Docket No: 50-219

OYSTER CREEK GENERATING STATION
UNIT 1

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2012

Prepared By
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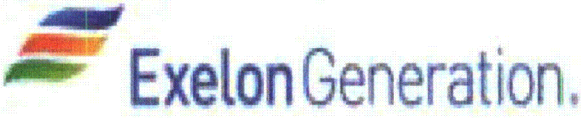
Environmental Services



Oyster Creek Generating Station
Forked River, NJ 08731

April 2013

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I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program (REMP) conducted for the Oyster Creek Generating Station (OCGS) by Exelon Nuclear covers the period 01 January 2012 through 31 December 2012. During that time period, 1588 analyses were performed on 1224 samples. In assessing all the data gathered for this report and comparing these results with historical data, it was concluded that the operation of OCGS had no adverse radiological impact on the environment.

REMP designated surface water samples were analyzed for concentrations of tritium and gamma emitting nuclides. No tritium, fission or activation products were detected in any of the surface water samples collected as part of the Radiological Environmental Monitoring Program during 2012.

REMP designated drinking water samples were analyzed for concentrations of gross beta, tritium, I-131, and gamma emitting nuclides. The preoperational environmental monitoring program did not include analysis of drinking water for gross beta. No tritium, I-131, or fission or activation products were detected in any of the drinking water samples collected.

REMP designated groundwater samples were analyzed for concentrations of tritium and gamma emitting nuclides. No tritium and no fission or activation products were detected in REMP groundwater samples.

Fish (predator and bottom feeder), clams, crabs, and sediment samples were analyzed for concentrations of gamma emitting nuclides. No OCGS-produced fission or activation products were detected in fish, clams and crabs. Cesium-137 was not detected in any sediment samples.

Air particulate samples were analyzed for concentrations of gross beta, gamma emitting nuclides, Strontium-89, and Strontium-90. Gross beta and cosmogenic Be-7 were detected at levels consistent with those detected in previous years. No fission or activation products were detected. Strontium-89 and Strontium-90 analyses were performed on quarterly composites of air particulate samples. All Strontium-89 and Strontium-90 results were below the minimum detectable activity.

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

Vegetation samples were analyzed for gamma emitting nuclides, Strontium-89, and Strontium-90. Concentrations of naturally occurring K-40 were consistent with those detected in previous years. Cesium-137 was detected at low levels consistent with those detected in previous years. All Strontium-89 results were below the minimum detectable activity. Strontium-90 activity was detected at levels consistent with those detected in previous years at both control and indicator stations, and can be attributed to historical nuclear weapons testing and the Chernobyl accident.

Environmental gamma radiation measurements were performed quarterly using Optically Stimulated Luminescence Dosimeters (OSLD). Exelon changed the dosimetry used for environmental monitoring. Beginning in calendar year 2012, Exelon began using OSLDs and discontinued the use of Thermo Luminescent Dosimetry (TLD). There were two main reasons for this change. First, OSLDs are not subject to "fade". Fade is where the dose on the dosimeter drifts lower over time. Second, OSLDs may be re-read if necessary. TLDs are reset to zero after they are read. Levels detected were consistent with those observed in previous years. The maximum dose to any member of the public attributable to radioactive effluents and direct radiation from the OCGS was less than the 25 mrem/year limit established by the United Stated Environmental Protection Agency (EPA).

II. Introduction

The Oyster Creek Generating Station (OCGS), consisting of one boiling water reactor owned and operated by Exelon, is located on the Atlantic Coastal Plain Physiographic Province in Ocean County, New Jersey, about 60 miles south of Newark, 9 miles south of Toms River, and 35 miles north of Atlantic City. It lies approximately 2 miles inland from Barnegat Bay. The site, covering approximately 781 acres, is situated partly in Lacey Township and, to a lesser extent, in Ocean Township. Access is provided by U.S. Route 9, passing through the site and separating a 637-acre eastern portion from the balance of the property west of the highway. The station is about ¼ mile west of the highway and 1¼ miles east of the Garden State Parkway. The site property extends about 2½ miles inland from the bay; the maximum width in the north-south direction is almost 1 mile. The site location is part of the New Jersey shore area with its relatively flat topography and extensive freshwater and saltwater marshlands. The South Branch of Forked River runs across the northern side of the site and Oyster Creek partly borders the southern side.

A preoperational Radiological Environmental Monitoring Program (REMP) for OCGS was established in 1966, and continued for two years prior to the plant becoming operational in 1969. This report covers those analyses performed by Teledyne Brown Engineering (TBE), Landauer and Environmental Inc. (Midwest Labs) on samples collected during the period 01 January 2012 through 31 December 2012.

A. Objectives of the REMP

The objectives of the REMP are to:

1. Determine whether any significant increase occurs in the concentration of radionuclides in major pathways.

2. Identify and evaluate the buildup, if any, of radionuclides in the local environment, or any changes in normal background radiation levels.

3. Verify the adequacy of the plant's controls for the release of radioactive materials.

4. Fulfill the obligations of the radiological surveillance sections of Oyster Creek's Offsite Dose Calculation Manual (ODCM).

B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

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

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

C. Discussion

1. General Program

The Radiological Environmental Monitoring Program (REMP) was established in 1966, three years before the plant became operational. This preoperational surveillance program was established to describe and quantify the radioactivity, and its variability, in the area prior to the operation of OCGS. After OCGS became operational in 1969, the operational surveillance program continued to measure radiation and radioactivity in the surrounding areas.

A variety of environmental samples are collected as part of the REMP at OCGS. The selection of sample types is based on the established pathways for the transfer of radionuclides through the environment to humans. The selection of sampling locations is based on sample availability, local meteorological and hydrological characteristics, local population characteristics, and land usage in the area of interest. The selection of sampling frequencies for the various environmental media is based on the radionuclides of interest, their respective half-lives, and their behavior in both the biological and physical environment.

2. Preoperational Surveillance Program

The federal government requires nuclear facilities to conduct radiological environmental monitoring prior to constructing the facility. This preoperational surveillance program is aimed at collecting the data needed to identify pathways, including selection of the radioisotope and sample media combinations to be included in the environmental surveillance program conducted after facility

operation begins. Radiochemical analyses performed on the environmental samples should include not only those nuclides expected to be released during facility operation, but should also include typical radionuclides from nuclear weapons testing and natural background radioactivity. All environmental media with a potential to be affected by facility operation as well as those media directly in the major pathways, should be sampled on at least an annual basis during the preoperational phase of the environmental surveillance program.

