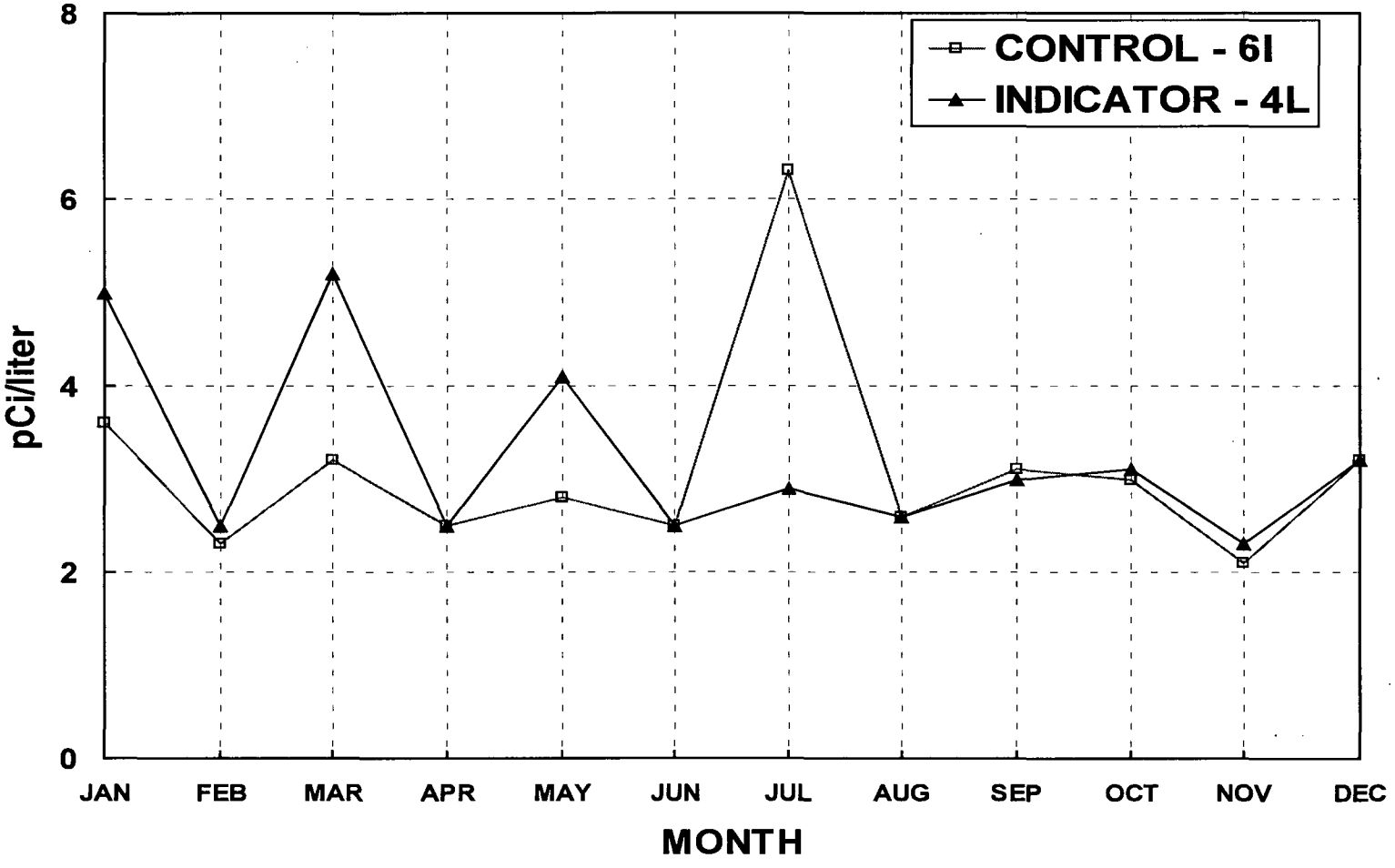
LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
SITE BOUNDARY	80	2.8	8.6	5.3 ± 2.4
INTERMEDIATE	90	3.0	12.3	5.5 ± 2.5
CONTROL	16	3.9	6.2	5.2 ± 1.3

SITE BOUNDARY STATIONS - 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1NN, 1P, 1Q, 1R, 2, 2B, 40

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

CONTROL STATIONS - 16, 18, 19, 24

FIGURE C-1
MONTHLY TOTAL GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 2010



PBAPS changed to total gross beta at the beginning of 2005.
Previous data included summation of less than values.

FIGURE C-2
MEAN ANNUAL CS-137 CONCENTRATIONS IN FISH SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 – 2010

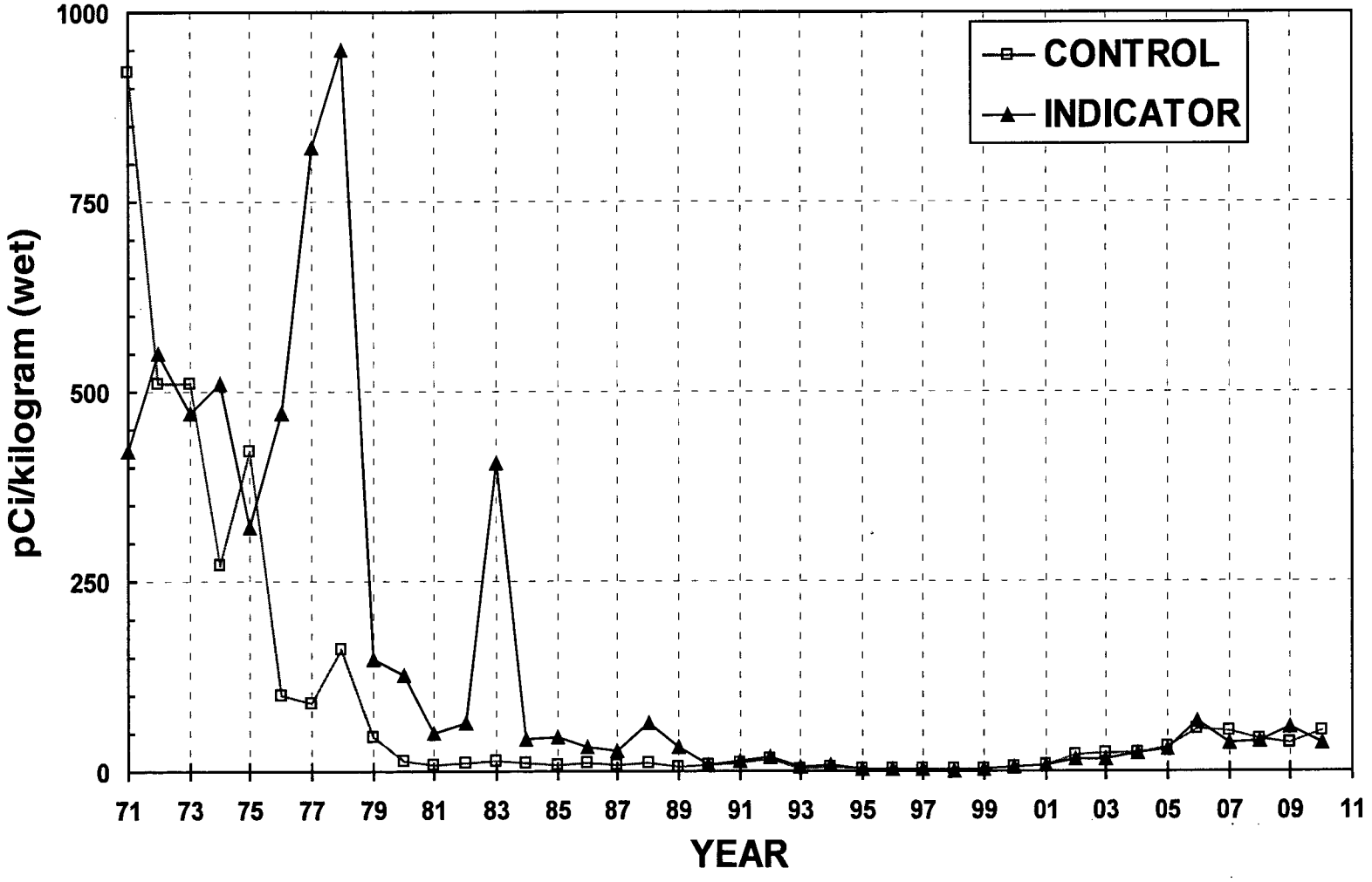
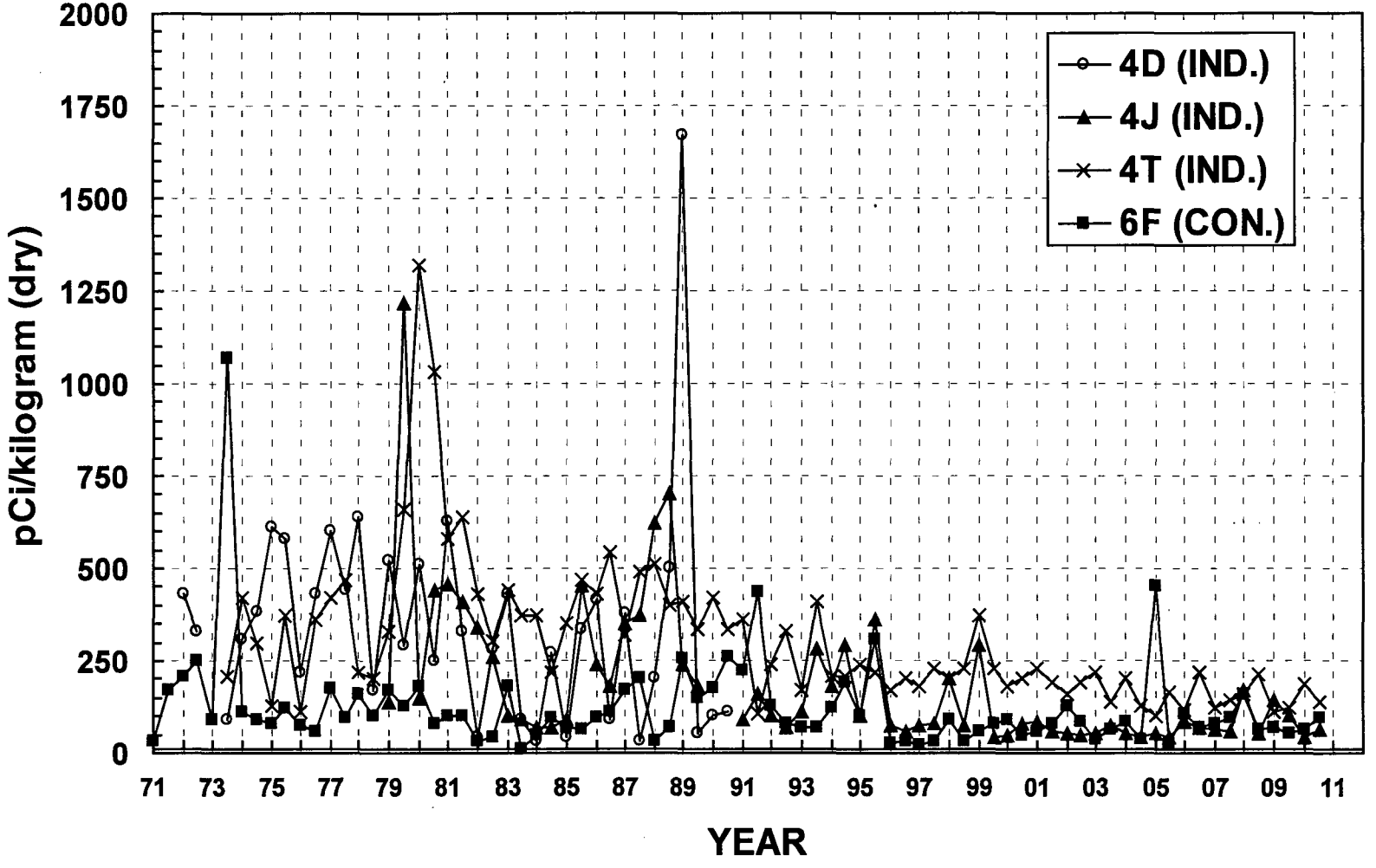