The preoperational surveillance design, including nuclide/media combinations, sampling frequencies and locations, collection techniques, and radioanalyses performed, should be carefully considered and incorporated in the design of the operational surveillance program. In this manner, data can be compared in a variety of ways (for example, from year to year, location to location, etc.) in order to detect any radiological impact the facility has on the surrounding environment. Data collection during the preoperational phase should be planned to provide a comprehensive database for evaluating any future changes in the environment surrounding the nuclear facility.

OCGS began its preoperational environmental surveillance program three years before the plant began operating in 1969. Data accumulated during those early years provide an extensive database from which environmental monitoring personnel are able to identify trends in the radiological characteristics of the local environment. The environmental surveillance program at OCGS will continue after the plant has reached the end of its economically useful life and decommissioning has begun.

3. Consideration of Plant Effluents

Effluents are strictly monitored to ensure that radioactivity released to the environment is as low as reasonably achievable and does not exceed regulatory limits. Effluent control includes the operation of monitoring systems, in-plant and environmental sampling and analyses programs, quality assurance programs for effluent and environmental programs, and procedures covering all aspects of effluent and environmental monitoring.

Both radiological environmental and effluent monitoring indicate that the operation of OCGS does not result in significant radiation exposure of the people or the environment surrounding OCGS and

is well below the applicable levels set by the Nuclear Regulatory Commission (NRC) and the EPA.

There were liquid radioactive effluent releases during 2012 of concentrations of tritium too low to detect at an LLD of 200 picocuries per liter (pCi/L) at the New Jersey Pollution Discharge Elimination System (NJPDES) permitted main condenser outfall. The releases were part of nearly continuous pumping of groundwater at approximately 70 gpm containing low levels of tritium and no detectable gamma. Exelon and the State of New Jersey Department of Environmental Protection (NJDEP) agreed to this remediation action instead of natural attenuation to address concentrations of tritium in groundwater. Well 73 and supporting equipment and piping were installed to pump groundwater to the intake structure at the inlet of the main circulating water pumps. Provisions were established for both batch and continuous releases of groundwater. Continuous releases occurred approximately 257 days in 2012. The Continuous releases occurred from January 1, 2012 through December 31, 2012 with a total of 2.49E+07 gallons of groundwater pumped resulting in 3.30E-01 Ci of tritium released to the discharge canal. The dose to the most limiting member of the public due to the release of groundwater was 1.55E-06 mrem.

Utilizing gaseous effluent data, the maximum hypothetical dose to any individual during 2012 was calculated using a mathematical model, which is based on the methods defined by the U.S. Nuclear Regulatory Commission. These methods accurately determine the types and quantities of radioactive materials being released to the environment.

The maximum hypothetical calculated organ dose (Bone) from iodines, tritium, carbon-14 (C-14) and particulates to any individual due to gaseous effluents was 5.60E-01 mrem (0.560mrem) which was approximately 3.73 percent of the annual limit. The maximum hypothetical calculated whole body dose to any individual due to noble gas effluents was 2.34E-03 mrem (0.00234 mrem) which was 4.68E-02 percent of the annual limit.

The total maximum hypothetical organ dose (Bone) due to all radiological effluents of 5.67E-01 mrem (0.567 mrem) received by any individual from gaseous effluents from the Oyster Creek Generating Station for the reporting period is more than 529 times lower than the dose the average individual in the Oyster Creek area received from background radiation, including that from radon,

during the same time period. The background radiation dose averages approximately 300 mrem per year in the Central New Jersey area, which includes approximately 200 mrem/year from naturally occurring radon gas.

During 2012, the maximum direct radiation dose to the most likely exposed MEMBER OF THE PUBLIC potentially attributable to the operation of Oyster Creek beyond the site boundary in the west sector, as shown by offsite OSLD readings at station 55 was 5.55 mrem. The nearest member of the public is considered a part-time resident that works 2,000 hours per year at a warehouse located west of the plant.

Environmental sampling of airborne iodine and particulates showed no radioactivity attributable to the operation of OCGS.

III. Program Description

A. Sample Collection

Samples for the OCGS REMP were collected for Exelon by on-site personnel and Normandeau Associates, Incorporated. This section describes the general collection methods used to obtain environmental samples for the OCGS REMP in 2012. Sample locations and descriptions can be found in Tables B–1 and B–2, and Figures B–1, B–2, and B-3, Appendix B. The collection procedures are listed in Table B–3.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, drinking water, groundwater, fish, clams, crabs, and sediment. One gallon water samples were collected monthly from two surface locations (33 and 94), semiannually at two surface water locations (23 and 24), monthly from six drinking water wells (1N, 1S, 37, 38, 39, and 114) and quarterly from 2 groundwater stations (MW-24-3A and W-3C). Control locations were 94 and 37. All samples were collected in plastic bottles, which were rinsed at least twice with source water prior to collection. Fish samples comprising the flesh of two groups, bottom feeder and predator, were collected semiannually at three locations (33, 93 and 94 (control)). Clams were collected semiannually from three locations (23, 24, and 94 (control)). Two annual crab samples were collected from two locations (33 and 93). Sediment samples were collected at four locations semiannually (23, 24, 33, and 94 (control)).

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate and airborne iodine. Airborne iodine and particulate samples were collected and analyzed weekly at eight locations (C, 3, 20, 66, 71, 72, 73, and 111). The control location was C. 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 one cubic foot per minute. The filters were replaced weekly and sent to the laboratory for analysis.

Terrestrial Environment

The terrestrial environment was evaluated by performing radiological analyses on samples of garden vegetation. No commercial dairy operations and no dairy animals producing milk for human consumption are located within a 5 mile radius of the plant. Therefore, vegetation samples were collected in lieu of milk. Vegetation samples were collected, when available, at four locations, when available (35, 36, 66, and 115). Station 36 was the control location. All samples were collected in 18" x 24" new unused plastic bags and shipped promptly to the laboratory.

Ambient Gamma Radiation

Direct radiation measurements were made using Al_2O_3:C Optically Stimulated Luminescence Dosimetry (OSLD). Exelon changed the dosimetry used for environmental monitoring. Beginning in calendar year 2012, Exelon began using OSLDs and discontinued the use of Thermoluminescent Dosimetry (TLD). There were two main reasons for this change. First, OSLDs are not subject to "fade". Fade is where the dose on the dosimeter drifts lower over time. Second, OSLDs may be re-read if necessary. TLDs are reset to zero after they are read. The OSLDs were placed on and around the OCGS site and were categorized as follows:

A site boundary ring consisting of 19 locations (1, T1, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 112, and 113) near the site boundary.

An intermediate distance ring consisting of 31 locations (4, 5, 6, 8, 9, 22, 46, 47, 48, 68, 73, 74, 75, 78, 79, 82, 84, 85, 86, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 109, and 110) extending to approximately 5

miles from the site designed to measure possible exposures to close-in population.

Special interest stations consisting of 9 locations (3, 11, 71, 72, 81, 88, 89, 90, and 92) representing special interest areas such as population centers, state parks, etc.

Background (Control) stations consisting of two locations (C and 14) greater than 20 miles distant from the site.

Indicator OSLDs were placed systematically, with at least one station in each of 16 meteorological compass sectors in the general area of the site boundary. OSLDs were also placed in each meteorological sector in the 1 to 5 mile range, where reasonable highway access would permit, in areas of public interest and population centers. Background locations were located greater than twenty miles distant from the OCGS and generally in an upwind direction from the OCGS.

Two OSLDs were placed at each location approximately three to eight feet above ground level. The OSLDs were exchanged quarterly and sent to Landauer for analysis.

B. Sample Analysis

This section describes the general analytical methodologies used by TBE and Environmental Inc. (Midwest Labs) to analyze the environmental samples for radioactivity for the OCGS REMP in 2012. The analytical procedures used by the laboratories are listed in Table B–3.

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

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

2. Concentrations of gamma emitters in surface, drinking water, groundwater, fish, clams, crabs, sediment, air particulates and vegetation.

3. Concentrations of tritium in REMP designated surface, drinking water and groundwater.

4. Concentrations of I-131 in air iodine cartridges and drinking water.

5. Concentrations of strontium in air particulates and vegetation.

6. Ambient gamma radiation levels at various locations around the OCGS.

C. Data Interpretation

For trending purposes, the radiological and direct radiation data collected during 2012 were compared with data from past years. The results of environmental sampling show that radioactivity levels have not increased from the background radioactivity detected prior to the operation of OCGS. The operation of OCGS continues to have no measurable radiological impact upon the environment.

Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) is 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 is intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criterion for the presence of activity. All analyses were designed to achieve the required OCGS 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 may result in sample activity being lower than the background activity, which results in 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, drinking water, and groundwater 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 clams eight nuclides: K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Cs-134, and Cs-137 were reported.

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

For sediment seven nuclides: Be-7, 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 air iodine cartridges one nuclide: I-131 was reported.

For vegetation seven nuclides: Be-7, K-40, I-131, Cs-134, Cs-137, Ba-140, and La-140 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 2012 the OCGS REMP had a sample recovery rate in excess of 99%. Exceptions are listed below:

Surface Water

1. Station 94 – Month of January sample only collected 1.5 gallons. Part of the sample spilled out of container.

2. Station #94 – Month of November sample is a composite of 3 weeks instead of 5 weeks. Station was not accessible due to hurricane Sandy weeks of 10/28/12 and 11/4/12.

Drinking Water

3. Station 1N – Month of January sample is a composite of 3 weeks instead of 4 weeks. No sample for week of 1/1/12, station out of service.

4. Station 38 – No sample Months of January/February/March/April, station out of service for upgrades.

5. Station 114 – Month of February sample is a composite of 3 weeks instead of 4 weeks. No sample for week 2/5/12, station out of service for upgrades.

6. Station 1N – Month of May sample is a composite of 3 weeks instead of 5 weeks. No sample for weeks of 5/20/12 and 5/27/12, station was offline.

7. Station 38 – Month of May sample is a composite of 2 weeks instead of 5 weeks. No sample for weeks of 5/1/12, 5/13/12 and 5/27/12, station was offline.

8. Station 38 – Month of June sample is 1 week instead of a composite of 4 weeks. No sample for weeks of 6/10/12, 6/17/12 and 6/24/12. Station was offline.

9. Station 1N – Month of June, No sample, station was offline for Month.

10. Station 1S – Month of July sample is a composite of 2 weeks instead of 4 weeks. No sample for weeks of 7/8/12 and 7/15/12, station was offline.

11. Station 1S – Month of August sample is a composite of 3 weeks instead of 5 weeks. No sample for weeks of 8/13/12 and 8/20/12, station was offline.

12. Station 38 – Month of September sample is a composite of 3 weeks instead of 4 weeks. No sample for week of 9/16/12, station was offline.

13. Station 38 – Month of October sample is a composite of 2 weeks instead of 4 weeks. No sample for weeks of 10/8/12 and 10/22/12, station was offline.

14. Station 39 – Month of October sample is a composite of 3 weeks instead of 4 weeks. No sample for week of 10/22/12, station was offline.

15. Station 39 – No sample Months of November and December, station out of service for upgrades.

16. Station 114 – Month of November sample is a composite of 4 weeks instead of 5 weeks. No sample for week of 10/28/12, station was offline.

17. Station 1N – Month of November sample is a composite of 2 weeks instead of 5 weeks. No sample for weeks of 11/11/12, 11/18/12 and 11/25/12, station was offline.

18. Station 38 – Month of November sample is a composite of 3 weeks instead of 5 weeks. No sample for weeks of 10/28/12 and 11/22/12, station was offline.

19. Station 1S – Month of December sample is a composite of 2 weeks instead of 4 weeks. No sample for weeks of 12/2/12 and 12/16/12, station was offline.

20. Station 114 – Only able to collect about ¾ gallon week of 12/16/12, they were performing repairs inside the building.

21. Low level I-131 analysis was not requested to be performed on drinking water samples by Environmental Inc. (Midwest Labs) until April 2012.

22. Low level I-131 analysis was not performed by Teledyne Brown Engineering April through December due to the analysis being removed from the Chain-of-Custody form in error.