FIGURE C-3
MEAN SEMI-ANNUAL CS-137 CONCENTRATIONS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 – 2010



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

FIGURE C-4
MEAN WEEKLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 2010

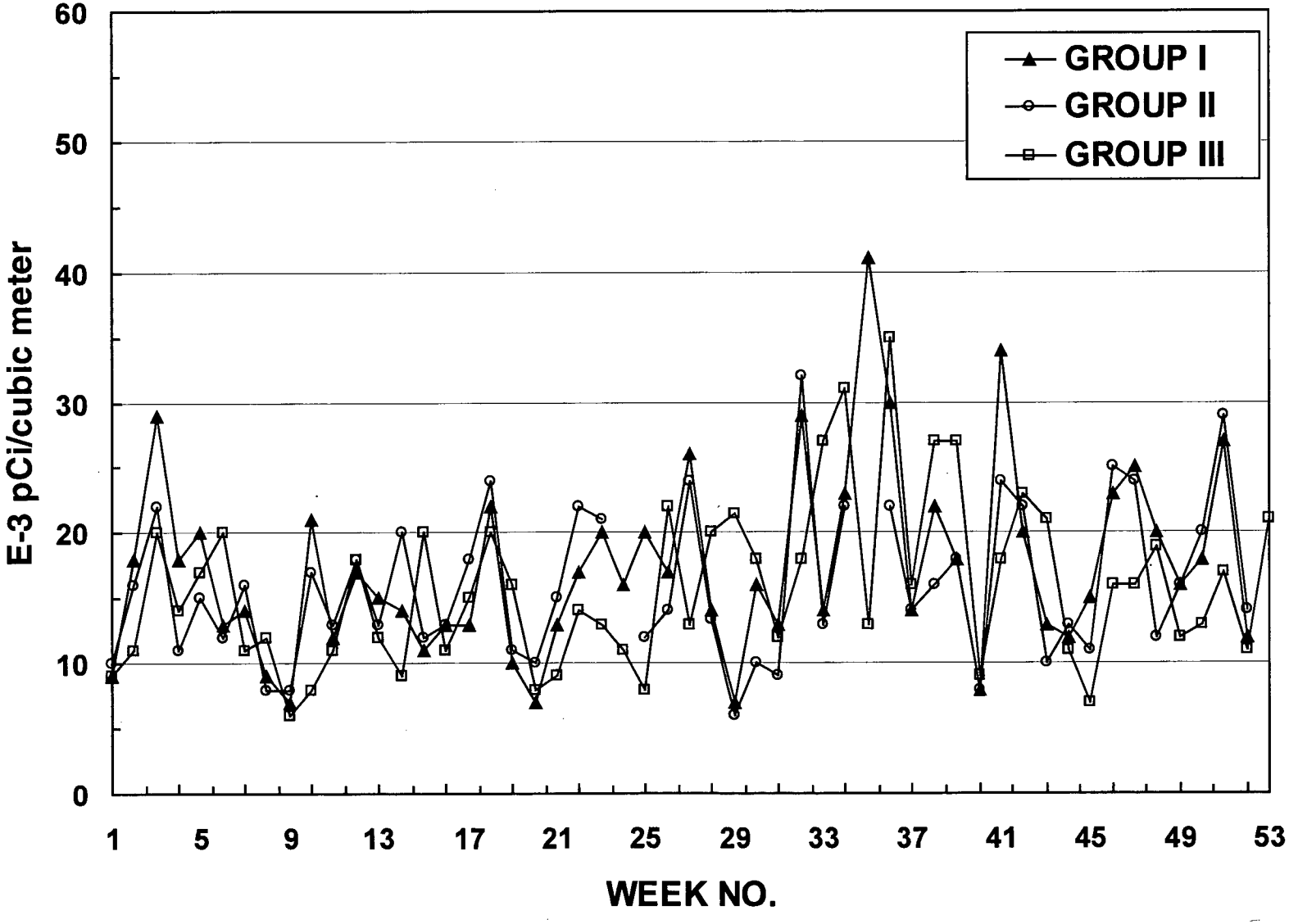


FIGURE C-5
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1970 – 2010

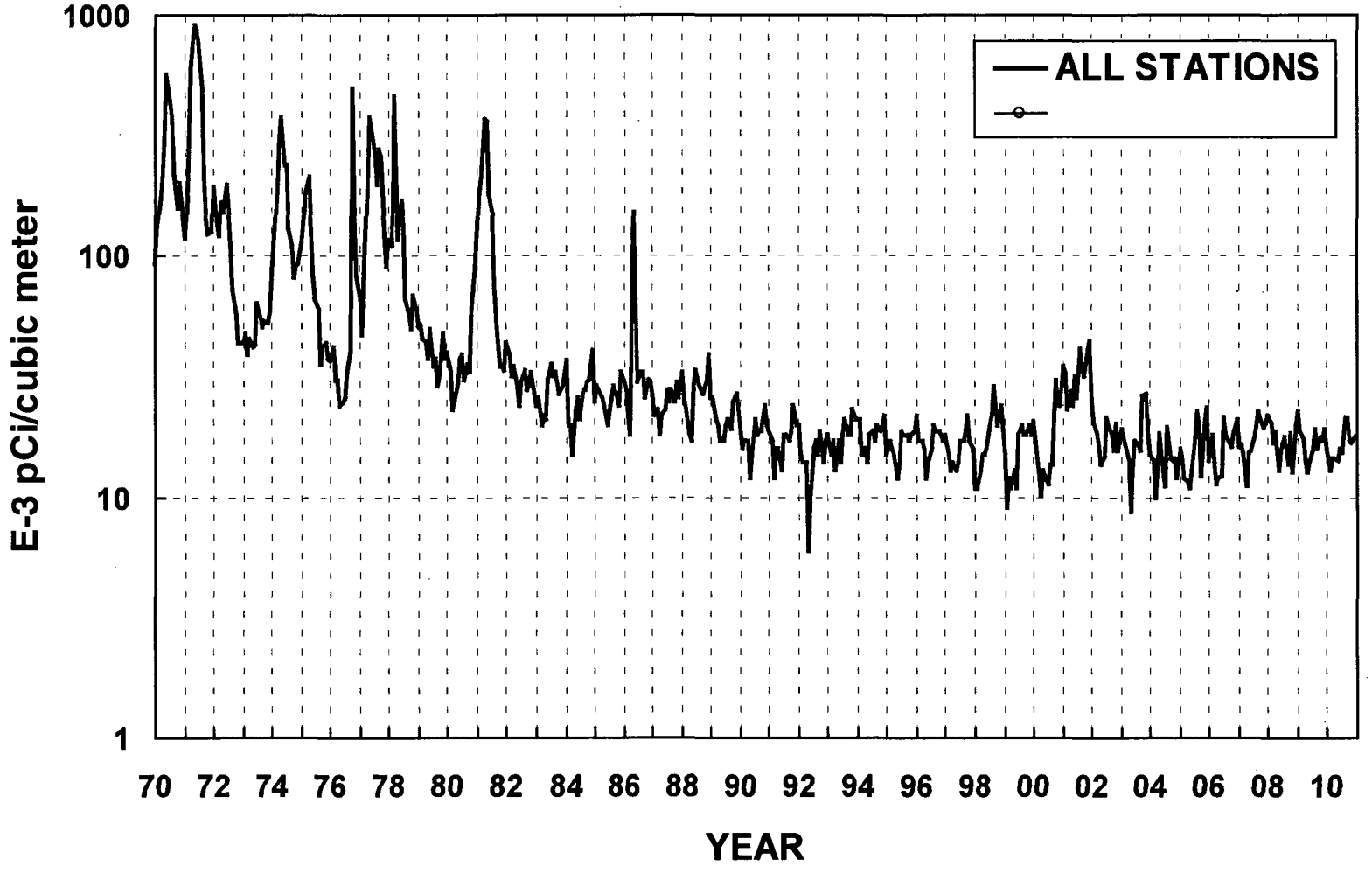
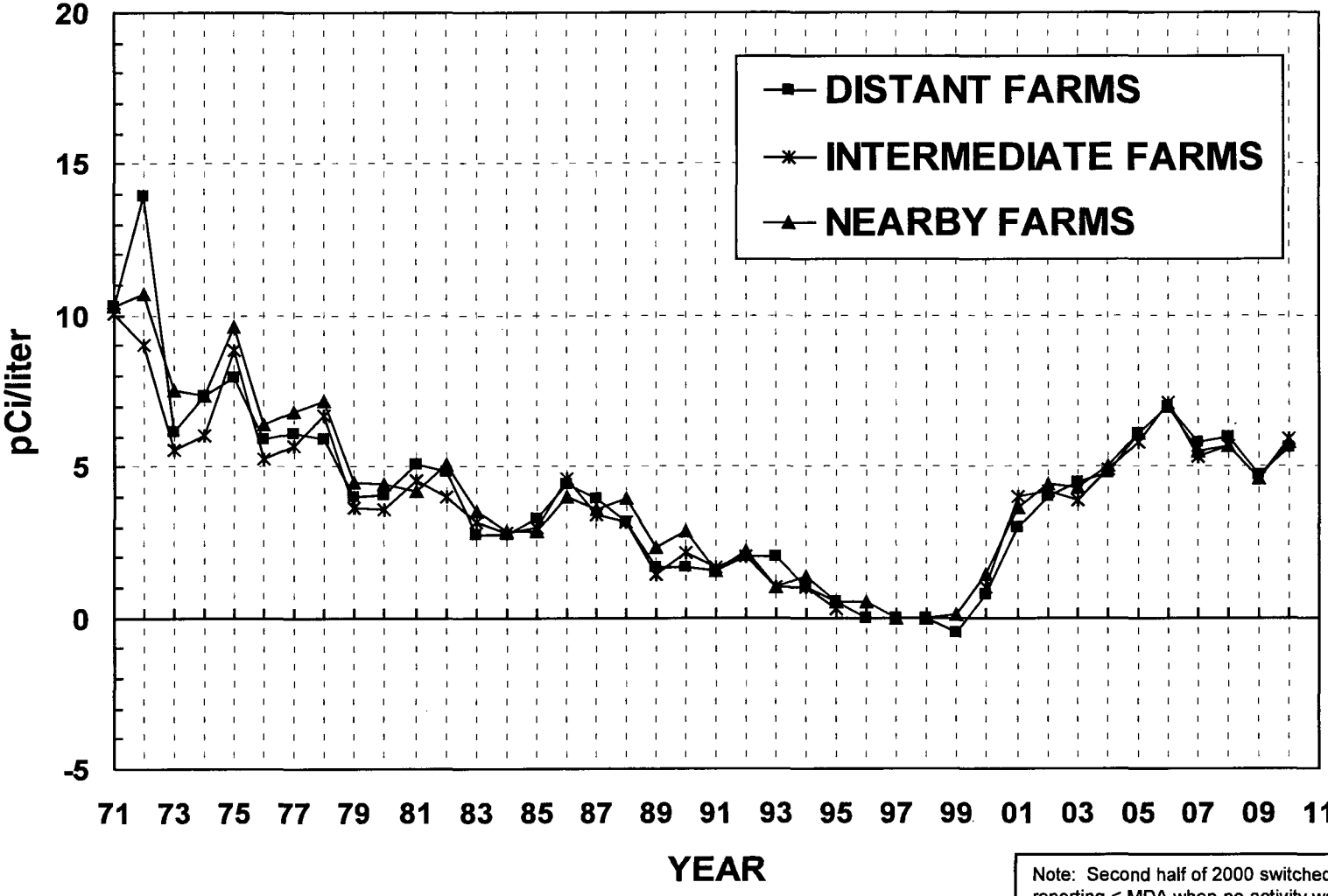


FIGURE C-6
MEAN ANNUAL CS-137 CONCENTRATIONS IN MILK SAMPLES COLLECTED IN THE VICINITY OF PBAPS, 1971 - 2010



Intermediate Farms Discontinued from 1995 - 1999
Cs-137 milk LLD = 18 pCi/liter

Note: Second half of 2000 switched to reporting < MDA when no activity was detected. Using MDA values result in a larger number.

FIGURE C- 7
MEAN QUARTERLY AMBIENT GAMMA RADIATION LEVELS (TLD) IN THE VICINITY OF PBAPS, 1973 – 2010

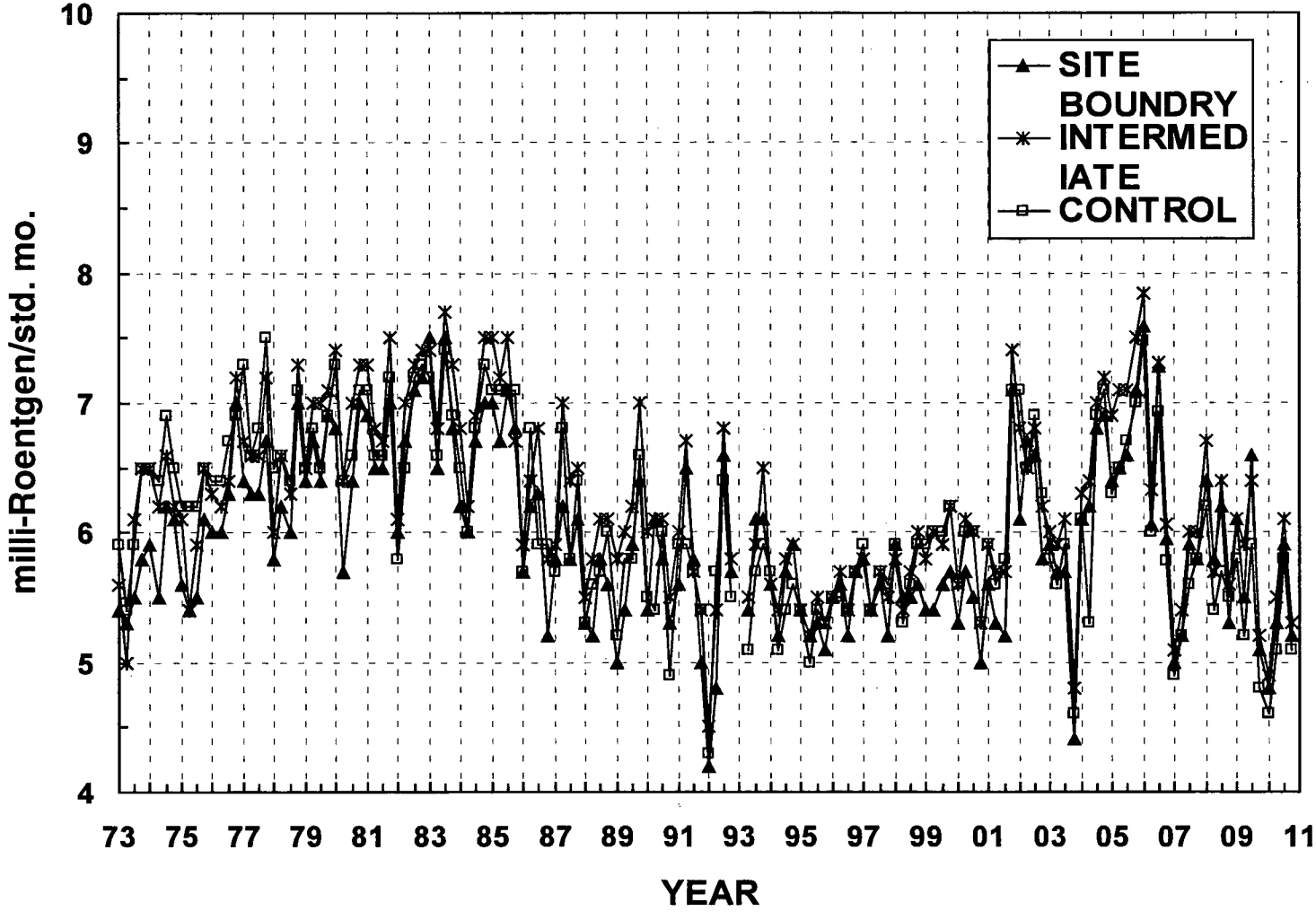
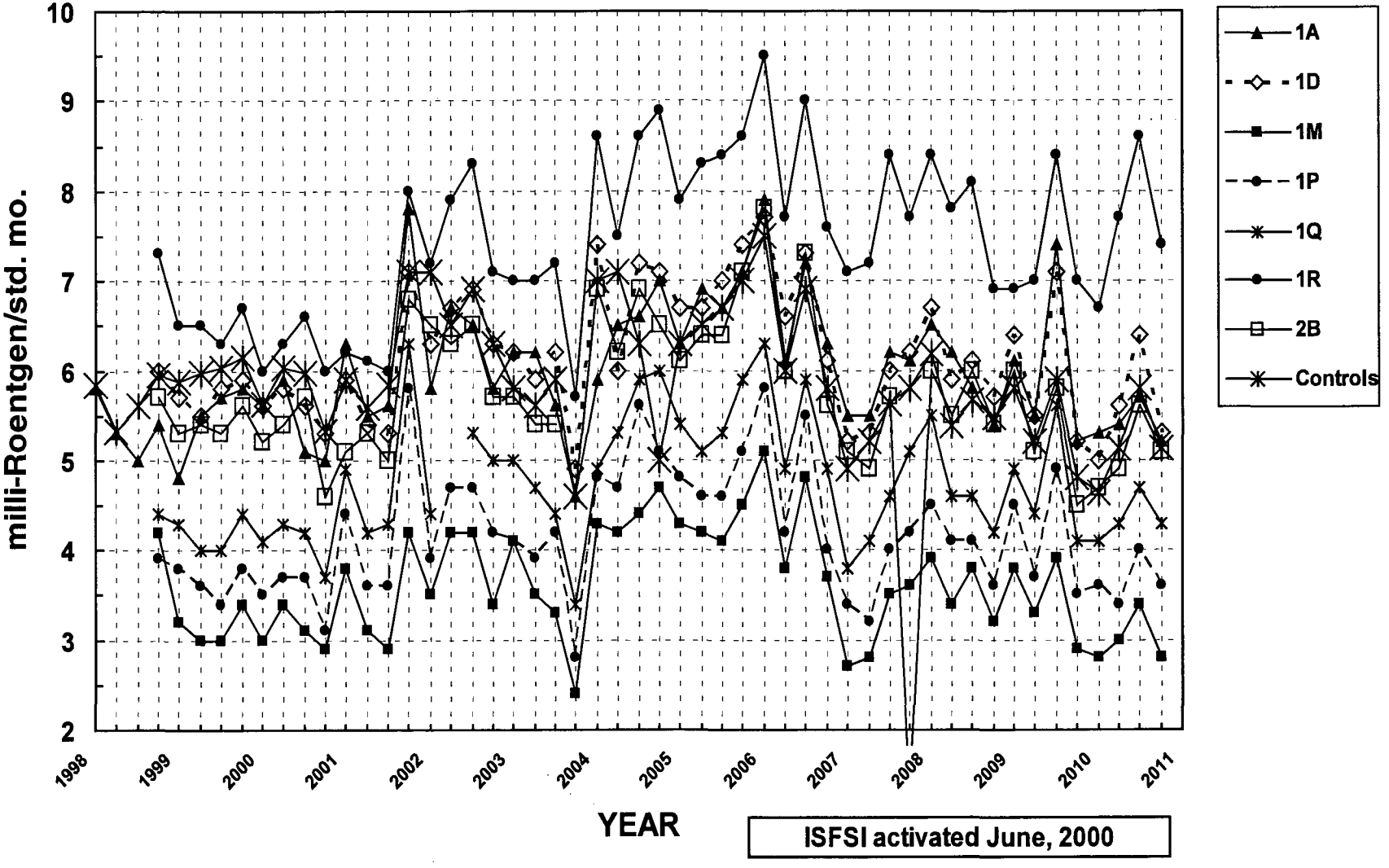


FIGURE C-8
QUARTERLY AMBIENT GAMMA RADIATION LEVELS (TLD) NEAR THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION LOCATED AT PBAPS, 1998 – 2010



APPENDIX D

DATA TABLES AND FIGURES
QC LABORATORY

TABLE D-I.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L
JAN	< 1.9
FEB	< 2.0
MAR	< 0.9
APR	< 0.8
MAY	< 2.1
JUN	< 1.8
JUL	< 2.1
AUG	< 1.2
SEP	< 1.8
OCT	< 2.1
NOV	< 1.8
DEC	< 1.3
MEAN	-

TABLE D-I.2 CONCENTRATIONS OF GROSS BETA SOLUBLE IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L
JAN	1.9 ± 1.0
FEB	< 1.9
MAR	0.9 ± 0.4
APR	< 0.8
MAY	< 1.8
JUN	< 1.9
JUL	3.0 ± 1.0
AUG	2.3 ± 0.6
SEP	2.6 ± 1.1
OCT	2.6 ± 1.0
NOV	2.9 ± 1.1
DEC	< 1.3
MEAN	2.3 ± 1.4

TABLE D-I.3 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	4L
JAN-MAR	< 142
APR-JUN	< 167
JUL-SEP	< 160
OCT-DEC	< 143

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING THE POSITIVE VALUES

TABLE D-I.4 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95	Nb-95	Cs-134	Cs-137	Ba-140	La-140
4L	JAN	< 2	< 2	< 3	< 1	< 3	< 6	< 4	< 4	< 3	< 8	< 2
	FEB	< 4	< 3	< 7	< 2	< 5	< 5	< 3	< 3	< 3	< 18	< 5
	MAR	< 2	< 3	< 6	< 2	< 5	< 3	< 2	< 4	< 4	< 21	< 3
	APR	< 3	< 2	< 9	< 3	< 7	< 5.8	< 2	< 3	< 3	< 22	< 3
	MAY	< 2	< 3	< 5	< 2	< 4	< 4.2	< 3	< 2	< 3	< 22	< 3
	JUN	< 3	< 3	< 8	< 2	< 4	< 3.8	< 3	< 2	< 2	< 27	< 7
	JUL	< 2	< 2	< 5	< 3	< 6	< 4.3	< 2	< 3	< 3	< 19	< 3
	AUG	< 2	< 1	< 4	< 2	< 4	< 4	< 2	< 3	< 2	< 27	< 5
	SEP	< 3	< 2	< 5	< 3	< 7	< 5.2	< 3	< 4	< 2	< 12	< 2
	OCT	< 1	< 1	< 4	< 1	< 2	< 1.8	< 2	< 1	< 1	< 18	< 3
	NOV	< 4	< 4	< 6	< 3	< 4	< 5.9	< 3	< 2	< 2	< 18	< 3
	DEC	< 2	< 1	< 5	< 3	< 5	< 3.3	< 2	< 3	< 2	< 13	< 3
	MEAN	-	-	-	-	-	-	-	-	-		-

TABLE D-II.1 CONCENTRATIONS OF GROSS BETA INSOLUBLE IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

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

COLLECTION PERIOD	1A
1	17 ± 4
2	20 ± 4
3	37 ± 5
4	28 ± 4
5	24 ± 4
6	18 ± 3
7	19 ± 5
8	16 ± 4
9	10 ± 3
10	33 ± 5
11	17 ± 4
12	26 ± 4
13	15 ± 4
14	28 ± 4
15	20 ± 4
16	20 ± 4
17	17 ± 4
18	30 ± 4
19	19 ± 4
20	15 ± 4
21	23 ± 4
22	25 ± 4
23	20 ± 4
24	20 ± 4
25	26 ± 4
26	(1)
27	37 ± 4
28	20 ± 4
29	34 ± 4
30	31 ± 4
31	19 ± 4
32	40 ± 4
33	53 ± 5
34	42 ± 4
35	45 ± 5
36	35 ± 4
37	19 ± 4
38	31 ± 4
39	28 ± 4
40	10 ± 3
41	37 ± 4
42	30 ± 4
43	26 ± 4
44	15 ± 4
45	14 ± 3
46	40 ± 4
47	32 ± 4
48	27 ± 4
49	20 ± 4
50	23 ± 4
51	31 ± 5
52	14 ± 3
MEAN	25 ± 19

TABLE D-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

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

STC	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	Cs-134	Cs-137
1A	12/30/09 - 04/01/10	80 ± 16	< 0.6	< 0.3	< 0.5	< 0.9	< 0.6
	04/01/10 - 07/01/10	88 ± 16	< 1.0	< 0.9	< 0.9	< 0.9	< 0.6
	07/01/10 - 09/30/10	85 ± 13	< 0.6	< 0.6	< 0.4	< 0.7	< 0.6
	09/30/10 - 12/30/10	78 ± 16	< 0.7	< 0.7	< 0.4	< 0.9	< 0.6
	MEAN*	83 ± 9	-	-	-	-	-

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, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

STC	COLLECTION PERIOD	I-131	K-40	Cs-134	Cs-137	Ba-140	La-140
J	02/08/10	< 0.4	1461 ± 111	< 3	< 4	< 12	< 2
	05/03/10	< 0.3	1344 ± 112	< 4	< 4	< 13	< 2
	08/09/10	< 0.2	1324 ± 108	< 3	< 3	< 27	< 2
	11/01/10	< 0.3	1298 ± 114	< 5	< 2	< 23	< 2
	MEAN	-	1357 ± 144				
S	02/08/10	< 0.3	1381 ± 106	< 4	< 2	< 13	< 2
	05/03/10	< 0.4	1385 ± 111	< 3	< 4	< 13	< 2
	08/09/10	< 0.3	1395 ± 106	< 4	< 3	< 23	< 4
	11/01/10	< 0.3	1275 ± 113	< 4	< 4	< 28	< 3
	MEAN	-	1359 ± 112				
V	02/08/10	< 0.3	1413 ± 108	< 3	< 3	< 27	< 2
	05/03/10	< 0.3	1400 ± 109	< 3	< 3	< 12	< 2
	08/09/10	< 0.3	1540 ± 113	< 4	< 4	< 29	< 5
	11/01/10	< 0.3	1386 ± 112	< 3	< 3	< 17	< 2
	MEAN	-	1435 ± 142				

TABLE D-IV.1 SUMMARY OF COLLECTION DATES FOR SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

DRINKING WATER (GROSS BETA & GAMMA SPECTROSCOPY)

COLLECTION PERIOD	4L
JAN	01/12/10 - 01/28/10
FEB	01/28/10 - 02/25/10
MAR	02/25/10 - 04/01/10
APR	04/01/10 - 04/29/10
MAY	04/29/10 - 06/03/10
JUN	06/03/10 - 07/01/10
JUL	07/01/10 - 07/29/10
AUG	07/29/10 - 09/02/10
SEP	09/02/10 - 09/30/10
OCT	09/30/10 - 10/28/10
NOV	10/28/10 - 12/02/10
DEC	12/02/10 - 12/30/10