Dosimetry

23. Station 113 – Second quarter dosimeters were missing. The station was located on a telephone pole that was replaced. Station replaced for third quarter.

24. Station 72 – Fourth quarter dosimeters were missing after hurricane Sandy and were replaced with spare dosimeters.

Air

25. Station 3 – Week of 1/29/12 No sample due to pump failure, pump changed out.

26. Station 3 – Week of 2/5/12 Exhaust fitting found broken, fitting repaired and samples were analyzed.

27. Station 73 – Week of 3/25/12 Filter lighter color than usual – sample analyzed

28. Station 72 – Week of 6/24/12 sample due to pump failure, pump changed out.

29. Station 66 – Week of 7/1/12 No sample due to pump failure, pump vanes changed out.

30. Station 20 – Week of 8/5/12 Access to the farm was blocked. No samples collected, samples collected the following week as a 2 week sample.

The following air exceptions were as a result of hurricane Sandy:

31. Station C – Weeks of 10/28/12 and 11/4/12 No sample, had no power. The fuse was replaced and the breaker was reset. Sampler was left on for the power to return. The breaker had to be reset again the week of 11/3/12.

32. Station 72 – Weeks of 10/28/12 and 11/4/12 No sample, had no power. The breaker was reset. Sampler was left on for the power to return.

33. Station 73 – Weeks of 10/28/12, 11/4/12 and 11/11/12): No sample, had no power. The breaker was reset. Sampler was left on for the power to return but the pump kept shorting out. Pump was replaced.

34. Station 3 – From week 10/28/12 through the end of the year no sample. No access to the sample station permitted.

The following exceptions are from run times being shorter than usual. This indicates that the station lost power for a period of time during the sample period. The samples were valid and all samples were analyzed.

35. Station 72 –Week of 7/8/12

36. Stations 66, 72 and 73 – Week of 9/12/12

37. Station 72 – Week of 9/19/12

38. Station 72 – Week of 10/3/12

39. Station 72 – Week of 10/10/12

Vegetation

40. Station 66 – There were no samples due failure of all crops to grow in this garden.

41. Station 35 – Month of July, less than 1000 grams of kale was collected due to small size of plants. Sample analyzed.

42. Station 115 – Month of July, less than 1000 grams of kale and collards were collected due to small size of plants. Samples analyzed.

43. Station 35 – Month of October, only one sample collected due to end of growing season. Sample analyzed.

*NOTE: Per the Oyster Creek ODCM, if garden vegetation samples are unobtainable due to any legitimate reason, the missed sample will be documented in the annual report, with no further actions necessary.

Program exceptions are tracked and investigated to understand the causes of the program exception. Sampling and maintenance errors are reviewed with the personnel involved to prevent recurrence.

The overall sample recovery rate indicates that the appropriate procedures and equipment are in place to assure reliable program implementation.

E. Program Changes

There were no changes to the program in 2012.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken via grab sample methodology at two locations (33 and 94) on a monthly schedule. In addition, grab samples were collected semi-annually at two locations (23 and 24). Of these locations 23, 24, and 33, located downstream, could be affected by Oyster Creek's effluent releases. The following analyses were performed:

Tritium

Samples from all locations were analyzed for tritium activity (Table C–I.1, Appendix C). No tritium activity was detected. Data from this year indicates that surface water tritium concentrations remain very low and not significantly different from recent previous years.

Gamma Spectrometry

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

Surface water sampling began in 1966, and the samples were analyzed for tritium as well as other radioactivity. During this preoperational program, tritium was detected at an average concentration of 1.05E+3 pCi/liter. At that time, counting instrumentation was not as sensitive as it now, and the minimum detectable concentration was 1E+3 pCi/liter versus 2E+2 pCi/liter used today. By comparing the 2012 sampling results to the decay corrected average preoperational concentration reported in the 2007 Annual Radiological Environmental Operating Report (1.11E+2 pCi/liter), it can be seen that the inventory of tritium in the environment is due to fallout from past atmospheric nuclear weapons testing and Chernobyl, and is decreasing with time.

2. Drinking water

Monthly samples were composited from monthly grab samples from six drinking water wells (1N, 1S, 37, 38, 39, and 114). Station 1, because it is located on the OCGS site, could potentially be affected by radioactive releases from the plant. Station 1 was split

into two separate locations, 1N and 1S. Station 38, the Ocean Township Municipal Utility Authority Well, could potentially be affected by effluent releases from the OCGS. Given its distance from the facility (1.6 miles) and depth (approximately 360 feet), however, the probability of any OCGS related impacts is very small. Stations 37 and 39, Lacey Township Municipal Utility Authority wells, are not likely to be impacted by effluents from the OCGS. These wells are located generally up-gradient of the regional groundwater flow direction (southeast). In addition, because of their depth (> 200 feet) and distance from the site (2.2 and 3.5 miles respectively), they are unlikely to be affected by OCGS operations. The following analyses were performed:

Tritium

Monthly samples from all locations were analyzed for tritium activity (Table C–II.1, Appendix C). No tritium activity was detected. Drinking water was sampled during the preoperational program and throughout the 42 years of the plant's operational program. Tritium sampling results during the preoperational years, yielded results all less than the minimum detectable concentration of 1E+3 pCi/liter. 2012 results are all less than the current MDC of 200 pCi/liter.

Gross Beta

Monthly samples from all locations were analyzed for concentrations of total gross beta activity (Tables C-II.2, Appendix C). Gross beta was detected in 38 of 65 samples, and is expected due to natural sources and fallout residual from previous bomb testing. The values ranged from 1.8 to 20.2 pCi/l.

The investigation level for gross beta in water is 15 pCi/l. Drinking water sample 1N result for gross beta exceeded the investigation level beginning in January 2012.

The initial result for gross beta was 15.1 pCi/l. This issue was entered into our Corrective Action Program (CAP) and an investigation initiated. The 1N water sample was analyzed for known beta emitters Sr-89, Sr-90, Fe-55 and Ni-63. These analyses results were all <MDC. It was also identified that the 1N well treatment system was upgraded the previous month and a potassium chloride softener system was added as part of the upgrade. Samples were obtained pre and post treatment. The pre-treatment result for gross beta was 3.6 pCi/l, which is a value that has been

seen previously in drinking water samples. The post-treatment sample result for gross beta was 22.2 pCi/l.