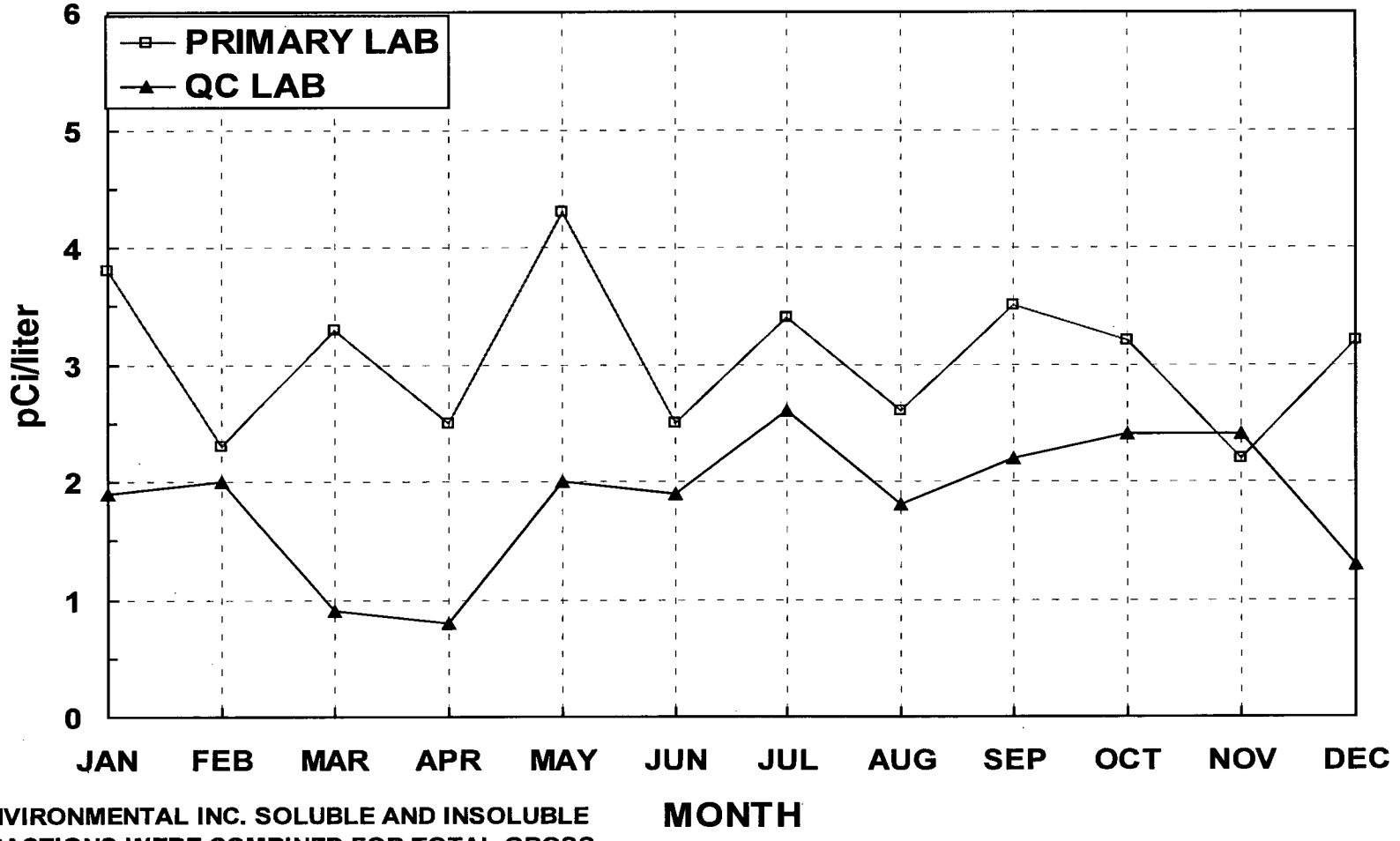
AIR PARTICULATE (GAMMA SPECTROSCOPY)

COLLECTION PERIOD	1A
JAN-MAR	12/30/09 - 04/01/10
APR-JUN	04/01/10 - 07/01/10
JUL-SEP	07/01/10 - 09/30/10
OCT-DEC	09/30/10 - 12/30/10

AIR PARTICULATE (GROSS BETA)

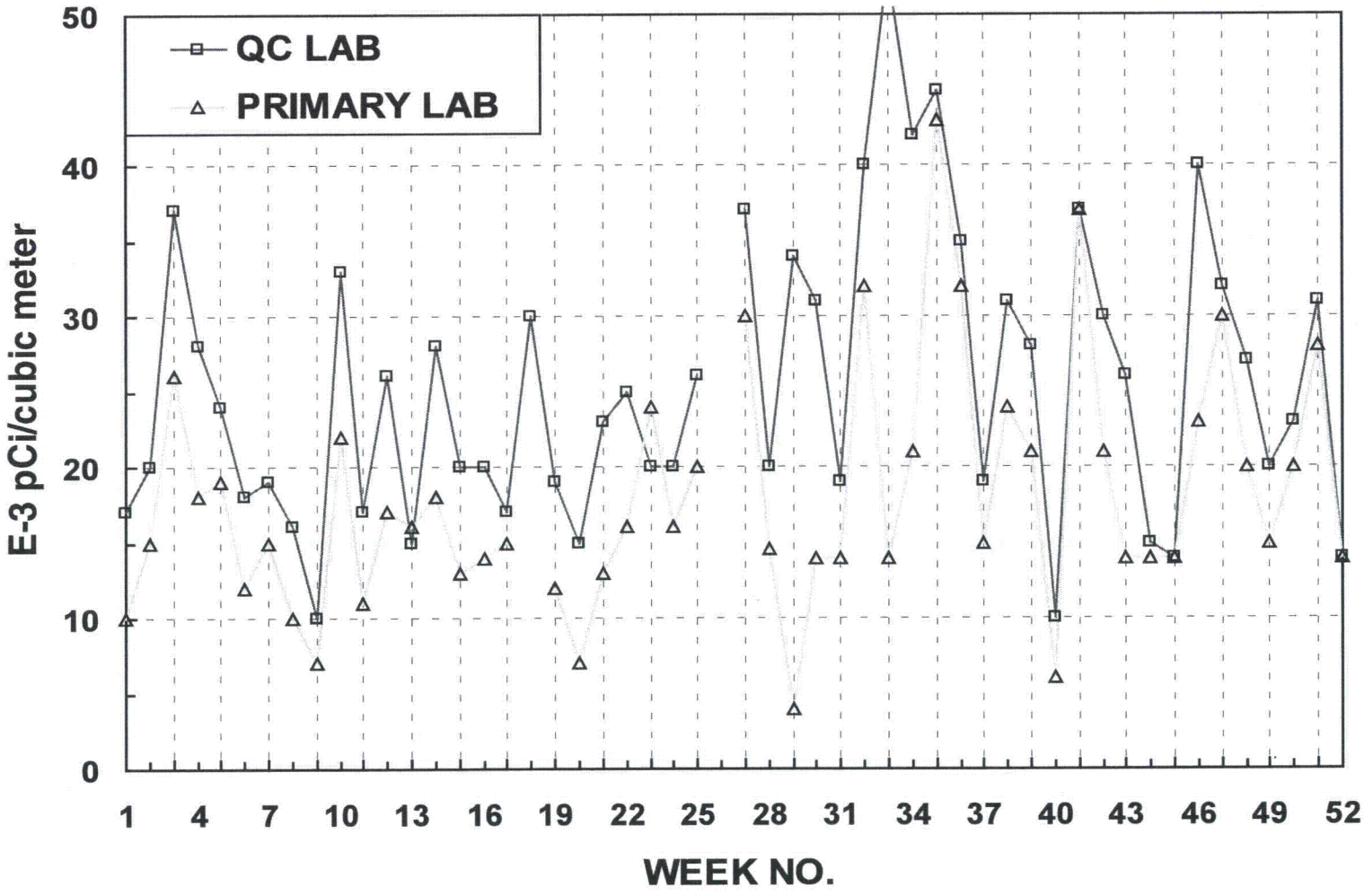
COLLECTION PERIOD	1A	COLLECTION PERIOD	1A
1	12/30/09 - 01/06/10	27	07/01/10 - 07/08/10
2	01/06/10 - 01/14/10	28	07/08/10 - 07/15/10
3	01/14/10 - 01/21/10	29	07/15/10 - 07/22/10
4	01/21/10 - 01/28/10	30	07/22/10 - 07/29/10
5	01/28/10 - 02/04/10	31	07/29/10 - 08/05/10
6	02/04/10 - 02/13/10	32	08/05/10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

FIGURE D-1
COMPARISON OF MONTHLY TOTAL GROSS BETA CONCENTRATIONS IN DRINKING WATER SAMPLES SPLIT BETWEEN THE PRIMARY AND QC LABORATORIES, 2010



ENVIRONMENTAL INC. SOLUBLE AND INSOLUBLE FRACTIONS WERE COMBINED FOR TOTAL GROSS BETA COMPARISON.

FIGURE D-2
COMPARISON OF WEEKLY GROSS BETA CONCENTRATIONS FROM COLLOCATED AIR PARTICULATE LOCATIONS SPLIT BETWEEN THE PRIMARY AND QC LABORATORIES, 2010



APPENDIX E

QUALITY CONTROL INTER-LABORATORY COMPARISON PROGRAM

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2010	E6978-396	Milk	Sr-89	pCi/L	89.3	92.8	0.96	A
			Sr-90	pCi/L	13.8	12.7	1.09	A
	E6979-396	Milk	I-131	pCi/L	65.2	74.0	0.88	A
			Ce-141	pCi/L	241	261	0.92	A
			Cr-51	pCi/L	388	361	1.07	A
			Cs-134	pCi/L	157	178	0.88	A
			Cs-137	pCi/L	150	158	0.95	A
			Co-58	pCi/L	143	143	1.00	A
			Mn-54	pCi/L	202	207	0.98	A
			Fe-59	pCi/L	146	137	1.07	A
			Zn-65	pCi/L	247	254	0.97	A
			Co-60	pCi/L	177	183	0.97	A
	E6981-396	AP	Ce-141	pCi	211	185	1.14	A
			Cr-51	pCi	304	255	1.19	A
			Cs-134	pCi	142	125	1.14	A
			Cs-137	pCi	131	111	1.18	A
			Co-58	pCi	119	101	1.18	A
			Mn-54	pCi	162	146	1.11	A
			Fe-59	pCi	110	97	1.14	A
			Zn-65	pCi	217	179	1.21	W
			Co-60	pCi	145	129	1.12	A
	E6980-396	Charcoal	I-131	pCi	80.2	85.6	0.94	A
June 2010	E7132-396	Milk	Sr-89	pCi/L	82.0	93.4	0.88	A
			Sr-90	pCi/L	15.8	16.7	0.95	A
	E7133-396	Milk	I-131	pCi/L	83.5	96.9	0.86	A
			Ce-141	pCi/L	107	110	0.97	A
			Cr-51	pCi/L	325	339	0.96	A
			Cs-134	pCi/L	114	126	0.90	A
			Cs-137	pCi/L	144	150	0.96	A
			Co-58	pCi/L	92.3	101	0.91	A
			Mn-54	pCi/L	165	169	0.98	A
			Fe-59	pCi/L	121	119	1.02	A
			Zn-65	pCi/L	197	206	0.96	A
			Co-60	pCi/L	190	197	0.96	A
	E7135-396	AP	Ce-141	pCi	88.4	91.6	0.97	A
			Cr-51	pCi	292	282	1.04	A
			Cs-134	pCi	101	105	0.96	A
			Cs-137	pCi	132	125	1.06	A
			Co-58	pCi	87.3	84.0	1.04	A
			Mn-54	pCi	150	140	1.07	A
			Fe-59	pCi	105	98.6	1.06	A
			Zn-65	pCi	168	171	0.98	A
			Co-60	pCi	170	163	1.04	A
	E7134-396	Charcoal	I-131	pCi	76.4	79.9	0.96	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September 2010	E7229-396	Milk	Sr-89	pCi/L	85.0	92.8	0.92	A
			Sr-90	pCi/L	12.6	14.7	0.86	A
	E7230-396	Milk	I-131	pCi/L	80.2	94.1	0.85	A
			Ce-141	pCi/L	130	130	1.00	A
			Cr-51	pCi/L	235	234	1.00	A
			Cs-134	pCi/L	83.2	93.0	0.89	A
			Cs-137	pCi/L	95.1	94.5	1.01	A
			Co-58	pCi/L	77.3	73.7	1.05	A
			Mn-54	pCi/L	121	119	1.02	A
			Fe-59	pCi/L	96.4	91.1	1.06	A
			Zn-65	pCi/L	216	204	1.06	A
			Co-60	pCi/L	172	171	1.01	A
	E7232-396	AP	Ce-141	pCi	122	119	1.03	A
			Cr-51	pCi	228	214	1.07	A
			Cs-134	pCi	79.9	85.3	0.94	A
			Cs-137	pCi	93.8	86.7	1.08	A
			Co-58	pCi	71.5	67.6	1.06	A
			Mn-54	pCi	113	110	1.03	A
			Fe-59	pCi	73.8	83.6	0.88	A
			Zn-65	pCi	186	187	0.99	A
			Co-60	pCi	163	157	1.04	A
	E7231-396	Charcoal	I-131	pCi/L	62.3	59.9	1.04	A
December 2010	E7375-396	Milk	Sr-89	pCi/L	92.7	98.0	0.95	A
			Sr-90	pCi/L	13.5	13.5	1.00	A
	E7376-396	Milk	I-131	pCi/L	87.9	96.9	0.91	A
			Ce-141	pCi/L	not provided by Analytics for this study			
			Cr-51	pCi/L	389	456	0.85	A
			Cs-134	pCi/L	137	157	0.87	A
			Cs-137	pCi/L	172	186	0.92	A
			Co-58	pCi/L	84.3	90.2	0.93	A
			Mn-54	pCi/L	120	120	1.00	A
			Fe-59	pCi/L	134	131	1.02	A
			Zn-65	pCi/L	162	174	0.93	A
			Co-60	pCi/L	284	301	0.94	A
	E7378-396	AP	Ce-141	pCi	not provided by Analytics for this study			
			Cr-51	pCi	387	365	1.06	A
			Cs-134	pCi	135	126	1.07	A
			Cs-137	pCi	157	149	1.05	A
			Co-58	pCi	73.6	72.3	1.02	A
			Mn-54	pCi	88.7	96	0.92	A
			Fe-59	pCi	127	105	1.21	W
			Zn-65	pCi	151	139	1.09	A
			Co-60	pCi	249	241	1.03	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2010	E7377-396	Charcoal	I-131	pCi	79.6	84.2	0.95	A

(a) Teledyne Brown Engineering reported result.

(b) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(c) Ratio of Teledyne Brown Engineering to Analytics results.

(d) Analytics evaluation based on TBE internal QC limits: A= Acceptable. Reported result falls within ratio limits of 0.80-1.20. W-Acceptable with warning. Reported result falls within 0.70-0.80 or 1.20-1.30. N = Not Acceptable. Reported result falls outside the ratio limits of < 0.70 and > 1.30.

TABLE E-2 **ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Control Limits	Evaluation (c)
May 2010	RAD-81	Water	Sr-89	pCi/L	64.4	60.4	48.6 - 68.2	A
			Sr-90	pCi/L	37.8	41.3	30.4 - 47.4	A
			Ba-133	pCi/L	66.4	65.9	54.9 - 72.5	A
			Cs-134	pCi/L	66.43	71.6	58.4 - 78.8	A
			Cs-137	pCi/L	137.33	146	131 - 163	A
			Co-60	pCi/L	83.33	84.5	76.0 - 95.3	A
			Zn-65	pCi/L	177	186	167 - 219	A
			Gr-A	pCi/L	26.37	32.9	16.9 - 42.6	A
			Gr-B	pCi/L	28.77	37.5	24.7 - 45.0	A
			I-131	pCi/L	26.27	26.4	21.9 - 31.1	A
			H-3	pCi/L	12967	12400	10800 - 13600	A
November 2010	RAD-83	Water	Sr-89	pCi/L	77.8	68.5	55.8 - 76.7	N (1)
			Sr-90	pCi/L	39.3	43.0	31.7 - 49.3	A
			Ba-133	pCi/L	70.3	68.9	57.5 - 75.8	A
			Cs-134	pCi/L	39.9	43.2	34.5 - 47.5	A
			Cs-137	pCi/L	117	123	111 - 138	A
			Co-60	pCi/L	53.5	53.4	48.1 - 61.3	A
			Zn-65	pCi/L	11.0	102	91.8 - 122	N (2)
			Gr-A	pCi/L	35.1	42.3	21.9 - 53.7	A
			Gr-B	pCi/L	35.5	36.6	24.0 - 44.2	A
			I-131	pCi/L	27.9	27.5	22.9 - 32.3	A
			H-3	pCi/L	13233	12900	11200 - 14200	A

(1) Sr-89 TBE to known ratio of 1.14 fell within acceptable range of ± 20%. No action required. NCR 10-09

(2) Zn-65 result of 111 was incorrectly reported as 11.0. No action required. NCR 10-09

(a) Teledyne Brown Engineering reported result.

(b) The ERA known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(c) ERA evaluation: A=acceptable. W=Reported result falls within the Warning Limits. N=not acceptable. Reported result falls outside of the Control Limits. CE=check for Error. Reported result falls within the Control Limits and outside of the Warning Limit.

TABLE E-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
March 2010	10-MaW22	Water	Cs-134	Bq/L	-0.0942		(1)	A
			Cs-137	Bq/L	58.5	60.6	42.4 - 78.8	A
			Co-57	Bq/L	27.2	28.3	19.8 - 36.8	A
			Co-60	Bq/L	0.0226		(1)	A
			H-3	Bq/L	104	90.8	63.6 - 118.0	A
			Mn-54	Bq/L	26.6	26.9	18.8 - 35.0	A
			Sr-90	Bq/L	0.1029		(1)	A
			Zn-65	Bq/L	42.0	40.7	28.5 - 52.9	A
	10-GrW22	Water	Gr-A	Bq/L	0.5173	0.676	0.00 - 1.352	A
			Gr-B	Bq/L	3.98	3.09	1.55 - 4.64	A
	10-MaS22	Soil	Cs-134	Bq/kg	665	733	513 - 953	A
			Cs-137	Bq/kg	800	779	545 - 1013	A
			Co-57	Bq/kg	508	522	365 - 679	A
			Co-60	Bq/kg	648	622	435 - 809	A
			Mn-54	Bq/kg	893	849	594 - 1104	A
			K-40	Bq/kg	597	559	391 - 727	A
			Sr-90	Bq/kg	221	288	202 - 374	W
			Zn-65	Bq/kg	-4.97		(1)	A
	10-RdF22	AP	Cs-134	Bq/sample	1.81	2.13	1.49 - 2.77	A
			Cs-137	Bq/sample	1.70	1.53	1.07 - 1.99	A
			Co-57	Bq/sample	0.0056		(1)	A
			Co-60	Bq/sample	2.65	2.473	1.731 - 3.215	A
			Mn-54	Bq/sample	3.70	3.02	2.11 - 3.93	W
			Sr-90	Bq/sample	0.0523		(1)	A
			Zn-65	Bq/sample	-0.0627		(1)	A
	10-GrF22	AP	Gr-A	Bq/sample	0.1533	0.0427	0.00 - 0.854	A
			Gr-B	Bq/sample	1.240	1.29	0.65 - 1.94	A
	10-RdV22	Vegetation	Cs-134	Bq/sample	4.48	4.39	3.07 - 5.71	A
			Cs-137	Bq/sample	3.43	3.06	2.14 - 3.98	A
			Co-57	Bq/sample	-0.0117		(1)	A
			Co-60	Bq/sample	3.55	3.27	2.29 - 4.25	A
			Mn-54	Bq/sample	0.007		(1)	A
			Sr-90	Bq/sample	-0.0002		(1)	A
			Zn-65	Bq/sample	8.12	7.10	4.97 - 9.23	A
September 2010	10-MaW23	Water	Cs-134	Bq/L	27.1	31.4	22.0 - 40.8	A
			Cs-137	Bq/L	41.8	44.2	30.9 - 57.5	A
			Co-57	Bq/L	33.2	36.0	25.2 - 46.8	A
			Co-60	Bq/L	26.5	28.3	19.8 - 36.8	A
			H-3	Bq/L	500	453.4	317.4 - 589.4	A
			Mn-54	Bq/L	0.024		(1)	A
			Sr-90	Bq/L	8.10	8.3	5.8 - 10.8	A
			Zn-65	Bq/L	30.8	31.0	21.7 - 40.3	A
	10-GrW23	Water	Gr-A	Bq/L	2.36	1.92	0.58 - 3.26	A
			Gr-B	Bq/L	6.37	4.39	2.20 - 6.59	A

TABLE E-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2010
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
September 2010	10-MaS23	Soil	Cs-134	Bq/kg	837	940	658 - 1222	A
			Cs-137	Bq/kg	680	670	469 - 871	A
			Co-57	Bq/kg	2.78		(1)	A
			Co-60	Bq/kg	350	343	240 - 446	A
			Mn-54	Bq/kg	853	820	574 - 1066	A
			K-40	Bq/kg	721	699	489 - 909	A
			Sr-90	Bq/kg	2.24		(1)	A
			Zn-65	Bq/kg	287	265	186 - 345	A
	10-RdF23	AP	Cs-134	Bq/sample	2.31	2.98	2.09 - 3.87	W
			Cs-137	Bq/sample	-0.025		(1)	A
			Co-57	Bq/sample	3.64	4.08	2.86 - 5.380	A
			Co-60	Bq/sample	2.81	2.92	2.04 - 3.80	A
			Mn-54	Bq/sample	3.19	3.18	2.23- 4.13	A
			Sr-90	Bq/sample	1.01	1.01	0.71 - 1.31	A
			Zn-65	Bq/sample	0.0310		(1)	A
	10-GrF23	AP	Gr-A	Bq/sample	0.004		(1)	A
			Gr-B	Bq/sample	0.473	0.50	0.25 - 0.75	A
	10-RdV23	Vegetation	Cs-134	Bq/sample	4.90	4.79	3.35 - 6.23	A
			Cs-137	Bq/sample	6.78	5.88	4.12 - 7.64	A
			Co-57	Bq/sample	10.2	8.27	5.79 - 10.75	W
			Co-60	Bq/sample	0.00		(1)	A
			Mn-54	Bq/sample	7.36	6.287	4.401 - 8.173	A
			Sr-90	Bq/sample	2.53	2.63	1.84 - 3.42	A
			Zn-65	Bq/sample	6.40	5.3900	3.77 - 7.01	A

(1) False positive test.