Based on the fact that there were no typical plant produced beta emitters detected and that natural potassium is a known beta emitter along with the results of the pre and post sampling, the gross beta values obtained for 1N can be attributed to the addition of the water softener system installed during the system upgrade in December of 2011.

Iodine

Monthly samples from all locations were analyzed for I-131 by the low level method to detect down to 1 pCi/L (Table C-II.3, Appendix C). All results were less than the MDC.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–II.4, Appendix C). All nuclides were less than the MDC.

3. Groundwater

The following analyses were performed:

Tritium

Samples from all locations were analyzed for tritium activity (Table C–III.1, Appendix C). No tritium activity was detected.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–III.2, Appendix C). All nuclides were less than the MDC.

4. Fish

Fish samples comprised of bottom feeder (black drum, blowfish, spot, summer flounder, and tautog) and predator (spotted sea trout, striped bass, bluefish, trigger fish, and white perch) were collected at three locations (33, 93, and 94) semiannually. Locations 93 and 33 could be affected by Oyster Creek's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portions of fish samples from three locations were analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). Naturally occurring potassium-40 was found at all stations and ranged from 2,832 to 5,520 pCi/kg wet and was consistent with levels detected in previous years. No fission or activation products were found.

No fish were sampled during the preoperational sampling program for OCGS.

5. Clams and Crabs

Clams were collected at three locations (23, 24, and 94) semiannually. Crabs were collected at two locations (33 and 93) annually. Locations 23, 24, 33, and 93 could be affected by Oyster Creek's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portions of clam samples from all three locations were analyzed for gamma emitting nuclides (Table C–IV.2, Appendix C). Naturally occurring potassium-40 was found at all stations and ranged from 832 to 1,699 pCi/kg wet and was consistent with levels detected in previous years. No fission or activation products were found. Historical levels of Co-60 in clams are shown in Figure C–1, Appendix C.

Preoperational clam sample results for potassium-40 ranged from 600 to 9,800 pCi/kg wet, which are consistent with current sample results.

The edible portions of crab samples from two locations were analyzed for gamma emitting nuclides (Table C–IV.2, Appendix C). Naturally occurring potassium-40 was found at both stations and ranged from 2,592 to 3,341 pCi/kg wet and was consistent with levels detected in previous years. No fission or activation products were found.

Crabs were not sampled during the preoperational years of the OCGS environmental monitoring program.

6. Sediment

Aquatic sediment samples were collected at four locations (23, 24, 33, and 94) semiannually. Of these locations, stations 23, 24, and 33 located downstream, could be affected by Oyster Creek's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from all four locations were analyzed for gamma emitting nuclides (Table C–V.1, Appendix C). Potassium-40 was found at all stations and ranged from 571 to 13,840 pCi/kg dry. Cesium-137 was not detected in any of the samples. No fission or activation products were found. Figure C-3, Appendix C graphs Cs-137 concentrations in sediment from 1984 through 2012 and figure C–2, Appendix C graphs Co-60 concentrations in sediment from 1984 through 2012.

The requirement for sampling sediment is a requirement of ODCM 3.12.1, Table 3.12.1-1.d. ODCM Table 3.12.1-2, Reporting Levels for Radioactive Concentrations in Environmental samples Reporting Levels does not include requirements for sediment. CY-AA-170-1000, Radiological Environmental Monitoring Program and Meteorological Program Implementation, Attachment 1, Analytical Results Investigation Levels, includes sediment investigation level for Cs-137 of 1000 pCi/kg, dry.

While aquatic sediment sampling was part of the preoperational program, samples were not analyzed for gamma emitting nuclides until 1981.

In conclusion, the 2012 aquatic monitoring results for surface water, drinking water, fish, clams and crabs showed only naturally occurring radioactivity and were consistent with levels measured prior to the operation of OCGS, and with levels measured in past years. No radioactivity attributable to activities at OCGS was detected in any aquatic samples during 2012 and no adverse long-term trends are shown in the aquatic monitoring data.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from eight locations on a weekly basis. The eight locations were separated into three groups: Group I represents locations near the OCGS site boundary (20, 66 and 111), Group II represents the locations at an intermediate distance from the OCGS site (71, 72, and 73), and Group III represents the control and locations at a remote distance from OCGS (C and 3). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–VI.1 and C–VI.2, Appendix C). Detectable gross beta activity was observed at all locations. Comparison of results among the three groups aids in determining the effects, if any, resulting from the operation of OCGS. The results from the Site Boundary locations (Group I) ranged from 7 to 32 E–3 pCi/m^3 with a mean of 16 E–3 pCi/m^3. The results from the Intermediate Distance locations (Group II) ranged from 5 to 30 E–3 pCi/m^3 with a mean of 16 E–3 pCi/m^3. The results from the Distant locations (Group III) ranged from 7 to 30 E–3 pCi/m^3 with a mean of 15 E–3 pCi/m^3. The similarity of the results from the three groups indicates that there is no relationship between gross beta activity and distance from the OCGS. These results are consistent with data from previous years and indicate no effects from the operation of OCGS (Figures C-4 and C–5, Appendix C).

Air sample filters have been analyzed for gross beta activity since the inception of the preoperational environmental monitoring program in 1966. The preoperational data values ranged from 1.90E-2 to 2.77E-1 pCi/m3. 2012 gross beta activity values ranged from <6E-3 to 32E-3 pCi/m3. The 2012 results are consistent with historical operational data (Figure C-5, Appendix C) and fall within the range of results observed during the preoperational period.

Strontium-89 and Strontium-90

Weekly samples were composited quarterly and analyzed for strontium-89 and strontium-90 (Table C–VI.3, Appendix C). No strontium was detected in any of the samples. These results are consistent with historical operational data. The preoperational environmental monitoring program did not include analysis of air samples for strontium-89 and strontium-90.

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–VI.4, Appendix C). Naturally occurring Be-7 due to cosmic ray activity was detected in 29 of 32 samples. The values ranged from 37 to 86 E–3 pCi/m^3. All other nuclides were less than the MDC. These results are consistent with historical operational data. The preoperational environmental monitoring program did not include analysis of air samples for gamma emitting nuclides.

b. Airborne Iodine

Continuous air samples were collected from eight (C, 3, 20, 66, 71, 72, 73, 111) locations and analyzed weekly for I-131 (Table C–VII.1, Appendix C). Consistent with historical operational data, all results were less than the MDC for I-131.