(a) Teledyne Brown Engineering reported result.

(b) The MAPEP known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(c) DOE/MAPEP evaluation: A=acceptable, W=acceptable with warning, N=not acceptable.

TABLE E-4 **ERA STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM[a]**
ENVIRONMENTAL, INC., 2010

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1205	04/05/10	Sr-89	63.0 ± 5.7	60.4	48.6 - 68.2	Pass
STW-1205	04/05/10	Sr-90	37.4 ± 2.4	41.3	30.4 - 47.4	Pass
STW-1206	04/05/10	Ba-133	63.6 ± 3.3	65.9	54.9 - 72.5	Pass
STW-1206	04/05/10	Co-60	83.3 ± 2.9	84.5	76.0 - 95.3	Pass
STW-1206	04/05/10	Cs-134	71.0 ± 3.4	71.6	58.4 - 78.8	Pass
STW-1206	04/05/10	Cs-137	145.5 ± 5.1	146.0	131.0 - 163.0	Pass
STW-1206	04/05/10	Zn-65	194.9 ± 7.8	186.0	167.0 - 219.0	Pass
STW-1207	04/05/10	Gr. Alpha	26.5 ± 1.7	32.9	16.9 - 42.6	Pass
STW-1207	04/05/10	Gr. Beta	34.5 ± 1.6	37.5	24.7 - 45.0	Pass
STW-1208	04/05/10	I-131	22.7 ± 0.8	26.4	21.9 - 31.1	Pass
STW-1210	04/05/10	H-3	12955 ± 332	12400.0	10800 - 13600	Pass
STW-1224	10/04/10	Sr-89	65.3 ± 5.7	68.5	55.8 - 76.7	Pass
STW-1224	10/04/10	Sr-90	39.9 ± 2.3	43.0	31.7 - 49.3	Pass
STW-1225	10/04/10	Ba-133	67.2 ± 4.3	68.9	57.5 - 75.8	Pass
STW-1225	10/04/10	Co-60	53.2 ± 3.3	53.4	48.1 - 61.3	Pass
STW-1225	10/04/10	Cs-134	47.3 ± 5.1	43.2	34.5 - 47.5	Pass
STW-1225	10/04/10	Cs-137	118.0 ± 5.9	123.0	111.0 - 138.0	Pass
STW-1225	10/04/10	Zn-65	107.0 ± 8.7	102.0	91.8 - 122.0	Pass
STW-1226	10/04/10	Gr. Alpha	30.7 ± 2.9	42.3	21.9 - 53.7	Pass
STW-1226	10/04/10	Gr. Beta	32.7 ± 0.8	36.6	24.0 - 44.2	Pass
STW-1227	10/04/10	I-131	28.6 ± 1.1	27.5	22.9 - 32.3	Pass
STW-1229	10/04/10	H-3	13682 ± 352	12900.0	11200 - 14200	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing in drinking water conducted by Environmental Resources Associates (ERA).

[b] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[c] Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA.

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2010

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STVE-1199	03/01/10	Co-57	0.01 ± 0.03	0.00	-	Pass
STVE-1199	03/01/10	Co-60	3.39 ± 0.12	3.27	2.29 - 4.25	Pass
STVE-1199	03/01/10	Cs-134	4.74 ± 0.15	4.39	3.07 - 5.71	Pass
STVE-1199	03/01/10	Cs-137	3.32 ± 0.17	3.06	2.14 - 3.98	Pass
STVE-1199	03/01/10	Mn-54	0.01 ± 0.05	0.00	-	Pass
STVE-1199	03/01/10	Zn-65	8.03 ± 0.33	7.10	4.97 - 9.23	Pass
STW-1200	03/01/10	Gr. Alpha	0.40 ± 0.05	0.68	0.00 - 1.35	Pass
STW-1200	03/01/10	Gr. Beta	3.03 ± 0.07	3.09	1.55 - 4.64	Pass
STW-1201	03/01/10	Co-57	28.90 ± 0.40	28.30	19.80 - 36.80	Pass
STW-1201	03/01/10	Co-60	0.06 ± 0.05	0.00	-	Pass
STW-1201	03/01/10	Cs-134	-0.03 ± 0.09	0.00	-	Pass
STW-1201	03/01/10	Cs-137	60.60 ± 0.60	60.60	42.40 - 78.80	Pass
STW-1201	03/01/10	H-3	93.20 ± 18.30	90.80	63.60 - 118.00	Pass
STW-1201	03/01/10	Mn-54	27.80 ± 0.40	26.90	18.80 - 35.00	Pass
STW-1201	03/01/10	Sr-90	-0.10 ± 0.60	0.00	-	Pass
STW-1201	03/01/10	Zn-65	42.70 ± 0.80	40.70	28.50 - 52.90	Pass
STSO-1202	03/01/10	Co-57	520.00 ± 10.80	522.00	365.00 - 679.00	Pass
STSO-1202	03/01/10	Co-60	599.10 ± 2.80	622.00	435.00 - 809.00	Pass
STSO-1202	03/01/10	Cs-134	666.10 ± 4.70	733.00	513.00 - 953.00	Pass
STSO-1202	03/01/10	Cs-137	774.40 ± 4.50	779.00	545.00 - 1013.00	Pass
STSO-1202	03/01/10	K-40	562.00 ± 15.30	559.00	391.00 - 727.00	Pass
STSO-1202	03/01/10	Mn-54	866.20 ± 4.60	849.00	594.00 - 1104.00	Pass
STSO-1202	03/01/10	Sr-90	225.50 ± 11.80	288.00	202.00 - 374.00	Pass
STSO-1202	03/01/10	Zn-65	-1.23 ± 1.96	0.00	-	Pass
STAP-1203	03/01/10	Co-57	0.01 ± 0.02	0.00	-	Pass
STAP-1203	03/01/10	Co-60	2.63 ± 0.19	2.47	1.73 - 3.22	Pass
STAP-1203	03/01/10	Cs-134	2.21 ± 0.34	2.13	1.49 - 2.77	Pass
STAP-1203	03/01/10	Cs-137	1.66 ± 0.22	1.53	1.07 - 1.99	Pass
STAP-1203	03/01/10	Mn-54	3.42 ± 0.26	3.02	2.11 - 3.93	Pass
STAP-1203	03/01/10	Sr-90	0.02 ± 0.06	0.00	-	Pass
STAP-1203	03/01/10	Zn-65	-0.05 ± 0.11	0.00	-	Pass
STAP-1204	03/01/10	Gr. Alpha	0.13 ± 0.03	0.43	0.00 - 0.85	Pass
STAP-1204	03/01/10	Gr. Beta	1.46 ± 0.07	1.29	0.65 - 1.94	Pass

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2010

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STW-1211	08/01/10	Co-57	36.40 ± 4.80	36.00	25.20 - 46.80	Pass
STW-1211	08/01/10	Co-60	28.30 ± 1.00	28.30	19.80 - 36.80	Pass
STW-1211	08/01/10	Cs-134	29.30 ± 2.10	31.40	22.00 - 40.80	Pass
STW-1211	08/01/10	Cs-137	44.60 ± 1.80	44.20	30.90 - 57.50	Pass
STW-1211	08/01/10	H-3	503.60 ± 12.80	453.40	317.40 - 589.40	Pass
STW-1211	08/01/10	K-40	38.50 ± 2.50	38.90	27.20 - 50.60	Pass
STW-1211	08/01/10	Mn-54	0.10 ± 0.30	0.00	-	Pass
STW-1211	08/01/10	Sr-90	9.20 ± 1.30	8.30	5.80 - 10.80	Pass
STW-1211	08/01/10	Zn-65	32.80 ± 3.00	31.00	21.70 - 40.30	Pass
STW-1212	08/01/10	Gr. Alpha	1.54 ± 0.09	1.92	0.58 - 3.26	Pass
STW-1212	08/01/10	Gr. Beta	4.13 ± 0.15	4.39	2.20 - 6.59	Pass
STVE-1213	08/01/10	Co-57	9.60 ± 0.54	8.27	5.79 - 10.75	Pass
STVE-1213	08/01/10	Co-60	0.05 ± 0.08	0.00	-	Pass
STVE-1213	08/01/10	Cs-134	4.83 ± 0.26	4.79	3.35 - 6.23	Pass
STVE-1213	08/01/10	Cs-137	6.45 ± 0.66	5.88	4.12 - 7.64	Pass
STVE-1213	08/01/10	Mn-54	7.12 ± 0.66	6.29	4.40 - 8.17	Pass
STVE-1213	08/01/10	Zn-65	6.05 ± 0.74	5.39	3.77 - 7.01	Pass
STSO-1214	08/01/10	Co-57	0.10 ± 1.60	0.00	-	Pass
STSO-1214	08/01/10	Co-60	370.00 ± 6.00	343.00	240.00 - 446.00	Pass
STSO-1214	08/01/10	Cs-134	1005.00 ± 21.00	940.00	658.00 - 1222.00	Pass
STSO-1214	08/01/10	Cs-137	755.00 ± 15.00	670.00	469.00 - 871.00	Pass
STSO-1214	08/01/10	K-40	783.00 ± 54.00	699.00	489.00 - 909.00	Pass
STSO-1214	08/01/10	Mn-54	942.00 ± 15.00	820.00	574.00 - 1066.00	Pass
STSO-1214	08/01/10	Sr-90	3.50 ± 8.00	0.00	-	Pass
STSO-1214	08/01/10	Zn-65	310.00 ± 18.00	265.00	186.00 - 345.00	Pass
STAP-1215	08/01/10	Co-57	4.47 ± 0.21	4.08	2.86 - 5.30	Pass
STAP-1215	08/01/10	Co-60	3.15 ± 0.30	2.92	2.04 - 3.80	Pass
STAP-1215	08/01/10	Cs-134	3.03 ± 0.17	2.98	2.09 - 3.87	Pass
STAP-1215	08/01/10	Cs-137	0.01 ± 0.05	0.00	-	Pass
STAP-1215	08/01/10	Mn-54	3.69 ± 0.39	3.18	2.23 - 4.13	Pass
STAP-1215	08/01/10	Sr-90	1.00 ± 0.12	1.01	0.71 - 1.31	Pass
STAP-1215	08/01/10	Zn-65	0.03 ± 0.15	0.00	-	Pass

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2010

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STAP-1216	08/01/10	Gr. Alpha	0.01 ± 0.01	0.00	-	Pass
STAP-1216	08/01/10	Gr. Beta	0.54 ± 0.05	0.50	0.25 - 0.75	Pass

[a] *Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho*

[b] *Results are reported in units of Bq/kg (soil), Bq/L (water) or Bq/total sample (filters, vegetation).*

[c] *Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).*

[d] *MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP.*

[e] *Included in the testing series as a "false positive".*

APPENDIX F

ERRATA DATA

In 2011, it was discovered that the IR# in the 2009 AREOR for the following deviation was incorrectly listed as IR# 999869 instead of IR# 991349:

14. A drinking water sample was temporarily unavailable because Chester Water Authority was shut down for the following period and location (IR# 999869):

12/03/09 – 12/31/09, Locations 1LL, 1MM

APPENDIX G

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

Docket No: 50-277
50-278

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 and 3

Annual Radiological
Groundwater Protection Program Report

1 January 2010 Through 31 December 2010

Prepared By

Teledyne Brown Engineering
Environmental Services

Exelon SM

Nuclear

Peach Bottom Atomic Power Station
Delta, PA 17314

May 2011

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Appendices

I. Summary and Conclusions

This report on the Radiological Groundwater Protection Program (RGPP) conducted for the Peach Bottom Atomic Power Station (PBAPS) by Exelon Nuclear covers the period 01 January 2010 through 31 December 2010. This evaluation involved numerous station personnel and contractor support personnel. At Peach Bottom Atomic Power Station, 14 permanent groundwater monitoring wells were installed in 2006. Of these monitoring locations, none were assigned to the station's Radiological Environmental Monitoring Program (REMP). This is the fifth in a series of annual reports on the status of the Radiological Groundwater Protection Program (RGPP) conducted at Peach Bottom Atomic Power Station. This report covers groundwater and seep water samples, collected from the environment, on station property in 2010. During that time period, more than 1,000 analyses were performed on more than 600 samples from 39 locations. These 39 locations include 27 groundwater monitoring wells, 4 domestic water wells, 3 surface water sample points, 3 groundwater seeps and 2 yard drain sumps (groundwater). Phase 1 of the monitoring was part of a comprehensive study initiated by Exelon to determine whether groundwater or surface water in the vicinity of Peach Bottom Atomic Power Station had been adversely impacted by any releases of radionuclides. Phase 1 was conducted by Conestoga Rovers and Associates (CRA) and the conclusions were made available to state and federal regulators as well as the public. Phase 2 of the RGPP was conducted by Exelon corporate and station personnel to initiate follow up of Phase 1 and begin long-term monitoring at groundwater and surface water locations selected during Phase 1. All analytical results from Phase 2 monitoring are reported herein.

In assessing all the data gathered for this report, it was concluded that the operation of Peach Bottom Atomic Power Station had no adverse radiological impact on the environment, and there are no known active releases into the groundwater at Peach Bottom Atomic Power Station.

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective Lower Limits of Detection (LLDs) as specified in the Offsite Dose Calculation Manual (ODCM) in any of the groundwater or surface water samples. In the case of tritium, Exelon specified that it's laboratories achieve a lower limit of detection 10 times lower than that required by federal regulation.

Strontium-90 was not detected in any of the samples and the required LLD of 1.0 pCi/liter was met (Table B–I.1, Appendix B).

Tritium was detected in 4 groundwater locations at concentrations greater than the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L. Low levels of tritium were detected at concentrations greater than the LLD

of 200 pCi/L in 14 of 36 groundwater and seep water monitoring locations. The tritium concentrations ranged from 170 ± 105 pCi/L to 196,000 ± 19,400 pCi/L. Tritium was not detected in surface water. Based on the sample data, tritium is not migrating off the station property at detectable concentrations.

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater samples during 2010. This is the first year these analyses were performed as part of the RGPP for Peach Bottom to establish baseline levels. Gross Alpha (dissolved) was detected in seven of 17 groundwater locations analyzed. The concentrations ranged from 2.6 to 30.0 pCi/L. Gross Alpha (suspended) was detected in three of 17 groundwater locations analyzed. The concentrations ranged from 1.8 to 15.8 pCi/L. Gross Beta (dissolved) was detected in 17 of 17 groundwater locations analyzed. The concentrations ranged from 2.2 to 74.5 pCi/L. Gross Beta (suspended) was detected in nine of 17 groundwater locations analyzed. The concentrations ranged from 1.7 to 41.4 pCi/L. The activity detected is naturally occurring and the levels are considered to be background.

Hard-To-Detect analyses were performed on a select group of groundwater and surface water locations to establish baseline levels. The analyses for groundwater included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-233/234, U-235, and U-238. The isotopes of U-233/234, U-235, and U-238 were detected in six of 11 groundwater monitoring locations. The U-233/234 concentrations ranged from 0.4 to 12.8 pCi/L, the U-235 concentrations ranged from 0.33 to 0.36 pCi/L, and the U-238 concentrations ranged from 0.32 to 10.7 pCi/L. The activity detected is naturally occurring and the levels are considered to be background.

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 1170 MWe. 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.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2010.

A. Objective of the RGPP

The objectives of the RGPP are as follows:

1. Ensure that the site characterization of geology and hydrology provides an understanding of predominant ground water gradients based upon current site conditions.

2. Identify site risk based on plant design and work practices.

3. Establish an on-site ground water monitoring program to ensure timely detection of inadvertent radiological releases to ground water.

4. Establish a remediation protocol to prevent migration of licensed material off-site and to minimize decommissioning impacts.

5. Ensure that records of leaks, spills, remediation efforts are retained and retrievable to meet the requirements of 10 CFR 50.75(g).

6. Conduct initial and periodic briefings of their site specific Groundwater Protection Initiative (GPI) program with the designated State/Local officials.

7. Make informal communication as soon as practicable to appropriate State/Local officials, with follow-up notifications to the NRC, as appropriate, regarding significant "on-site leaks/spills into ground water and on-site or off-site water sample results exceeding the criteria in the REMP as described in the OCDM/ODAM.

8. Submit a written 30-day report to the NRC for any water sample result for on-site ground water that is or may be used as a source of drinking water that exceeds any of the criteria in the licensee's existing REMP/ODCM for 30-day reporting of off-site water sample results.

9. Document all on-site ground water sample results and a description of any significant on-site leaks/spills into ground water for each calendar year in the Annual Radiological Environmental Operating Report (AREOR) for REMP or the Annual Radioactive Effluent Release Report (ARERR) for the RETS as contained in the appropriate Site reporting procedure.

10. Perform a self-assessment of the GPI program.

11. Conduct a review of the GPI program, including at a minimum the licensee's self assessments, under the auspices of NEI.

B. Implementation of the Objectives

The objectives identified have been implemented at Peach Bottom Atomic Power Station via Corporate and Site specific procedures. These procedures include:

1. EN-AA-407, Response to Inadvertent Releases of Licensed Materials to Groundwater, Surface Water or Soil.

2. EN-AA-408, Radiological Groundwater Protection Program

3. EN-AA-408-4000, Radiological Groundwater Protection Program Implementation.

4. EN-PB-408-4160, Peach Bottom RGPP Reference Material.

C. Program Description

1. Sample Collection

Sample locations can be found in Table A–1 and Figures A–1 and A–2, Appendix A.