The preoperational environmental monitoring program for OCGS did not include analysis of air media for iodine-131.

In conclusion, the atmospheric monitoring data are consistent with preoperational and prior operational data and show no long-term trends in the environment attributable to the operation of OCGS.

2. Terrestrial

a. Vegetation

Samples were collected from four locations (35, 36, 66, and 115) when available. The following analyses were performed:

Strontium-89 and Strontium-90

Vegetation samples from all locations were analyzed for concentrations of strontium-89 and strontium-90 (Table C–VIII.1, Appendix C). All strontium-89 results were less than the MDC. Strontium-90 was detected in 17 of 35 samples. The values ranged from 3.1 to 20.6 pCi/kg wet, which is consistent with historical data.

Gamma Spectrometry

Vegetation samples from locations 35, 36, 66, and 115 were analyzed for concentrations of gamma emitting nuclides (Table C–VIII.1, Appendix C). Naturally occurring K-40 activity was found in all samples and ranged from 1,517 to 6,790 pCi/kg wet. Naturally occurring Be-7 was detected in 17 of 35 samples and ranged from 154 to 937 pCi/kg wet. Cesium-137 was detected in three of 35 samples and ranged from 62 to 68 pCi/kg wet. These results are consistent with historical operational data. All other nuclides were less than the MDC.

Preoperational vegetation sample analyses did not include strontium analyses or gamma spectroscopy.

Oyster Creek conducted a Cs-137 study in 2006/2007. A report was generated titled "Evaluation of Cesium-137 in Environmental Samples from the Amergen Property East of the Oyster Creek Generating Station". Below is an excerpt from that report:

The levels of Cs-137 observed in the soil and vegetation samples are consistent with environmental concentrations known to be attributable to fallout from historic nuclear weapons testing and the Chernobyl accident. In addition, the variability of Cs-137 concentrations in soil and vegetation on the farm property appears to be driven by a number of environmental factors. Cs-137 concentrations in soil ranged from non-detectable to 0.876 pCi/g, with a mean value of 0.321 pCi/g. Vegetation samples exhibited Cs-137 concentrations from non-detectable to 0.804 pCi/g, with a mean concentration of 0.096 pCi/g. For comparison, in the year 2000, as part of the confirmatory release survey for the adjacent Forked River site to the west of OCGS, the NRC reported that the maximum observed soil concentration of

0.53 pCi/g was not distinguishable from the variation in Cs-137 in the environment due to these fallout sources. The NRC also reported background Cs-137 concentrations in New Jersey coastal plain soils as high as 1.5 and 2.8 pCi/g. In addition, decay-corrected historic REMP data from a predominantly upwind location, nearly four miles from the OCGS, yields present-day Cs-137 concentrations ranging from 0.862 to 1.68 pCi/g.

The level of Cs-137 in the REMP samples did not approach any regulatory limits or reporting levels, and is not unusual given the known environmental levels of this radionuclide attributable to atmospheric nuclear weapons testing and the Chernobyl accident.

In conclusion, terrestrial monitoring results for vegetation samples during 2012 showed only naturally occurring radioactivity and radioactivity associated with fallout from past atmospheric nuclear weapons testing and Chernobyl. The radioactivity levels detected were consistent with levels measured in past years, and no radioactivity attributable to activities at OCGS was detected in any terrestrial samples. The terrestrial monitoring data show no adverse long-term trends in the terrestrial environment.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured using Optically Stimulated Luminenscence Dosimeters (OSLD). Sixty-one OSLD locations were monitored around the site. Results of non-background corrected OSLD measurements are summarized in Tables C-IX.1 to C-IX.3 and Figures C-6 and C-7.

The non-background corrected OSLD measurements ranged from 18.3 to 22.2 mR/standard quarter. In order to correct these results for background radiation, the mean of the dose rates measured at the background OSLD stations (C and 14) was subtracted from the dose measured at each indicator station. The maximum annual background corrected dose was 26.6 mR/year at Station 55, located near the site boundary, 0.3 miles west of the OCGS. This OSLD is located in an area where public access is restricted but the nearest member of the public for direct radiation is considered an individual that works in the warehouse west of the site. The individual is assumed to work 2,000 hours per year at this location.

Similar to previous years, there was no strong relationship between dose

measured with OSLDs and distance from the OCGS, and the mean background dose did not exceeded the mean indicator dose in any of the four quarterly monitoring periods during 2012.

The preoperational environmental monitoring program utilized film badges, the results of which are not comparable with the doses measured using thermoluminescent dosimeters during the operational REMP. In conclusion, the 2012 OSLD results are consistent with past operational measurements of direct radiation, and demonstrate that the OCGS continues to be in compliance with the 40 CFR 190 limit on maximum dose to the public.

D. Land Use Survey

A Land Use Survey, conducted in September 2012 around the Oyster Creek Generating Station (OCGS), was performed by Normandeau Associates, Inc. for Exelon Nuclear. The purpose of the survey is to identify within a distance of 5 miles the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden of greater than 500 ft^2 producing broad leaf vegetation. The census shall also identify within a distance of 3 miles the location in each of the 16 meteorological sectors all milk animal and all gardens greater than 500 square feet producing broadleaf vegetation. For animals producing milk for human consumption in each of the sixteen meteorological sectors out to a distance of 5 miles from the OCGS, none were observed. The distance and direction of all locations from the OCGS Reactor Building were determined using Global Positioning System (GPS) technology. There were no changes required to the OCGS REMP, as a result of this survey. The results of this survey are summarized below.

Distance in Feet from the OCGS Reactor Building			
Sector		Residence (ft)	Garden* (ft)
1	N	5,655	9,063
2	NNE	3,239	6,015
3	NE	3,245	8,736
4	ENE	5,704	6,445
5	E	6,549	1,729
6	ESE	3,189	2,081
7	SE	3,073	2,321
8	SSE	4,666	7,233
9	S	7,971	9,011
10	SSW	8,344	20,130
11	SW	9,285	9,776
12	WSW	10,713	23,869
13	W	22,191	None
14	WNW	None	None
15	NW	27,985	None
16	NNW	7,506	14,487

*Greater than 500 ft^2 in size producing broad leaf vegetation

E. Summary of Results – Inter-laboratory Comparison Program

The primary and secondary laboratories analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, vegetation and water matrices (Appendix F). 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 TBE's result 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, the National Environmental Laboratory Accreditation Conference (NELAC), state specific performance testing (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 TBE laboratory, 12 out of 18 analytes met the specified acceptance criteria. Six analytes (Co-60, Gross Alpha, Gross Beta, Sr-89, Sr-90 and Zn-65) did not meet the specified acceptance criteria for the following reason:

1. Teledyne Brown Engineering's MAPEP March 2012 Co-60 in soil result of 7.61 Bq/kg was higher than the known value of 1.56 Bq/kg, resulting in a found to known ratio of 4.88 on a sensitivity evaluation. NCR 12-08 was initiated to investigate this failure. No cause could be found for the failure. TBE is monitoring the Co-60 in soil analyses on a case-to-case basis.

2. Teledyne Brown Engineering's MAPEP March 2012 Zn-65 in AP result of 4.19 Bq/sample was higher than the known value of 2.99 Bq/sample, exceeding the upper control limit of 3.89 Bq/sample. NCR 12-08 was initiated to investigate this failure. No cause could be found for the failure and is considered an anomaly specific to the MAPEP sample. The first and second quarter 2012 Analytics AP Zn-65 analyses were acceptable.

3. Teledyne Brown Engineering's MAPEP September 2012 Sr-90 in water result of 19.6 pCi/L was higher than the known value of 12.2 pCi/L, exceeding the upper control limit of 15.9 pCi/L. NCR 12-11 was initiated to investigate this failure. An incorrect aliquot was entered into LIMS. Using the correct aliquot, the result would have fallen within the acceptance range.

4. Teledyne Brown Engineering's ERA May 2012 Gross Alpha in water result of 82.4 pCi/L was higher than the known value of 62.9 pCi/L, which exceeded the upper control limit of 78.0 pCi/L. NCR 12-05 was initiated to investigate this failure. The G-1 detector is slightly biased high for Th-230 based measurements. The G-1 detector is used only for ERA samples. The detector was recalibrated.

5. Teledyne Brown Engineering's ERA November 2012 Gross Beta in water result of 59.3 pCi/L was higher than the known value of 39.2 pCi/L, which exceeded the upper control limit of 46.7 pCi/L. NCR 12-13 was initiated to investigate this failure. The rerun result of 44.8 fell within the control limits. It appears an incorrect aliquot was entered into LIMS.

6. Teledyne Brown Engineering's ERA November 2012 Sr-89 in water result of 46.5 pCi/L was higher than the known value of 39.1 pCi/L, which exceeded the upper control limit of 46.1 pCi/L. NCR 12-13 was initiated to investigate this failure. The found to known ratio was 1.19, which TBE considers acceptable with warning.

For the EIML laboratory, 12 out of 14 analytes met the specified acceptance criteria. Two analytes (Gross Beta and Co-57) did not meet the specified acceptance criteria for the following reason:

1. Environmental Inc., Midwest Laboratory's ERA April 2012 Gross Beta in water result of 76.2 pCi/L was higher than the known value of 44.2 pCi/L, exceeding the upper control limit of 51.5 pCi/L. The rerun result of 38.3 fell within the control limits. A sample dilution problem is suspected.
2. Environmental Inc., Midwest Laboratory's MAPEP August 2012 Co-57 in vegetation result of 7.44 pCi/L was higher than the known value of 5.66 pCi/L, exceeding the upper control limit of 7.36 pCi/L. The recount result of 6.74 fell within the control limits. The sample was recounted using a geometry more closely matched to the MAPEP sample size.

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. Exelon Nuclear. Offsite Dose Calculation Manual for Oyster Creek Generating Station, Procedure CY-OC-170-301.

2. United States Nuclear Regulatory Commission Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program, Revision 1, November 1979.

3 Pre-Operational Environmental Radiation Survey, Oyster Creek Nuclear Electric Generating Station, Jersey Central Power and Light Company, March 1968.

VI. Errata

2010 Annual Radiological Environmental Operating Report Section IV.A.6 Sediment

The following discussion is an addendum to the wording currently in the section on gamma spectroscopy:

Oyster Creek conducted a Cs-137 study in 2006/2007. A report was generated titled "Evaluation of Cesium-137 in Environmental Samples from the Amergen Property East of the Oyster Creek Generating Station". Below is an excerpt from that report:

The levels of Cs-137 observed in the soil and vegetation samples are consistent with environmental concentrations known to be attributable to fallout from historic nuclear weapons testing and the Chernobyl accident. In addition, the variability of Cs-137 concentrations in soil and vegetation on the farm property appears to be driven by a number of environmental factors. Cs-137 concentrations in soil ranged from non-detectable to 0.876 pCi/g, with a mean value of 0.321 pCi/g. Vegetation samples exhibited Cs-137 concentrations from non-detectable to 0.804 pCi/g, with a mean concentration of 0.096 pCi/g. For comparison, in the year 2000, as part of the confirmatory release survey for the adjacent Forked River site to the west of OCGS, the NRC reported that the maximum observed soil concentration of 0.53 pCi/g was not distinguishable from the variation in Cs-137 in the environment due to these fallout sources. The NRC also reported background Cs-137 concentrations in New Jersey coastal plain soils as high as 1.5 and 2.8 pCi/g. In addition, decay-corrected historic REMP data from a predominantly upwind location, nearly four miles from the OCGS, yields present-day Cs-137 concentrations ranging from 0.862 to 1.68 pCi/g.

The level of Cs-137 in the REMP sample did not approach any regulatory limits or reporting levels, and is not unusual given the known environmental levels of this radionuclide attributable to atmospheric nuclear weapons testing and the Chernobyl accident.

In conclusion, terrestrial monitoring results for sediment samples during 2010 showed only naturally occurring radioactivity and radioactivity associated with fallout from past atmospheric nuclear weapons testing and Chernobyl. The radioactivity levels detected were consistent with levels measured in past years, and no radioactivity attributable to activities at OCGS was detected in any terrestrial samples.