Groundwater and Surface Water

Samples of water are collected, managed, transported and analyzed in accordance with approved procedures. Both groundwater and surface water are collected. Sample locations, sample collection frequencies and analytical frequencies are controlled in accordance with approved station procedures. Contractor and/or station personnel are trained in the collection, preservation management, and shipment of samples, as well as in documentation of sampling events. Analytical laboratories are subject to internal quality assurance programs, industry cross-check programs, as well as nuclear industry audits. Station personnel review and evaluate all analytical data deliverables as data are received.

Analytical data results are reviewed by both station personnel and an independent hydro geologist for adverse trends or changes to hydrogeologic conditions.

D. Characteristics of Tritium (H-3)

Tritium (chemical symbol H-3) is a radioactive isotope of hydrogen. The most common form of tritium is tritium oxide, which is also called "tritiated water." The chemical properties of tritium are essentially those of ordinary hydrogen.

Tritiated water behaves the same as ordinary water in both the environment and the body. Tritium can be taken into the body by drinking water, breathing air, eating food, or absorption through skin. Once tritium enters the body, it disperses quickly and is uniformly distributed throughout the body. Tritium is excreted primarily through urine with a clearance rate characterized by an effective biological half-life of about 14 days. Within one month or so after ingestion, essentially all tritium is cleared. Organically bound tritium (tritium that is incorporated in organic compounds) can remain in the body for a longer period.

Tritium is produced naturally in the upper atmosphere when cosmic rays strike air molecules. Tritium is also produced during nuclear weapons explosions, as a by-product in reactors producing electricity, and in special production reactors, where the isotopes lithium-7 and/or boron-10 are activated to produce tritium. Like normal water, tritiated water is colorless and odorless. Tritiated water behaves chemically and physically like non-tritiated water in the subsurface, and therefore tritiated water will travel at the same velocity as the average groundwater velocity.

Tritium has a half-life of approximately 12.3 years. It decays spontaneously to helium-3 (He-3). This radioactive decay releases a beta particle (low-energy electron). The radioactive decay of tritium is the source of the health risk from exposure to tritium. Tritium is one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. Since tritium is almost always found as water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and is dependent on the water content of the specific tissue.

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE and EIML to analyze the environmental samples for radioactivity for the Peach Bottom Atomic Power Station RGPP in 2010.

In order to achieve the stated objectives, the current program includes the following analyses:

1. Concentrations of gamma emitters in groundwater and surface water.

2. Concentrations of Sr-89/90 in groundwater.

3. Concentrations of tritium in groundwater and surface water.

4. Concentrations of 'hard to detect' isotopes (Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-233/234, U-235, U-238, Fe-55 and Ni-63) in groundwater. These analyses are required based on tritium results.

B. Data Interpretation

The radiological data collected prior to Peach Bottom Atomic Power Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, Peach Bottom Atomic Power Station was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection

The lower limit of detection (LLD) is a minimum sensitivity value that must be achieved routinely by the analytical parameter.

2. Laboratory Measurements Uncertainty

The estimated uncertainty in measurement of tritium in environmental samples is frequently on the order of 50% of the measurement value.

Statistically, the exact value of a measurement is expressed as a range with a stated level of confidence. The convention is to report results with a 95% level of confidence. The uncertainty comes from calibration standards, sample volume or weight measurements, sampling uncertainty and other factors. Exelon reports the uncertainty of a measurement created by statistical process (counting error) as well as all sources of error (Total Propagated Uncertainty or TPU). Each result has two values calculated. Exelon reports the TPU by following the result with plus or minus ± the estimated sample standard deviation, as TPU, that is obtained by propagating all sources of analytical uncertainty in measurements.

Analytical uncertainties are reported at the 95% confidence level in this report for reporting consistency with the AREOR.

Gamma spectroscopy results for each type of sample were grouped as follows:

For groundwater and surface water 12 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, I-131, Cs-134, Cs-137, Ba-140 and La-140 were reported.

C. Background Analysis

A pre-operational radiological environmental monitoring program (pre-operational REMP) was conducted to establish background radioactivity levels prior to operation of the Station. The environmental media sampled and analyzed during the pre-operational REMP were atmospheric radiation, fall-out, domestic water, surface water, marine life, and foodstuffs. The results of the monitoring were detailed in the report entitled, Peach Bottom Atomic Power Station, Environs Radiation Monitoring Program, Preoperational Summary Report units 2 and 3, September 1970- August 1973, January 1974 and Peach Bottom Atomic Power Station, Environs Radiation Monitoring Program, Preoperational Summary Report units 2 and 3, June 1977.

The pre-operational REMP contained analytical results from samples collected from the surface water, discharge, well and rain water.

1. Background Concentrations of Tritium

The purpose of the following discussion is to summarize background measurements of tritium in various media performed by others. Additional detail may be found by consulting references (CRA 2006).

a. Tritium Production

Tritium is created in the environment from naturally occurring processes both cosmic and subterranean, as well as from anthropogenic (i.e., man-made) sources. In the upper atmosphere, "Cosmogenic" tritium is produced from the bombardment of stable nuclides and combines with oxygen to form tritiated water, which will then enter the hydrologic cycle. Below ground, "lithogenic" tritium is produced by the bombardment of natural lithium present in crystalline rocks by neutrons produced by the radioactive decay of naturally abundant uranium and thorium. Lithogenic production of tritium is usually negligible compared to other sources due to the limited abundance of lithium in rock. The lithogenic tritium is introduced directly to groundwater.

A major anthropogenic source of tritium and strontium-90 comes from the former atmospheric testing of thermonuclear weapons. Levels of tritium in precipitation increased significantly during the 1950s and early 1960s, and later with additional testing, resulting in the release of significant amounts of tritium to the atmosphere. The Canadian heavy water nuclear power reactors, other commercial power reactors, nuclear research and weapons production continue to influence tritium concentrations in the environment.

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. Two publicly available databases that provide tritium concentrations in precipitation are Global Network of Isotopes in Precipitation (GNIP) and USEPA's RadNet database. GNIP provides tritium precipitation concentration data for samples collected world wide from 1960 to 2006.

RadNet provides tritium precipitation concentration data for samples collected at stations through out the U.S. from 1960 up to and including 2006. Based on GNIP data for sample stations located in the U.S. Midwest, tritium concentrations peaked around 1963. This peak, which approached 10,000 pCi/L for some stations, coincided with the atmospheric testing of thermonuclear weapons. Tritium concentrations in surface water showed a sharp decline up until 1975 followed by a gradual decline since that time. Tritium concentrations have typically been below 100 pCi/L since around 1980. Tritium concentrations in wells may still be above the 200 pCi/L detection limit from the external causes described above. Water from previous years and decades is naturally captured in groundwater, so some well water sources today are affected by the surface water from the 1960s that was elevated in tritium.

c. Surface Water Data

Surface water level measurements were collected at the surface water monitoring locations during the groundwater level measurement event. The purpose of the surface water monitoring was to provide surface water elevation data to evaluate the groundwater/surface water interaction at the Station.

The USEPA RadNet surface water data typically has a reported 'Combined Standard Uncertainty' of 35 to 50 pCi/L. According to USEPA, this corresponds to a ±70 to 100 pCi/L 95% confidence bound on each given measurement. Therefore, the typical background data provided may be subject to measurement uncertainty of approximately ± 70 to 100 pCi/L.

The radio-analytical laboratory is counting tritium results to an Exelon specified LLD of 200 pCi/L. Typically, the lowest positive measurement will be reported within a range of 40 – 240 pCi/L or 140 ± 100 pCi/L. Clearly, these sample results cannot be distinguished as different from background at this concentration.

IV. Results and Discussion

A. Groundwater Results

Groundwater

Samples were collected from on-site wells throughout the year in accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from 39 locations were analyzed for tritium activity (Table B–I.1, Appendix B). Tritium values ranged from the detection limit to 196,000 pCi/l. Within the station boundary, concentrations of tritium in shallow groundwater reached 196,000 pCi/L. The existing wells at or near the owner-controlled boundary showed no tritium. The location most representative of potential offsite user of drinking water is less than the LLD (Table B–I.1, Appendix B).

Strontium

Strontium-90 was not detected in any of the samples and the required LLD of 1.0 pCi/liter (Table B–I.1, Appendix B).

Gross Alpha and Gross Beta (dissolved and suspended)

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater samples during 2010. This is the first year these analyses were performed as part of the RGPP for Peach Bottom. The purpose was to establish baseline levels. Gross Alpha (dissolved) was detected in 7 of 22 groundwater locations analyzed. The concentrations ranged from 2.6 to 30.0 pCi/L. Gross Alpha (suspended) was detected in 4 of 22 groundwater locations analyzed. The concentrations ranged from 1.8 to 15.8 pCi/L. Gross Beta (dissolved) was detected in 22 of 22 groundwater locations analyzed. The concentrations ranged from 2.2 to 74.5 pCi/L. Gross Beta (suspended) was detected in 9 of 22 groundwater locations analyzed. The concentrations ranged from 1.7 to 41.4 pCi/L (Table B–I.1, Appendix B). The activity detected is naturally occurring and the levels are considered to be background.

Hard-To-Detect

Hard-To-Detect analyses were performed on a select group of groundwater and surface water locations to establish baseline levels. The analyses for groundwater included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-233/234, U-235, and U-238. The isotopes of U-233/234, U-235, and U-238 were detected in six of 11 groundwater monitoring locations. The U-233/234 concentrations ranged from 0.4 to 12.8 pCi/L, the U-235 concentrations ranged from 0.33 to 0.36 pCi/L, and the U-238 concentrations ranged from 0.19 to 10.7 pCi/L. The levels detected are considered background (Table B–I.3, Appendix B). The activity detected is naturally occurring and the levels are considered to be background.

Gamma Emitters

No power-production gamma emitters were detected in any of the samples (Table B–I.2, Appendix B).

B. Surface Water Results

Surface Water

Samples were collected from surface water locations throughout the year in accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from three locations were analyzed for tritium activity. Tritium was not detected in any samples (Table B–II.1, Appendix B).

Gamma Emitters

No power-production gamma emitters were detected in any of the samples. No other gamma emitting nuclides were detected (Table B–II.2, Appendix B).

C. Drinking Water Well Survey

A drinking water well survey was conducted during the summer 2006 by CRA (CRA 2006) around the Peach Bottom Atomic Power Station.

D. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE and Environmental Inc. (Midwest Labs) are presented in the AREOR.

E. Leaks, Spills, and Releases

Condensate water leaked through a closed isolation hand valve and an in-line check valve in Unit 2 Turbine Building on September 13, 2010. This leak resulted in a release from the vent path established for the Hydrogen Water Chemistry System purge. The water exited a vent line on the south end of the Unit 2 Turbine Building, spilling approximately 75 gallons of water onto the roof of the Dry Active Waste Building. Based on measured leakage from roof drain spouts, an estimated 11 gallons of water entered the soil. Samples of the water identified Tritium, I-133, Co-60 and Cs-137. Samples of the soil identified Co-60, Cs-137, Zn-69m, and Nb-95. The soil in the effected area was removed. Sampling after soil removal confirmed that the remediation was complete and successful.

F. Trends

A tritium plume has been identified northeast of the Unit 3 Turbine Building. The highest tritium concentration is in wells MW-PB-25 and MW-PB-27. The plume extends eastward toward well MW-PB-4. The plume is bounded on the north by wells MW-PB-12 and MW-PB-22. The plume is bounded on the south by wells MW-PB-20 and MW-PB-21. Wells, MW-PB-4, 24, 25, 26 and 27 are sampled and analyzed weekly for tritium. Wells MW-PB-12, 19, 20, 21, 22, and 28 were sampled weekly. The frequency was decreased to monthly in November 2010 due to decreasing activity trends in these wells. All wells had a decreasing tritium activity trend as of the end of December 2010.

Unit 2 and 3 Yard Drain Sump samples have identified sporadic tritium activity. The yard drain sump system collects groundwater that accumulates on the west side of the plant. A valve leak was repaired in the Unit 3 Condensate Storage Tank moat in July 2009. Tritium activity has decreased in the sumps since the repair.

G. Investigations

MW-PB-4 Investigation

In February 2010, 2 bedrock wells were installed. Bedrock well MW-PB-27, 46' below the ground surface, was installed east of the Unit 3 Turbine Building, between existing overburden wells MW-PB-25 and 26. The purpose of this well is to obtain samples to determine the depth of the tritium plume that is known to exist east of the Unit 3 Turbine Building.

A second bedrock well MW-PB-28, 47' below the ground surface, was installed east of the Unit 3 Condensate Storage Tank (CST) moat. The purpose of this well is to determine if the Unit 3 CST is contributing to the tritium plume east of the Unit 3 Turbine Building.

MW-PB-27

The installation of well MW-PB-27 created an increase in tritium activity in nearby wells MW-PB-24, 25 and 26. During the drilling process, pockets of water in the bedrock that contained higher tritium activity were breached. The water cross contaminated the overburden wells MW-PB-24, 25 and 26. The highest confirmed activity occurred in well MW-PB-26 on 3/8/2010.

The following table provides the highest confirmed activity during 2010 in wells MW-PB-4, 24, 25, 26 and 27. Additionally, the activity from the final sampling of 2010 is listed.

Highest activity in 2010. Activity in pCi/L.

Well #	Tritium Activity	Date
MW-PB-4	17,200	5/24/2010
MW-PB-24	33,500	3/15/2010
MW-PB-25	161,000	3/8/2010
MW-PB-26	196,000	3/8/2010
MW-PB-27	71,800	2/22/2010

Activity in final sampling of 2010. Activity in pCi/L.

Well #	Tritium Activity	Date
MW-PB-4	4,320	12/27/2010
MW-PB-24	284	12/27/2010
MW-PB-25	55,600	12/27/2010
MW-PB-26	2,700	12/27/2010
MW-PB-27	9,390	12/27/2010

Potential sources of tritium in the groundwater were investigated via procedural processes and documented in the corrective action program. The most likely pathway for tritium to enter the groundwater has been determined to be through degraded floor seams in the Unit 3 Turbine Building Moisture Separator area, 116' elevation. These floors seams provided a pathway for leaks internal to the plant to enter the groundwater. The floor seams have been repaired and the well activity is on a decreasing trend.

MW-PB-28

Monitoring well MW-PB-28 was installed east of the Unit 3 CST. The purpose of the well is to monitor potential leakage from the tank and associated piping. The highest tritium activity in the well was recorded just after installation. Tritium activity on February 15, 2010 was 2,530 pCi/L. The last sample obtained from the well in 2010 was on December 13, 2010. Tritium activity in that sample was 293 pCi/L. The decreasing trend in activity has been continual since well installation. A previously reported valve leak was repaired in the Unit 3 CST moat in July 2009. The decreasing trend in activity is due to the repair of the leak.

H. Actions Taken

1. Compensatory Actions

Groundwater samples from wells MW-PB-4, 12 and 19-27 were obtained weekly in 2010 until November 8, 2010. From November 8 through the end of 2010, wells MW-PB-4, 24, 25, 26 and 27 continued to be sampled on a weekly frequency. Wells MW-12 and 19-22 were sampled monthly. The decrease in sampling frequency for these wells was due to a continued decrease in tritium activity in the wells. MW-PB-23, an overburden well east of the Unit 3 CST, was installed in 2009 and has not produced water for sampling.

Intake and discharge canal water and domestic water were sampled at an increased frequency in 2010. Intake and discharge canal sampling varied from weekly to monthly, based on monitoring well activity. Domestic water sampling varied from daily to monthly, based on monitoring well activity. There has been no detectable tritium in the intake and discharge canal water and domestic water samples.

2. Installation of Monitoring Wells

In February 2010, 2 bedrock wells were installed. Well MW-PB-27, 46' below the ground surface, was installed east of the Unit 3 Turbine

Building, between existing overburden wells MW-PB-25 and 26. The purpose of this well is to obtain samples to determine the depth of the tritium plume that is known to exist east of the Unit 3 Turbine Building.

A second well MW-PB-28, 47' below the ground surface, was installed east of the Unit 3 Condensate Storage Tank (CST) moat. The purpose of this well is to determine if the Unit 3 CST is contributing to the tritium plume east of the Unit 3 Turbine Building.

3. Actions to Recover/Reverse Plumes

None.

I. Deviations

In Table B-I.1, page B-9, a tritium activity of 300,000 picocuries/liter is listed on February 22, 2010 for MW-PB-25. This sample was obtained one week after MW-PB-27 was installed. The installation of MW-PB-27 caused a disturbance in nearby MW-PB-25. This was not considered a valid sample. The subsequent confirmatory sample taken on March 1, 2010 for this well measured 142,000 pCi/L.

The data tables show that duplicate samples were obtained at several wells during 2010. These duplicate samples were obtained and analyzed for quality control purposes.

Peach Bottom' s RGPP operated in accordance with 2 sampling procedures in 2010. CY-PB-170-4160, Station RGPP Controlled Sample Point Parameters, was effective until November 8, 2010. After November 8, 2010, Peach Bottom RGPP Reference Material was the effective procedure. The procedures had differences in sampling frequencies, however all samples were obtained and analyzed as required.

A total of 43 groundwater and groundwater seep samples were analyzed for 12 different gamma emitting isotopes. Of these 516 analyses, one analysis, that for U/3 Yard Drain, did not meet the required LLD of 15 pCi/L. That sample's result was recorded as <20 pCi/L.

V. References

1. Conestoga Rovers and Associates, Fleetwide Assessment, Peach Bottom Atomic Power station, Delta, PA, Fleetwide Assessment, Rev. 1, September 1, 2006.

2. Peach Bottom Atomic Power Station, Environs Radiation Monitoring Program, Preoperational Summary Report units 2 and 3, June 1977.

3. Peach Bottom Atomic Power Station, Environs Radiation Monitoring Program, Preoperational Summary Report units 2 and 3, September 1970- August 1973, January 1974.

4. AMO Environmental Decisions, March 18, 2009 Report, Fall 2008 Routine Groundwater and Surface Water Monitoring Round Summary of Results, Conclusions and Recommendations for Future Monitoring Rounds Peach Bottom Atomic Power Station, Delta, Pennsylvania.

5. AMO Environmental Decisions, April 18, 2011, November 2010 RGPP Summary Monitoring Report.

APPENDIX A

SAMPLING LOCATIONS, DISTANCE AND DIRECTION

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Distance and Direction, Peach Bottom Atomic Power Station, 2010

Site	Site Type	Sector	Distance (ft.)
MW-PB-1	Groundwater Well	SW	1166.6
MW-PB-2	Groundwater Well	WNW	309.0
MW-PB-3	Groundwater Well	SSE	709.7
MW-PB-4	Groundwater Well	ENE	350.2
MW-PB-5	Groundwater Well	NNW	1146.1
MW-PB-6	Groundwater Well	NE	1072.4
MW-PB-7	Groundwater Well	SE	813.9
MW-PB-8	Groundwater Well	SE	1167.0
MW-PB-9	Groundwater Well	SE	2816.9
MW-PB-10	Groundwater Well	SSE	1125.1
MW-PB-11	Groundwater Well	SE	438.4
MW-PB-12	Groundwater Well	NNE	317.2
MW-PB-13	Groundwater Well	NW	329.4
MW-PB-14	Groundwater Well	S	1231.2
MW-PB-15	Groundwater Well	SE	1087.9
MW-PB-16	Groundwater Well	SE	1101.6
MW-PB-17	Groundwater Well	SE	1005.4
MW-PB-18	Groundwater Well	SE	1010.0
MW-PB-19	Groundwater Well	NW	226.8
MW-PB-20	Groundwater Well	E	260.5
MW-PB-21	Groundwater Well	E	363.3
MW-PB-22	Groundwater Well	NE	315.4
MW-PB-24	Groundwater Well	N	185.9
MW-PB-25	Groundwater Well	N	159.7
MW-PB-26	Groundwater Well	NNE	121.1
MW-PB-27	Groundwater Well	NNE	139.1
MW-PB-28	Groundwater Well	NW	249.6
PB-HAZMAT STORAGE SHED	Domestic Well - Tap	NNW	2527.1
PB-NORTH SUBSTATION	Domestic Well - Tap	WNW	2553.3
PB-SALT WASHDOWN	Domestic Well - Tap	WSW	2618.2
PB-SOUTH SUBSTATION	Domestic Well - Tap	SSE	2594.3
SW-PB-1	Surface Water	NNW	2850.5
SW-PB-5	Surface Water	SE	1050.2
SW-PB-6	Surface Water	SE	1305.9
SP-PB-1	Groundwater Seep	S	514.2
SP-PB-2	Groundwater Seep	WNW	311.6
SP-PB-3	Groundwater Seep	NNW	1281.1
U/2 YARD DRAIN SUMP	Groundwater	SSE	498.7
U/3 YARD DRAIN SUMP	Groundwater	WSW	175.8

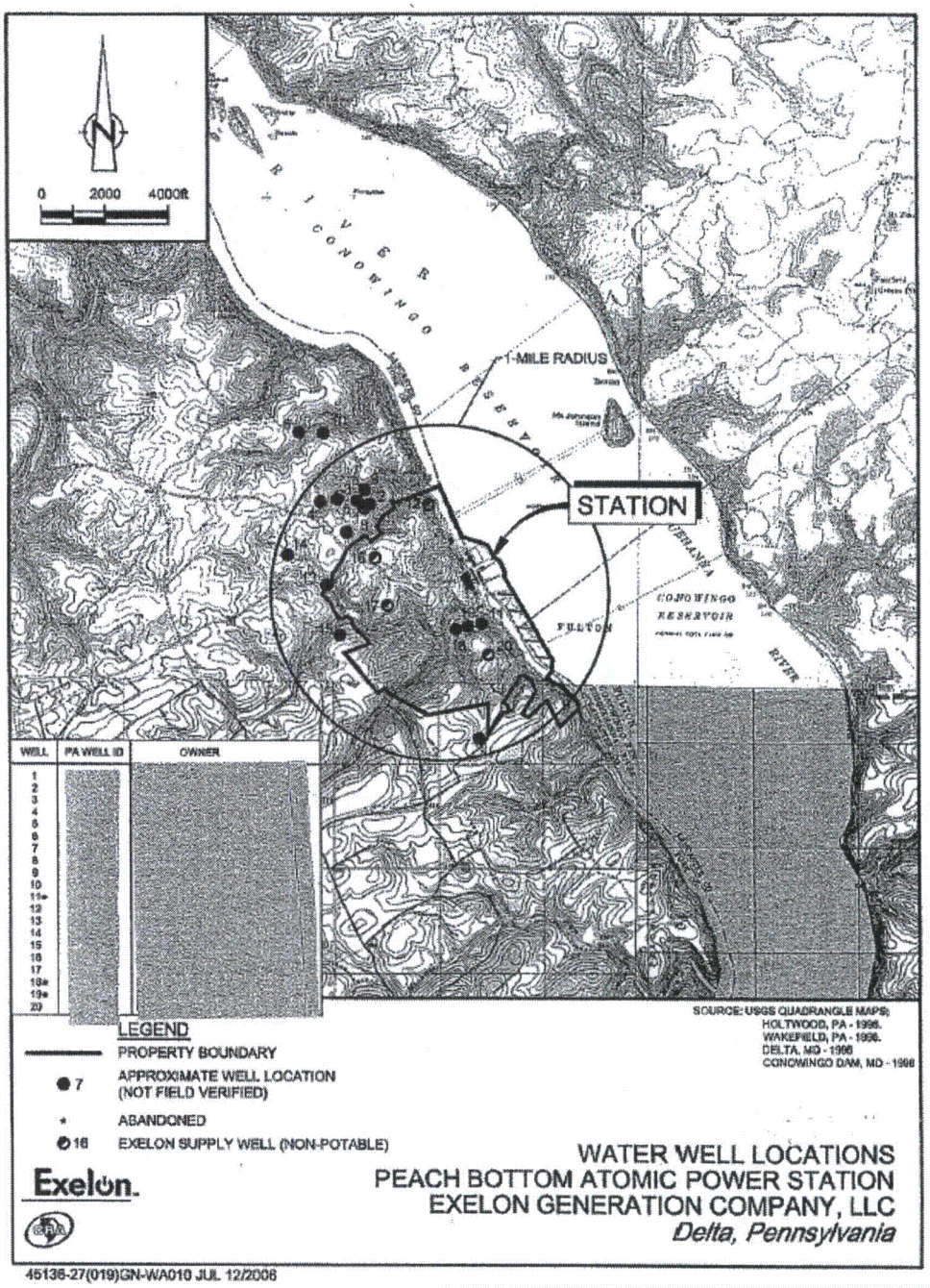

Figure A-1
Well Water Locations, Peach Bottom Atomic Power Station, 2010

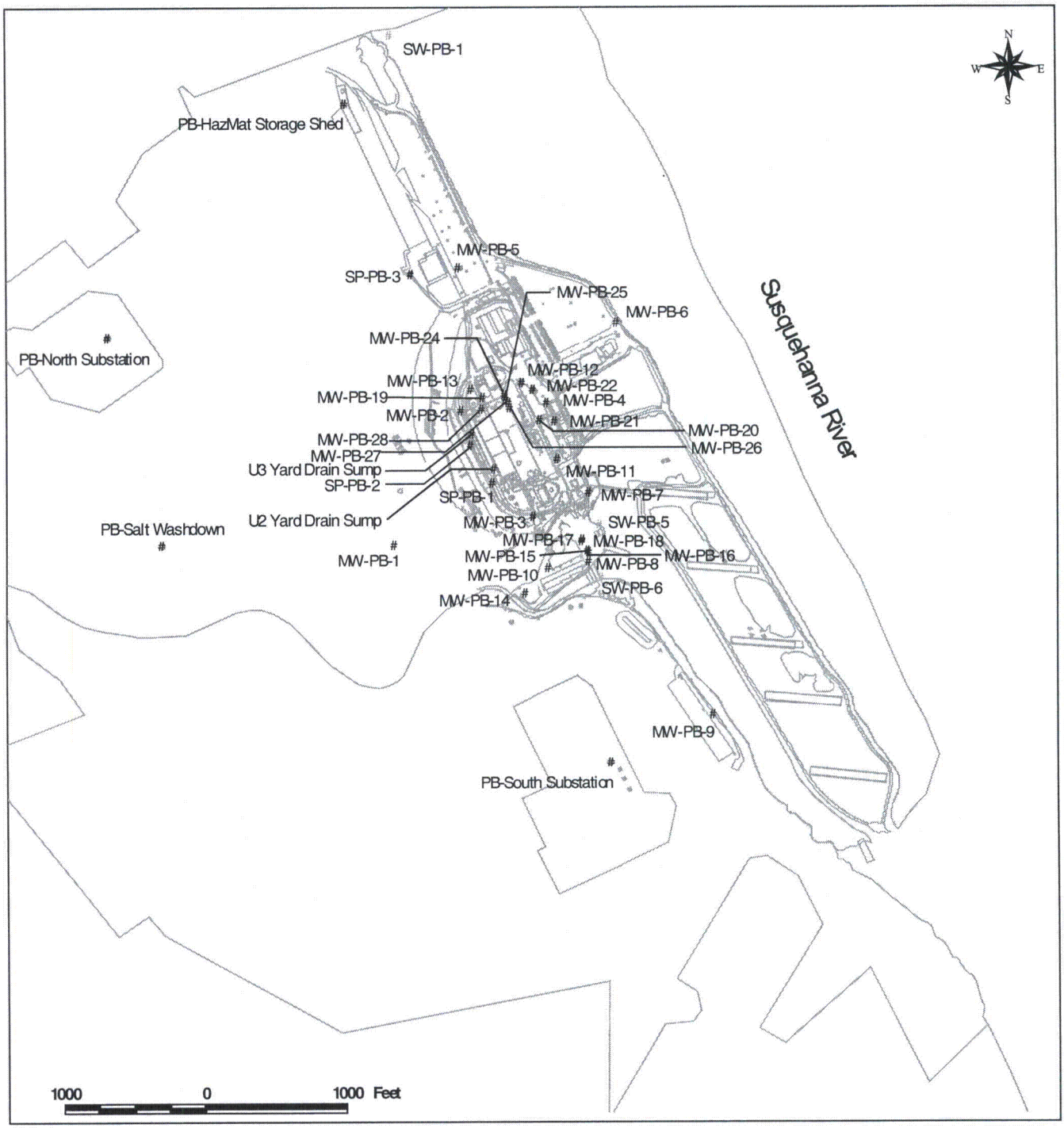

Figure A-2
RGPP Monitoring Locations, Peach Bottom Atomic Power Station, 2010

APPENDIX B

DATA TABLES

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-1	01/20/10		< 159		< 0.6				
MW-PB-1	05/25/10		< 155		< 0.5	< 1.2	15.8 ± 3.1	2.2 ± 1.3	41.4 ± 3.2
MW-PB-1	05/25/10	TBE	< 171						
MW-PB-1	05/25/10	EIML	159 ± 95						
MW-PB-10	05/24/10		< 157						
MW-PB-10	11/09/10		< 165		< 0.8	< 2.2	1.8 ± 1.1	10.5 ± 2.5	2.4 ± 1.1
MW-PB-11	05/24/10		< 152		< 0.5	< 1.8	< 0.8	3.8 ± 1.9	1.8 ± 1.1
MW-PB-11	11/09/10		< 167		< 0.9				
MW-PB-11	11/09/10	TBE	< 169						
MW-PB-11	11/09/10	EIML	< 162	< 0.8	< 0.7				
MW-PB-12	01/04/10		347 ± 122						
MW-PB-12	01/11/10		338 ± 121						
MW-PB-12	01/19/10		324 ± 116						
MW-PB-12	01/25/10		388 ± 122						
MW-PB-12	02/01/10		374 ± 132						
MW-PB-12	02/08/10		347 ± 124						
MW-PB-12	02/15/10		402 ± 108						
MW-PB-12	02/22/10		194 ± 126						
MW-PB-12	03/01/10		< 195						
MW-PB-12	03/08/10		229 ± 129						
MW-PB-12	03/15/10		245 ± 111						
MW-PB-12	03/22/10		407 ± 117						
MW-PB-12	03/29/10		415 ± 122						
MW-PB-12	04/05/10		268 ± 117						
MW-PB-12	04/12/10		333 ± 113						
MW-PB-12	04/19/10		457 ± 123						
MW-PB-12	04/26/10		350 ± 118						
MW-PB-12	05/03/10		269 ± 122						
MW-PB-12	05/10/10		319 ± 117						
MW-PB-12	05/17/10		< 180						
MW-PB-12	05/24/10		451 ± 120			< 2.4	< 0.8	2.4 ± 1.6	< 1.6
MW-PB-12	06/01/10		243 ± 116						
MW-PB-12	06/07/10		411 ± 119						
MW-PB-12	06/14/10		220 ± 118						
MW-PB-12	06/21/10		305 ± 118						
MW-PB-12	06/28/10		298 ± 124						
MW-PB-12	07/06/10		319 ± 120						
MW-PB-12	07/12/10		321 ± 116						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-12	07/19/10	340 ± 121						
MW-PB-12	07/26/10	420 ± 120						
MW-PB-12	08/02/10	< 190						
MW-PB-12	08/09/10	518 ± 132						
MW-PB-12	08/16/10	527 ± 130						
MW-PB-12	08/23/10	316 ± 125						
MW-PB-12	08/30/10	398 ± 116						
MW-PB-12	09/07/10	521 ± 127						
MW-PB-12	09/13/10	371 ± 131						
MW-PB-12	09/20/10	422 ± 122						
MW-PB-12	09/27/10	447 ± 127						
MW-PB-12	10/04/10	458 ± 140						
MW-PB-12	10/11/10	428 ± 131						
MW-PB-12	10/18/10	584 ± 132						
MW-PB-12	10/25/10	567 ± 128						
MW-PB-12	11/01/10	527 ± 138						
MW-PB-12	11/08/10	490 ± 125		< 0.6				
MW-PB-12	11/08/10	586 ± 132						
MW-PB-12	12/13/10	806 ± 147						
MW-PB-13	05/25/10	< 170			< 34.9	< 10.2	74.5 ± 37.2	< 28.5
MW-PB-13	11/09/10	< 168		< 0.6				
MW-PB-14	05/24/10	< 155						
MW-PB-14	11/09/10	< 169						
MW-PB-15	05/24/10	< 157						
MW-PB-15	11/09/10	< 167		< 0.6	< 2.3	2.4 ± 1.4	14.0 ± 2.6	5.3 ± 1.4
MW-PB-16	05/24/10	< 158						
MW-PB-16	11/09/10	< 166		< 0.8	30.0 ± 3.3	< 1.5	31.1 ± 3.1	< 1.6
MW-PB-17	05/24/10	< 155						
MW-PB-18	05/24/10	< 156						
MW-PB-19	01/04/10	< 165						
MW-PB-19	01/11/10	263 ± 116						
MW-PB-19	01/19/10	414 ± 120						
MW-PB-19	01/25/10	348 ± 117						
MW-PB-19	02/01/10	760 ± 145						
MW-PB-19	02/08/10	1700 ± 246						
MW-PB-19	02/08/10	1830 ± 226						
MW-PB-19	02/08/10	1820 ± 221						
MW-PB-19	02/15/10	2720 ± 310						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS *BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE* RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-19	02/15/10	2810 ± 317						
MW-PB-19	02/22/10	2790 ± 314						
MW-PB-19	02/22/10	3130 ± 348						
MW-PB-19	03/01/10	2670 ± 304						
MW-PB-19	03/08/10	2890 ± 359						
MW-PB-19	03/15/10	2260 ± 276						
MW-PB-19 (BOTTOM)	03/22/10	2300 ± 276						
MW-PB-19 (MIDDLE)	03/22/10	2610 ± 307						
MW-PB-19 (SURFACE)	03/22/10	2400 ± 288						
MW-PB-19	03/29/10	2360 ± 287						
MW-PB-19	04/05/10	2020 ± 256						
MW-PB-19	04/12/10	2160 ± 265						
MW-PB-19	04/19/10	2040 ± 256						
MW-PB-19	04/26/10	1900 ± 244						
MW-PB-19	05/03/10	1870 ± 248						
MW-PB-19	05/10/10	1850 ± 238						
MW-PB-19	05/17/10	1390 ± 201						
MW-PB-19	05/24/10	1620 ± 212						
MW-PB-19	06/01/10	1320 ± 198						
MW-PB-19	06/07/10	1550 ± 209						
MW-PB-19	06/14/10	1170 ± 174						
MW-PB-19	06/21/10	1150 ± 171						
MW-PB-19	06/28/10	1060 ± 170						
MW-PB-19	07/06/10	1100 ± 172						
MW-PB-19	07/12/10	1050 ± 164						
MW-PB-19	07/19/10	945 ± 158						
MW-PB-19	07/26/10	887 ± 147						
MW-PB-19	08/02/10	602 ± 144						
MW-PB-19	08/09/10	791 ± 144						
MW-PB-19	08/16/10	685 ± 139						
MW-PB-19	08/23/10	684 ± 143						
MW-PB-19	08/30/10	774 ± 134						
MW-PB-19	09/07/10	677 ± 135						
MW-PB-19	09/13/10	747 ± 150						
MW-PB-19	09/20/10	580 ± 131						
MW-PB-19	09/27/10	643 ± 133						
MW-PB-19	10/04/10	585 ± 145						
MW-PB-19	10/11/10	452 ± 134						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-19	10/18/10	523 ± 128						
MW-PB-19	10/25/10	483 ± 123						
MW-PB-19	11/01/10	555 ± 141						
MW-PB-19	11/08/10	504 ± 125		< 0.9	3.1 ± 1.2	< 1.2	6.0 ± 1.8	3.2 ± 1.2
MW-PB-19	11/08/10	543 ± 130						
MW-PB-19	12/13/10	465 ± 132						
MW-PB-2	05/25/10	< 171						
MW-PB-2	11/09/10	< 164		< 0.8	8.0 ± 1.9	< 1.2	28.3 ± 3.0	2.3 ± 1.1
MW-PB-20	01/04/10	< 169						
MW-PB-20	01/11/10	< 172						
MW-PB-20	01/19/10	179 ± 109						
MW-PB-20	01/25/10	< 163						
MW-PB-20	02/01/10	< 196						
MW-PB-20	02/08/10	241 ± 115						
MW-PB-20	02/15/10	< 142						
MW-PB-20	02/22/10	< 198						
MW-PB-20	03/01/10	< 193						
MW-PB-20	03/08/10	< 191						
MW-PB-20	03/15/10	< 162						
MW-PB-20	03/22/10	< 156						
MW-PB-20	03/29/10	< 164						
MW-PB-20	04/05/10	< 168						
MW-PB-20	04/12/10	< 157						
MW-PB-20	04/19/10	< 161						
MW-PB-20	04/26/10	< 163						
MW-PB-20	05/03/10	< 176						
MW-PB-20	05/10/10	< 168						
MW-PB-20	05/17/10	< 179						
MW-PB-20	05/24/10	< 158						
MW-PB-20	06/01/10	< 175						
MW-PB-20	06/07/10	< 159						
MW-PB-20	06/14/10	< 166						
MW-PB-20	06/21/10	< 165						
MW-PB-20	06/28/10	< 179						
MW-PB-20	07/06/10	< 169						
MW-PB-20	07/12/10	< 165						
MW-PB-20	07/19/10	< 168						
MW-PB-20	07/26/10	< 160						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-20	08/02/10	< 191						
MW-PB-20	08/09/10	< 180						
MW-PB-20	08/16/10	< 164						
MW-PB-20	08/23/10	< 181						
MW-PB-20	08/30/10	208 ± 105						
MW-PB-20	08/30/10	< 178						
MW-PB-20	09/07/10	< 169						
MW-PB-20	09/13/10	< 188						
MW-PB-20	09/20/10	< 168						
MW-PB-20	09/27/10	< 168						
MW-PB-20	10/04/10	< 188						
MW-PB-20	10/11/10	< 184						
MW-PB-20	10/18/10	< 168						
MW-PB-20	10/25/10	< 161						
MW-PB-20	11/08/10	< 169		< 0.8	< 2.1	< 1.4	10.3 ± 2.5	< 1.6
MW-PB-20	11/08/10	< 171						
MW-PB-20	12/13/10	< 174						
MW-PB-21	01/04/10	548 ± 131						
MW-PB-21	01/11/10	571 ± 129						
MW-PB-21	01/19/10	608 ± 129						
MW-PB-21	01/25/10	493 ± 126						
MW-PB-21	02/01/10	558 ± 138						
MW-PB-21	02/08/10	631 ± 146						
MW-PB-21	02/15/10	561 ± 116						
MW-PB-21	02/22/10	297 ± 133						
MW-PB-21	03/01/10	260 ± 129						
MW-PB-21	03/08/10	365 ± 133						
MW-PB-21	03/15/10	377 ± 116						
MW-PB-21	03/22/10	457 ± 116						
MW-PB-21	03/29/10	570 ± 129						
MW-PB-21	04/05/10	357 ± 121						
MW-PB-21	04/12/10	410 ± 115						
MW-PB-21	04/19/10	423 ± 122						
MW-PB-21	04/26/10	359 ± 120						
MW-PB-21	05/03/10	355 ± 128						
MW-PB-21	05/10/10	371 ± 121						
MW-PB-21	05/17/10	253 ± 123						
MW-PB-21	05/24/10	467 ± 121						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM *ATOMIC POWER STATION, 2010***

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-21	06/01/10	279 ± 121						
MW-PB-21	06/07/10	603 ± 126						
MW-PB-21	06/14/10	395 ± 127						
MW-PB-21	06/21/10	459 ± 124						
MW-PB-21	06/28/10	379 ± 127						
MW-PB-21	07/06/10	407 ± 121						
MW-PB-21	07/12/10	377 ± 120						
MW-PB-21	07/19/10	349 ± 120						
MW-PB-21	07/26/10	325 ± 114						
MW-PB-21	08/02/10	316 ± 132						
MW-PB-21	08/09/10	323 ± 120						
MW-PB-21	08/16/10	378 ± 123						
MW-PB-21	08/23/10	262 ± 124						
MW-PB-21	08/30/10	258 ± 109						
MW-PB-21	09/07/10	322 ± 118						
MW-PB-21	09/13/10	< 185						
MW-PB-21	09/20/10	241 ± 113						
MW-PB-21	09/27/10	294 ± 118						
MW-PB-21	10/04/10	205 ± 123						
MW-PB-21	10/11/10	185 ± 121						
MW-PB-21	10/18/10	283 ± 116						
MW-PB-21	10/25/10	254 ± 111						
MW-PB-21	11/01/10	379 ± 132						
MW-PB-21	11/08/10	213 ± 118		< 0.6	< 2.8	< 2.0	20.1 ± 3.6	7.2 ± 1.7
MW-PB-21	11/08/10	376 ± 123						
MW-PB-21	12/13/10	395 ± 130						
MW-PB-22	01/04/10	495 ± 128						
MW-PB-22	01/11/10	546 ± 130						
MW-PB-22	01/19/10	681 ± 131						
MW-PB-22	01/25/10	610 ± 127						
MW-PB-22	02/01/10	795 ± 145						
MW-PB-22	02/08/10	762 ± 157						
MW-PB-22	02/15/10	648 ± 125						
MW-PB-22	02/15/10	656 ± 129						
MW-PB-22	02/22/10	748 ± 122						
MW-PB-22	03/01/10	707 ± 122						
MW-PB-22	03/08/10	522 ± 138						
MW-PB-22	03/15/10	384 ± 116						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-22	03/22/10	771 ± 134						
MW-PB-22	03/29/10	725 ± 137						
MW-PB-22	04/05/10	643 ± 129						
MW-PB-22	04/12/10	733 ± 134						
MW-PB-22	04/19/10	747 ± 135						
MW-PB-22	04/26/10	722 ± 134						
MW-PB-22	05/03/10	733 ± 143						
MW-PB-22	05/10/10	676 ± 136						
MW-PB-22	05/17/10	719 ± 142						
MW-PB-22	05/24/10	905 ± 146						
MW-PB-22	06/01/10	1030 ± 170						
MW-PB-22	06/07/10	980 ± 155						
MW-PB-22	06/14/10	1040 ± 164						
MW-PB-22	06/21/10	1120 ± 168						
MW-PB-22	06/28/10	976 ± 160						
MW-PB-22	07/06/10	1350 ± 196						
MW-PB-22	07/12/10	1250 ± 183						
MW-PB-22	07/19/10	1430 ± 201						
MW-PB-22	07/26/10	1500 ± 204						
MW-PB-22	08/02/10	1190 ± 190						
MW-PB-22	08/09/10	1470 ± 200						
MW-PB-22	08/16/10	1630 ± 214						
MW-PB-22	08/23/10	1570 ± 221						
MW-PB-22	08/30/10	1730 ± 220						
MW-PB-22	09/07/10	1470 ± 203						
MW-PB-22	09/13/10	1560 ± 221						
MW-PB-22	09/20/10	1460 ± 203						
MW-PB-22	09/27/10	1550 ± 211						
MW-PB-22	10/04/10	1830 ± 244						
MW-PB-22	10/11/10	1370 ± 196						
MW-PB-22	10/18/10	1680 ± 223						
MW-PB-22	10/25/10	1360 ± 184						
MW-PB-22	11/01/10	1670 ± 228						
MW-PB-22	11/08/10	1740 ± 230		< 0.5	< 1.6	< 1.6	2.7 ± 1.6	3.5 ± 1.3
MW-PB-22	11/08/10	1720 ± 229						
MW-PB-22	11/15/10	1820 ± 237						
MW-PB-22	11/22/10	1830 ± 231						
MW-PB-22	11/29/10	1900 ± 242						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-22	12/06/10	2160 ± 267						
MW-PB-22	12/13/10	2020 ± 256						
MW-PB-22	12/20/10	1830 ± 228						
MW-PB-22	12/27/10	1710 ± 228						
MW-PB-24	01/04/10	182 ± 112						
MW-PB-24	01/11/10	< 171						
MW-PB-24	01/19/10	229 ± 106						
MW-PB-24	01/25/10	< 162						
MW-PB-24	02/01/10	253 ± 125						
MW-PB-24	02/08/10	201 ± 115						
MW-PB-24	02/15/10	519 ± 112						
MW-PB-24	02/22/10	2060 ± 280						
MW-PB-24	03/01/10	7230 ± 760						
MW-PB-24	03/01/10	7930 ± 826						
MW-PB-24	03/08/10	5700 ± 633						
MW-PB-24	03/15/10	33500 ± 3840						
MW-PB-24	03/22/10	20600 ± 2100						
MW-PB-24	03/29/10	13700 ± 1420						
MW-PB-24	04/05/10	26600 ± 2710						
MW-PB-24	04/12/10	24900 ± 2520						
MW-PB-24	04/19/10	28000 ± 2840						
MW-PB-24	04/26/10	25500 ± 2590						
MW-PB-24	05/03/10	20300 ± 2080						
MW-PB-24	05/10/10	14600 ± 1500						
MW-PB-24	05/17/10	13800 ± 1430						
MW-PB-24	05/24/10	8130 ± 854		< 0.6	< 2.0	< 0.8	5.2 ± 2.4	< 1.6
MW-PB-24	06/01/10	11900 ± 1240						
MW-PB-24	06/07/10	9160 ± 961						
MW-PB-24	06/14/10	6860 ± 732						
MW-PB-24	06/21/10	2740 ± 323						
MW-PB-24	06/28/10	7080 ± 754						
MW-PB-24	07/06/10	2600 ± 314						
MW-PB-24	07/12/10	3570 ± 407						
MW-PB-24	07/19/10	11200 ± 1160						
MW-PB-24	07/26/10	14400 ± 1490						
MW-PB-24	08/02/10	10500 ± 1100						
MW-PB-24	08/09/10	7660 ± 807						
MW-PB-24	08/12/10	9130 ± 956						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS *BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE* RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-24	08/16/10	16100 ± 1640						
MW-PB-24	08/19/10	11900 ± 1240						
MW-PB-24	08/23/10	8920 ± 946						
MW-PB-24	08/26/10	8420 ± 889						
MW-PB-24	08/30/10	5860 ± 627						
MW-PB-24	09/02/10	5370 ± 586						
MW-PB-24	09/07/10	2770 ± 329						
MW-PB-24	09/13/10	937 ± 167						
MW-PB-24	09/13/10	1070 ± 166						
MW-PB-24	09/20/10	451 ± 123						
MW-PB-24	09/27/10	524 ± 127						
MW-PB-24	10/04/10	5190 ± 575						
MW-PB-24	10/11/10	2490 ± 303						
MW-PB-24	10/18/10	1930 ± 247						
MW-PB-24	10/25/10	659 ± 132						
MW-PB-24	11/01/10	546 ± 138						
MW-PB-24	11/08/10	990 ± 162		< 0.5	< 2.1	< 1.2	4.6 ± 2.1	< 1.5
MW-PB-24	11/08/10	1120 ± 173						
MW-PB-24	11/15/10	443 ± 132						
MW-PB-24	11/22/10	372 ± 114						
MW-PB-24	11/29/10	< 158						
MW-PB-24	12/06/10	719 ± 136						
MW-PB-24	12/13/10	597 ± 138						
MW-PB-24	12/20/10	286 ± 108						
MW-PB-24	12/27/10	284 ± 120						
MW-PB-25	01/04/10	36200 ± 3660						
MW-PB-25	01/11/10	45500 ± 4600						
MW-PB-25	01/19/10	22300 ± 2270						
MW-PB-25	01/25/10	< 161 (sample suspect based on previous and subsequent samples)						
MW-PB-25	01/25/10	< 168 (sample suspect based on previous and subsequent samples)						
MW-PB-25	02/01/10	26700 ± 2720						
MW-PB-25	02/08/10	64400 ± 6460						
MW-PB-25	02/15/10	53100 ± 4560						
MW-PB-25	02/22/10	300000 ± 29400						
MW-PB-25	03/01/10	142000 ± 14200						
MW-PB-25	03/08/10	161000 ± 16000						
MW-PB-25	03/15/10	79700 ± 8420						
MW-PB-25	03/22/10	116000 ± 9730						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-25	03/29/10	149000 ± 14800						
MW-PB-25	04/05/10	70600 ± 7100						
MW-PB-25	04/12/10	97800 ± 7070						
MW-PB-25	04/19/10	114000 ± 11400						
MW-PB-25	04/26/10	93700 ± 7180						
MW-PB-25	05/03/10	71100 ± 6320						
MW-PB-25	05/10/10	74800 ± 6550						
MW-PB-25	05/17/10	60500 ± 5020						
MW-PB-25	05/24/10	64400 ± 5100		< 0.7	2.6 ± 1.5	< 0.8	21.8 ± 3.1	< 1.6
MW-PB-25	06/01/10	67900 ± 5170						
MW-PB-25	06/07/10	58000 ± 4800						
MW-PB-25	06/14/10	57900 ± 5090						
MW-PB-25	06/21/10	44600 ± 4460						
MW-PB-25	06/28/10	43500 ± 4350						
MW-PB-25	07/06/10	38300 ± 3860						
MW-PB-25	07/12/10	45400 ± 4560						
MW-PB-25	07/19/10	23800 ± 2420						
MW-PB-25	07/26/10	19100 ± 1950						
MW-PB-25	08/02/10	31700 ± 3210						
MW-PB-25	08/09/10	43500 ± 4380						
MW-PB-25	08/12/10	11700 ± 1220						
MW-PB-25	08/16/10	23100 ± 2340						
MW-PB-25	08/19/10	26300 ± 2680						
MW-PB-25	08/23/10	53900 ± 4770						
MW-PB-25	08/26/10	48900 ± 4920						
MW-PB-25	08/30/10	42000 ± 4140						
MW-PB-25	09/02/10	36000 ± 3640						
MW-PB-25	09/07/10	36700 ± 3710						
MW-PB-25	09/13/10	44800 ± 4420						
MW-PB-25	09/13/10	48600 ± 4890						
MW-PB-25	09/20/10	66200 ± 6650						
MW-PB-25	09/27/10	54300 ± 4820						
MW-PB-25	10/04/10	21700 ± 2210						
MW-PB-25	10/11/10	27100 ± 2760						
MW-PB-25	10/18/10	18500 ± 1900						
MW-PB-25	10/25/10	30600 ± 3090						
MW-PB-25	11/01/10	33500 ± 3390						
MW-PB-25	11/08/10	19400 ± 1990		< 0.6	< 2.2	< 1.2	11.0 ± 1.9	< 1.5

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-25	11/08/10	23700 ± 2420						
MW-PB-25	11/15/10	33900 ± 3430						
MW-PB-25	11/22/10	43600 ± 4190						
MW-PB-25	11/29/10	51200 ± 4520						
MW-PB-25	12/06/10	38900 ± 3810						
MW-PB-25	12/13/10	11000 ± 1140						
MW-PB-25	12/20/10	38900 ± 3850						
MW-PB-25	12/27/10	55600 ± 5600						
MW-PB-26	01/04/10	4080 ± 460						
MW-PB-26	01/11/10	8750 ± 923						
MW-PB-26	01/11/10	8860 ± 932	(reanalysis)					
MW-PB-26	01/11/10	8330 ± 878	(reanalysis)					
MW-PB-26	01/19/10	16800 ± 1720						
MW-PB-26	01/19/10	13400 ± 1390						
MW-PB-26	01/25/10	19300 ± 1980						
MW-PB-26	02/01/10	22600 ± 2310						
MW-PB-26	02/08/10	22500 ± 2290						
MW-PB-26	02/15/10	43600 ± 4160						
MW-PB-26	02/22/10	72900 ± 7300						
MW-PB-26	03/01/10	126000 ± 12600						
MW-PB-26	03/08/10	196000 ± 19400						
MW-PB-26	03/15/10	172000 ± 17600						
MW-PB-26	03/22/10	98700 ± 9880						
MW-PB-26	03/29/10	90400 ± 9060						
MW-PB-26	04/05/10	74500 ± 7450						
MW-PB-26	04/12/10	66700 ± 5990						
MW-PB-26	04/19/10	76300 ± 7650						
MW-PB-26	04/26/10	49400 ± 4970						
MW-PB-26	05/03/10	68800 ± 6930						
MW-PB-26	05/10/10	55100 ± 5540						
MW-PB-26	05/17/10	60100 ± 6040						
MW-PB-26	05/24/10	52700 ± 5280		< 0.5	< 1.6	< 0.8	5.9 ± 2.0	< 1.6
MW-PB-26	06/01/10	28200 ± 2870						
MW-PB-26	06/07/10	30600 ± 3100						
MW-PB-26	06/14/10	18700 ± 1910						
MW-PB-26	06/21/10	22600 ± 2310						
MW-PB-26	06/28/10	22200 ± 2260						
MW-PB-26	07/06/10	19700 ± 2010						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-26	07/12/10	18300 ± 1870						
MW-PB-26	07/19/10	13900 ± 1440						
MW-PB-26	07/26/10	51900 ± 5200						
MW-PB-26	07/26/10	48100 ± 4630						
MW-PB-26	08/02/10	67300 ± 6770						
MW-PB-26	08/09/10	64200 ± 5420						
MW-PB-26	08/12/10	54100 ± 5420						
MW-PB-26	08/16/10	61200 ± 5310						
MW-PB-26	08/19/10	52500 ± 4630						
MW-PB-26	08/23/10	49600 ± 5010						
MW-PB-26	08/26/10	54000 ± 5430						
MW-PB-26	08/30/10	47200 ± 4760						
MW-PB-26	09/02/10	45900 ± 4630						
MW-PB-26	09/07/10	33600 ± 3410						
MW-PB-26	09/13/10	16700 ± 1720						
MW-PB-26	09/13/10	17500 ± 1790						
MW-PB-26	09/20/10	11100 ± 1150						
MW-PB-26	09/27/10	13300 ± 1380						
MW-PB-26	10/04/10	5910 ± 644						
MW-PB-26	10/11/10	39800 ± 4020						
MW-PB-26	10/18/10	22800 ± 2320						
MW-PB-26	10/25/10	10700 ± 1110						
MW-PB-26	11/01/10	6420 ± 694						
MW-PB-26	11/08/10	4080 ± 454		< 0.6	3.7 ± 1.4	< 1.2	7.8 ± 2.0	< 1.5
MW-PB-26	11/08/10	4630 ± 514						
MW-PB-26	11/15/10	3480 ± 398						
MW-PB-26	11/22/10	2850 ± 330						
MW-PB-26	11/29/10	2240 ± 275						
MW-PB-26	12/06/10	2300 ± 281						
MW-PB-26	12/13/10	2840 ± 336						
MW-PB-26	12/20/10	2710 ± 318						
MW-PB-26	12/27/10	2700 ± 322						
MW-PB-27	02/15/10	65100 ± 6890						
MW-PB-27	02/18/10	137000 ± 13800						
MW-PB-27	02/22/10	71800 ± 5120						
MW-PB-27	03/01/10	55900 ± 5620						
MW-PB-27	03/08/10	47400 ± 4310						
MW-PB-27 (BOTTOM)	03/15/10	48200 ± 5290						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-27 (MIDDLE)	03/15/10	89900 ± 9450						
MW-PB-27 (SURFACE)	03/15/10	69500 ± 7420						
MW-PB-27	03/22/10	42300 ± 4160						
MW-PB-27	03/29/10	40600 ± 4100						
MW-PB-27	04/05/10	27600 ± 2800						
MW-PB-27	04/12/10	32700 ± 3300						
MW-PB-27	04/19/10	28100 ± 2840						
MW-PB-27	04/26/10	26700 ± 2710						
MW-PB-27	05/03/10	30000 ± 3050						
MW-PB-27	05/10/10	19400 ± 1980						
MW-PB-27	05/17/10	21600 ± 2210						
MW-PB-27	05/24/10	25300 ± 2570		< 0.6	8.8 ± 4.6	< 0.8	6.3 ± 2.0	< 1.6
MW-PB-27	06/01/10	19900 ± 2040						
MW-PB-27	06/07/10	20900 ± 2130						
MW-PB-27	06/14/10	16600 ± 1710						
MW-PB-27	06/21/10	19100 ± 1950						
MW-PB-27	06/28/10	18000 ± 1840						
MW-PB-27	07/06/10	19000 ± 1940						
MW-PB-27	07/12/10	17400 ± 1790						
MW-PB-27	07/19/10	16400 ± 1680						
MW-PB-27	07/26/10	13300 ± 1370						
MW-PB-27	08/02/10	16000 ± 1650						
MW-PB-27	08/09/10	16600 ± 1700						
MW-PB-27	08/12/10	14600 ± 1500						
MW-PB-27	08/16/10	15000 ± 1540						
MW-PB-27	08/19/10	10300 ± 1080						
MW-PB-27	08/23/10	10100 ± 1060						
MW-PB-27	08/26/10	11100 ± 1150						
MW-PB-27	08/30/10	10300 ± 1070						
MW-PB-27	09/02/10	8650 ± 911						
MW-PB-27	09/07/10	10700 ± 1120						
MW-PB-27	09/13/10	7780 ± 833						
MW-PB-27	09/13/10	6840 ± 728						
MW-PB-27	09/20/10	6740 ± 721						
MW-PB-27	09/27/10	6670 ± 713						
MW-PB-27	10/04/10	8710 ± 923						
MW-PB-27	10/11/10	7340 ± 782						
MW-PB-27	10/18/10	5750 ± 623						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-27	10/25/10		5310 ± 571						
MW-PB-27	11/01/10		5770 ± 628						
MW-PB-27	11/08/10		10000 ± 1050		< 0.7	6.3 ± 1.8	< 1.2	7.8 ± 2.0	< 1.5
MW-PB-27	11/08/10		8540 ± 900			9.3 ± 2.1	< 1.2	12.1 ± 2.2	< 1.5
MW-PB-27	11/08/10	TBE	10900 ± 1140						
MW-PB-27	11/08/10	EIML	9192 ± 296	< 0.7	< 0.6				
MW-PB-27	11/15/10		6060 ± 652						
MW-PB-27	11/22/10		6630 ± 704						
MW-PB-27	11/29/10		5630 ± 608						
MW-PB-27	12/06/10		6700 ± 714						
MW-PB-27	12/13/10		7200 ± 767						
MW-PB-27	12/20/10		7770 ± 820						
MW-PB-27	12/27/10		9390 ± 985						
MW-PB-28	02/15/10		2530 ± 311						
MW-PB-28	02/18/10		2450 ± 306						
MW-PB-28	02/22/10		2010 ± 288						
MW-PB-28	03/01/10		1400 ± 186						
MW-PB-28	03/08/10		457 ± 121						
MW-PB-28	03/15/10		290 ± 114						
MW-PB-28	03/22/10		432 ± 120						
MW-PB-28	03/29/10		268 ± 115						
MW-PB-28	04/05/10		189 ± 112						
MW-PB-28	04/12/10		253 ± 108						
MW-PB-28	04/19/10		257 ± 114						
MW-PB-28	04/26/10		248 ± 112						
MW-PB-28	05/03/10		194 ± 118						
MW-PB-28	05/10/10		255 ± 115						
MW-PB-28	05/17/10		< 176						
MW-PB-28	05/24/10		239 ± 108		< 0.7	< 1.9	< 0.8	5.4 ± 1.9	< 1.6
MW-PB-28	06/01/10		226 ± 118						
MW-PB-28	06/07/10		382 ± 118						
MW-PB-28	06/14/10		179 ± 111						
MW-PB-28	06/21/10		208 ± 110						
MW-PB-28	06/28/10		< 175						
MW-PB-28	07/06/10		189 ± 112						
MW-PB-28	07/12/10		211 ± 112						
MW-PB-28	07/19/10		449 ± 125						
MW-PB-28	07/26/10		521 ± 123						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-28	08/02/10	500 ± 141						
MW-PB-28	08/09/10	554 ± 133						
MW-PB-28	08/16/10	576 ± 136						
MW-PB-28	08/23/10	393 ± 131						
MW-PB-28	08/30/10	442 ± 119						
MW-PB-28	09/07/10	378 ± 122						
MW-PB-28	09/13/10	370 ± 132						
MW-PB-28	09/20/10	469 ± 126						
MW-PB-28	09/27/10	413 ± 123						
MW-PB-28	10/04/10	381 ± 137						
MW-PB-28	10/11/10	341 ± 130						
MW-PB-28	10/18/10	482 ± 127						
MW-PB-28	10/25/10	277 ± 115						
MW-PB-28	11/01/10	213 ± 123						
MW-PB-28	11/08/10	237 ± 117						
MW-PB-28	12/13/10	293 ± 124						
MW-PB-3	05/25/10	< 173						
MW-PB-3	11/09/10	< 167		< 0.6	2.9 ± 1.6	< 1.2	6.0 ± 1.9	< 1.5
MW-PB-4	01/04/10	1080 ± 169						
MW-PB-4	01/11/10	1600 ± 219						
MW-PB-4	01/19/10	1150 ± 170						
MW-PB-4	01/25/10	850 ± 143						
MW-PB-4	02/01/10	1310 ± 165						
MW-PB-4	02/15/10	1430 ± 185						
MW-PB-4	02/22/10	1510 ± 228						
MW-PB-4	03/01/10	2400 ± 313						
MW-PB-4	03/08/10	2190 ± 291						
MW-PB-4	03/15/10	3630 ± 412						
MW-PB-4	03/22/10	3060 ± 351						
MW-PB-4	03/29/10	5780 ± 626						
MW-PB-4	03/29/10	5020 ± 551						
MW-PB-4	04/05/10	6030 ± 650						
MW-PB-4	04/12/10	6350 ± 678						
MW-PB-4	04/19/10	7000 ± 743						
MW-PB-4	04/26/10	8060 ± 848						
MW-PB-4	05/03/10	11400 ± 1190						
MW-PB-4	05/10/10	9560 ± 999						
MW-PB-4	05/17/10	10900 ± 1140						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-4	05/24/10	17200 ± 1760		< 0.7	< 1.6	< 0.8	7.2 ± 2.6	< 1.6
MW-PB-4	06/01/10	15400 ± 1590						
MW-PB-4	06/07/10	15600 ± 1600						
MW-PB-4	06/14/10	15700 ± 1610						
MW-PB-4	06/21/10	16800 ± 1720						
MW-PB-4	06/28/10	13500 ± 1400						
MW-PB-4	07/06/10	17100 ± 1750						
MW-PB-4	07/12/10	9780 ± 1030						
MW-PB-4	07/19/10	13700 ± 1420						
MW-PB-4	07/26/10	10800 ± 1120						
MW-PB-4	08/02/10	11200 ± 1170						
MW-PB-4	08/09/10	9160 ± 958						
MW-PB-4	08/12/10	9050 ± 949						
MW-PB-4	08/16/10	8690 ± 909						
MW-PB-4	08/19/10	10300 ± 1080						
MW-PB-4	08/23/10	7990 ± 853						
MW-PB-4	08/26/10	8250 ± 867						
MW-PB-4	08/30/10	6970 ± 736						
MW-PB-4	09/02/10	6910 ± 740						
MW-PB-4	09/07/10	7310 ± 775						
MW-PB-4	09/13/10	6300 ± 686						
MW-PB-4	09/20/10	5280 ± 577						
MW-PB-4	09/27/10	5270 ± 574						
MW-PB-4	10/04/10	5730 ± 626						
MW-PB-4	10/11/10	4580 ± 507						
MW-PB-4	10/18/10	4720 ± 522						
MW-PB-4	10/25/10	4220 ± 463						
MW-PB-4	11/01/10	4460 ± 499						
MW-PB-4	11/08/10	5140 ± 565		< 0.8	< 2.0	< 1.2	9.7 ± 2.5	1.7 ± 1.1
MW-PB-4	11/08/10	4990 ± 551						
MW-PB-4	11/15/10	4550 ± 502						
MW-PB-4	11/22/10	5280 ± 571						
MW-PB-4	11/29/10	4370 ± 485						
MW-PB-4	12/06/10	5310 ± 577						
MW-PB-4	12/13/10	4640 ± 513						
MW-PB-4	12/20/10	4510 ± 496						
MW-PB-4	12/27/10	4320 ± 480						
MW-PB-5	05/25/10	< 157		< 0.5	< 1.8	< 0.8	3.2 ± 1.8	< 1.6

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
MW-PB-6	05/24/10		< 170						
MW-PB-6	05/24/10	TBE	< 173						
MW-PB-6	05/24/10	EIML	< 144						
MW-PB-6	11/08/10		< 166						
MW-PB-7	05/25/10		170 ± 105						
MW-PB-7	11/09/10		< 169		< 0.7	< 2.0	< 1.2	10.2 ± 2.8	< 1.5
MW-PB-8	05/25/10		< 154						
MW-PB-8	05/25/10	TBE	< 170						
MW-PB-8	05/25/10	EIML	185 ± 96						
MW-PB-8	11/09/10		< 167		< 0.7	< 2.3	< 1.2	13.7 ± 2.5	< 1.5
MW-PB-9	05/25/10		< 171						
PB-HAZ WASTE STORAGE	01/20/10		< 162		< 0.7				
PB-HAZ WASTE STORAGE	05/25/10		< 160		< 0.7				
PB-NORTH SUBSTATION	01/20/10		< 160		< 0.3				
PB-NORTH SUBSTATION	05/25/10		< 156		< 0.6				
PB-SALT WASHDOWN	01/20/10		< 162		< 0.6				
PB-SALT WASHDOWN	05/25/10		< 155		< 0.7				
PB-SOUTH SUBSTATION	01/20/10		< 160		< 0.6				
PB-SOUTH SUBSTATION	05/25/10		< 151		< 0.7				
SP-PB-1	05/25/10		< 173						
SP-PB-1	11/09/10		< 167						
SP-PB-2	05/25/10		< 172						
SP-PB-2	11/09/10		< 166						
SP-PB-3	01/20/10		< 160		< 0.5				
SP-PB-3	05/25/10		< 158						
SP-PB-3	11/08/10		< 167						
U/2 YARD DRAIN	01/04/10		199 ± 114						
U/2 YARD DRAIN	01/11/10		538 ± 130						
U/2 YARD DRAIN	01/20/10		416 ± 121						
U/2 YARD DRAIN	01/25/10		394 ± 130						
U/2 YARD DRAIN	02/05/10		442 ± 132						
U/2 YARD DRAIN	02/08/10		344 ± 107						
U/2 YARD DRAIN	02/16/10		204 ± 126						
U/2 YARD DRAIN	02/22/10		< 193						
U/2 YARD DRAIN	03/01/10		< 193						
U/2 YARD DRAIN	03/08/10		< 194						
U/2 YARD DRAIN	03/15/10		277 ± 112						
U/2 YARD DRAIN	04/05/10		< 167						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER AND SEEP SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	SR-89	SR-90	GR-A (DIS)	GR-A (SUS)	GR-B (DIS)	GR-B (SUS)
U/2 YARD DRAIN	04/19/10	< 162						
U/2 YARD DRAIN	05/10/10	183 ± 112						
U/2 YARD DRAIN	05/25/10	187 ± 117						
U/2 YARD DRAIN	06/07/10	< 157						
U/2 YARD DRAIN	06/21/10	< 159						
U/2 YARD DRAIN	07/09/10	< 168						
U/2 YARD DRAIN	07/20/10	305 ± 114						
U/2 YARD DRAIN	08/09/10	221 ± 115						
U/2 YARD DRAIN	11/05/10	226 ± 116						
U/3 YARD DRAIN	01/04/10	347 ± 120						
U/3 YARD DRAIN	01/11/10	286 ± 117						
U/3 YARD DRAIN	01/20/10	274 ± 116						
U/3 YARD DRAIN	01/25/10	521 ± 135						
U/3 YARD DRAIN	02/05/10	485 ± 125						
U/3 YARD DRAIN	02/08/10	512 ± 116						
U/3 YARD DRAIN	02/16/10	195 ± 126						
U/3 YARD DRAIN	02/22/10	269 ± 130						
U/3 YARD DRAIN	03/01/10	397 ± 134						
U/3 YARD DRAIN	03/08/10	461 ± 137						
U/3 YARD DRAIN	03/15/10	354 ± 114						
U/3 YARD DRAIN	04/05/10	282 ± 115						
U/3 YARD DRAIN	04/19/10	237 ± 112						
U/3 YARD DRAIN	05/10/10	< 167						
U/3 YARD DRAIN	05/25/10	256 ± 119						
U/3 YARD DRAIN	06/07/10	243 ± 110						
U/3 YARD DRAIN	06/21/10	214 ± 110						
U/3 YARD DRAIN	07/09/10	241 ± 112						
U/3 YARD DRAIN	07/20/10	268 ± 111						
U/3 YARD DRAIN	08/09/10	302 ± 119						
U/3 YARD DRAIN	11/05/10	211 ± 116						

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER AND SEEP WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MW-PB-1	01/20/10	< 4	< 4	< 12	< 5	< 11	< 6	< 10	< 14	< 5	< 5	< 34	< 11
MW-PB-1	05/25/10	< 2	< 3	< 5	< 2	< 5	< 3	< 4	< 15	< 2	< 3	< 21	< 3
MW-PB-10	11/09/10	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 1	< 1	< 16	< 5
MW-PB-11	05/24/10	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 2	< 3	< 25	< 8
MW-PB-11	11/09/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 20	< 7
MW-PB-12	11/08/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 23	< 7
MW-PB-13	11/09/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 19	< 7
MW-PB-14	11/09/10	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 1	< 2	< 15	< 5
MW-PB-15	11/09/10	< 2	< 2	< 5	< 2	< 5	< 3	< 5	< 12	< 2	< 2	< 23	< 7
MW-PB-16	11/09/10	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 15	< 2	< 2	< 27	< 9
MW-PB-19	11/08/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 15	< 2	< 2	< 26	< 9
MW-PB-2	11/09/10	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 13	< 2	< 2	< 23	< 7
MW-PB-20	11/08/10	< 2	< 3	< 6	< 2	< 4	< 3	< 5	< 14	< 2	< 2	< 26	< 7
MW-PB-21	11/08/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 15	< 2	< 2	< 26	< 8
MW-PB-22	11/08/10	< 1	< 1	< 4	< 1	< 3	< 2	< 3	< 9	< 1	< 1	< 15	< 5
MW-PB-24	05/24/10	< 3	< 2	< 5	< 2	< 5	< 2	< 5	< 13	< 2	< 3	< 25	< 8
MW-PB-24	11/08/10	< 2	< 2	< 6	< 2	< 5	< 2	< 5	< 14	< 2	< 2	< 24	< 7
MW-PB-25	05/24/10	< 2	< 3	< 4	< 2	< 4	< 3	< 4	< 12	< 2	< 2	< 21	< 8
MW-PB-25	11/08/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 6
MW-PB-26	05/24/10	< 2	< 2	< 6	< 3	< 5	< 3	< 4	< 12	< 2	< 3	< 24	< 9
MW-PB-26	11/08/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 13	< 2	< 2	< 24	< 8
MW-PB-27	05/24/10	< 2	< 3	< 5	< 2	< 3	< 3	< 4	< 13	< 2	< 2	< 24	< 7
MW-PB-27	11/08/10	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 1	< 2	< 17	< 5
MW-PB-27	11/08/10	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 11	< 1	< 2	< 19	< 5
MW-PB-27	11/08/10	< 4	< 5	< 9	< 3	< 11	< 6	< 8	< 10	< 4	< 4	< 17	< 8
MW-PB-28	05/24/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 14	< 2	< 3	< 26	< 9
MW-PB-3	11/09/10	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 2	< 2	< 18	< 5
MW-PB-4	05/24/10	< 2	< 3	< 6	< 2	< 5	< 3	< 4	< 13	< 2	< 2	< 25	< 5
MW-PB-4	11/08/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 7
MW-PB-5	05/25/10	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 14	< 2	< 2	< 27	< 8
MW-PB-6	11/08/10	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 1	< 2	< 16	< 5
MW-PB-7	11/09/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 18	< 6
MW-PB-8	11/09/10	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER AND SEEP WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
PB-HAZ WASTE STORAGE	01/20/10	< 5	< 4	< 10	< 5	< 9	< 6	< 8	< 13	< 4	< 5	< 35	< 8
PB-NORTH SUBSTATION	01/20/10	< 6	< 6	< 12	< 5	< 9	< 6	< 9	< 14	< 5	< 5	< 38	< 11
PB-SALT WASHDOWN	01/20/10	< 5	< 4	< 10	< 5	< 9	< 5	< 8	< 12	< 4	< 5	< 30	< 9
PB-SOUTH SUBSTATION	01/20/10	< 5	< 5	< 10	< 5	< 7	< 4	< 8	< 14	< 5	< 6	< 30	< 8
SP-PB-1	11/09/10	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 14	< 2	< 3	< 25	< 8
SP-PB-2	11/09/10	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 11	< 1	< 2	< 18	< 6
SP-PB-3	01/20/10	< 4	< 5	< 10	< 6	< 8	< 6	< 9	< 14	< 6	< 5	< 28	< 7
SP-PB-3	11/08/10	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 12	< 2	< 2	< 21	< 6
U/2 YARD DRAIN	11/05/10	< 2	< 2	< 5	< 2	< 3	< 2	< 4	< 14	< 2	< 2	< 24	< 5
U/3 YARD DRAIN	11/05/10	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 20	< 2	< 2	< 31	< 9

TABLE B-I.3 CONCENTRATIONS OF HARD TO DETECTS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	AM-241	CM-242	CM-243/244	PU-238	PU-239/240	U-233/234	U-235	U-238	FE-55	NI-63
MW-PB-1	05/25/10	< 0.11	< 0.04	< 0.08	< 0.07	< 0.10	< 0.08	< 0.03	< 0.06	< 167	< 4.2
MW-PB-11	05/24/10	< 0.06	< 0.04	< 0.06	< 0.12	< 0.07	< 0.07	< 0.03	< 0.07	< 127	< 2.8
MW-PB-12	05/24/10	< 0.09	< 0.04	< 0.04	< 0.11	< 0.10	< 0.06	< 0.02	< 0.05	< 134	< 4.2
MW-PB-13	05/25/10	< 0.09	< 0.03	< 0.09	< 0.05	< 0.11	12.80 ± 1.17	0.36 ± 0.16	10.70 ± 1.02	< 122	< 3.4
MW-PB-24	05/24/10	< 0.04	< 0.04	< 0.01	< 0.13	< 0.11	< 0.07	< 0.02	< 0.05	< 101	< 4.2
MW-PB-24	11/08/10	< 0.18	< 0.09	< 0.12	< 0.19	< 0.07	< 0.08	< 0.18	< 0.08	< 143	< 4.7
MW-PB-25	05/24/10	< 0.04	< 0.04	< 0.01	< 0.05	< 0.04	0.34 ± 0.15	< 0.04	0.19 ± 0.11	< 82	< 2.8
MW-PB-25	11/08/10	< 0.04	< 0.14	< 0.08	< 0.14	< 0.06	< 0.11	< 0.07	< 0.11	< 142	< 4.7
MW-PB-26	05/24/10	< 0.07	< 0.03	< 0.06	< 0.16	< 0.18	0.40 ± 0.15	< 0.02	< 0.10	< 140	< 4.3
MW-PB-26	11/08/10	< 0.09	< 0.11	< 0.18	< 0.06	< 0.04	2.48 ± 0.60	< 0.17	1.18 ± 0.40	< 109	< 4.7
MW-PB-27	05/24/10	< 0.13	< 0.02	< 0.11	< 0.17	< 0.12	6.34 ± 0.66	< 0.04	2.27 ± 0.35	< 178	< 4.3
MW-PB-27	11/08/10 TBE	< 0.06	< 0.11	< 0.18	< 0.19	< 0.15	7.63 ± 0.80	< 0.06	2.63 ± 0.41	< 189	< 4.7
MW-PB-28	05/24/10	< 0.06	< 0.04	< 0.02	< 0.06	< 0.13	0.81 ± 0.24	< 0.02	0.48 ± 0.17	< 34	< 2.8
MW-PB-28	11/08/10	< 0.11	< 0.07	< 0.19	< 0.17	< 0.05	6.85 ± 0.95	0.33 ± 0.20	2.44 ± 0.50	< 131	< 2.4
MW-PB-4	05/24/10	< 0.01	< 0.01	< 0.03	< 0.06	< 0.06	< 0.06	< 0.02	< 0.03	< 35	< 4.3
MW-PB-4	11/08/10	< 0.07	< 0.07	< 0.02	< 0.18	< 0.06	0.49 ± 0.24	< 0.09	0.32 ± 0.20	-	-
MW-PB-5	05/25/10	< 0.06	< 0.01	< 0.04	< 0.08	< 0.06	< 0.07	< 0.05	< 0.06	< 141	< 4.3

MW-PB-4 sample on 11/08/2010 did not require Fe-55 and Ni-63 analysis.

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3
SW-PB-1	05/24/10		< 157
SW-PB-1	11/08/10		< 169
SW-PB-1	11/08/10	TBE	< 173
SW-PB-1	11/08/10	EIML	< 162
SW-PB-5	05/24/10		< 154
SW-PB-5	11/08/10		< 170
SW-PB-6	05/24/10		< 156
SW-PB-6	11/08/10		< 172
SW-PB-6	11/08/10	TBE	< 170
SW-PB-6	11/08/10	EIML	< 162

TABLE B-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF PEACH BOTTOM ATOMIC POWER STATION, 2010**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
SW-PB-1	11/08/10		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 21	< 7
SW-PB-1	11/08/10	TBE	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 21	< 6
SW-PB-1	11/08/10	EIML	< 2	< 2	< 7	< 3	< 5	< 3	< 5	< 9	< 2	< 3	< 20	< 4
SW-PB-5	11/08/10		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 22	< 7
SW-PB-6	11/08/10		< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 11	< 2	< 2	< 20	< 6
SW-PB-6	11/08/10	TBE	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 12	< 2	< 2	< 19	< 6
SW-PB-6	11/08/10	EIML	< 3	< 2	< 9	< 3	< 6	< 3	< 5	< 6	< 3	< 3	< 15	< 4