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2012

Name of Facility:	**OYSTER CREEK GENERATING STATION**			**DOCKET NUMBER:**		**50-219**		
Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	H-3	28	200	<LLD	<LLD	-		0
	GAMMA	28						
	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 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 OYSTER CREEK GENERATING STATION, 2012

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	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)	H-3	65	200	<LLD	<LLD	-		0
	GR-B	65	4	8 (35/53) (1.8/20.2)	3 (3/12) (2.4/2.7)	16 (11/11) (10.6/19.7)	1N INDICATOR ON-SITE DOMESTIC WELL AT OCGS 0.2 MILES N OF SITE	0
	I-131	32	1	<LLD	<LLD	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	GAMMA	65						
	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
	I-131		15	<LLD	<LLD	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
GROUNDWATER (PCI/LITER)	H-3	8	200	<LLD	NA	-		0
	GAMMA	8						
	MN-54		15	<LLD	NA	-		0
	CO-58		15	<LLD	NA	-		0
	FE-59		30	<LLD	NA	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUNDWATER (PCI/LITER)	CO-60		15	<LLD	NA	-		0
	ZN-65		30	<LLD	NA	-		0
	NB-95		15	<LLD	NA	-		0
	ZR-95		30	<LLD	NA	-		0
	I-131		15	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0
	BA-140		60	<LLD	NA	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUNDWATER (PCI/LITER)	LA-140		15	<LLD	NA	-		0
BOTTOM FEEDER (PCI/KG WET)	GAMMA	4						
	K-40		NA	3599 (2/2) (2832/4366)	4392 (3/3) (4257/4612)	4392 (3/3) (4257/4612)	94 CONTROL GREAT BAY/LITTLE EGG HARBOR 20.0 MILES SSW OF SITE	0
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0

* THE MEAN AND 2 STANDARD DEVIATION VALUES ARE CALCULATED USING 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 OYSTER CREEK GENERATING STATION, 2012

Name of Facility:	**OYSTER CREEK GENERATING STATION**			**DOCKET NUMBER:**		**50-219**		
Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
BOTTOM FEEDER (PCI/KG WET)	CS-137		150	<LLD	<LLD	-		0
PREDATOR (PCI/KG WET)	GAMMA	13						
	K-40		NA	4579 (8/8) (3895/5520)	4622 (4/4) (4080/5052)	4756 (3/3) (3895/5520)	33 INDICATOR EAST OF RT 9 BRIDGE IN OCGS DISCHARGE 0.4 MILES ESE OF SITE	0
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PREDATOR (PCI/KG WET)	CS-137		150	<LLD	<LLD	-		0
CLAMS (PCI/KG WET)	GAMMA	6						
	K-40		NA	1197.3 (4/4) (832/1699)	1682 (2/2) (1672/1692)	1682 (2/2) (1672/1692)	94 CONTROL GREAT BAY/LITTLE EGG HARBOR 20.0 MILES SSW OF SITE	0
	MN-54		130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0
	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		100	<LLD	<LLD	-		0

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				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
CLAMS (PCI/KG WET)	CS-137		100	<LLD	<LLD	-		0
CRABS (PCI/KG WET)	GAMMA	2						
	K-40		NA	2966.5 (2/2) (2592/3341)	NA	3341 (1/1)	33 INDICATOR EAST OF RT 9 BRIDGE IN OCGS DISCHARGE 0.4 MILES ESE OF SITE	0
	MN-54		130	<LLD	NA	-		0
	CO-58		130	<LLD	NA	-		0
	FE-59		260	<LLD	NA	-		0
	CO-60		130	<LLD	NA	-		0
	ZN-65		260	<LLD	NA	-		0
	CS-134		100	<LLD	NA	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
CRABS (PCI/KG WET)	CS-137		100	<LLD	NA	-		0
SEDIMENT (PCI/KG DRY)	GAMMA	8						
	BE-7		NA	509 (2/6) (323/695)	<LLD	695 (1/2)	33 INDICATOR EAST OF RT 9 BRIDGE IN OCGS DISCHARGE 0.4 MILES ESE OF SITE	0
	K-40		NA	2507 (6/6) (571/5087)	7992 (2/2) (2144/13840)	7992 (2/2) (2144/13840)	94 CONTROL GREAT BAY/LITTLE EGG HARBOR 20.0 MILES SSW OF SITE	0
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0
	CS-134		150	<LLD	<LLD	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SEDIMENT (PCI/KG DRY)	CS-137		180	<LLD	<LLD	-		0
AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	406	10	16 (305/312) (5/32)	15 (93/94) (7/30)	17 (50/51) (8/30)	72 INDICATOR LACEY RD AT KNIGHT OF COLUMBUS HALL 1.9 MILES NNE OF SITE	0
	SR-89	32	10	<LLD	<LLD	-		0
	SR-90	32	10	<LLD	<LLD	-		0
	GAMMA	32						
	BE-7		NA	70 (23/24) (34/86)	57 (6/8) (45/72)	66 (4/4) (51/86)	72 INDICATOR LACEY RD AT KNIGHT OF COLUMBUS HALL 1.9 MILES NNE OF SITE	0
	MN-54		NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0

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Name of Facility:	**OYSTER CREEK GENERATING STATION**			**DOCKET NUMBER:**		**50-219**		
Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR PARTICULATE (E-3 PCI/CU.METER)	CO-60		NA	<LLD	<LLD	-		0
	CS-134		50	<LLD	<LLD	-		0
	CS-137		60	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	406	70	<LLD	<LLD	-		0
VEGETATION (PCI/KG WET)	SR-89	35	25	<LLD	<LLD	-		0
	SR-90	35	5	8.8 (11/23) (3.7/20.6)	4.2 (6/12) (3.1/6.9)	12.1 (6/12) (5.5/20.6)	115 INDICATOR EAST OF SITE ON FINNINGER FARM 0.3 MILES E OF SITE	0

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				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION	GAMMA	35						
(PCI/KG WET)	BE-7		NA	530 (13/23) (154/937)	336 (4/12) (227/544)	574 (7/11) (154/782)	35 INDICATOR EAST OF RT 9 AND NORTH OF OCGS DISCHG 0.4 MILES ESE OF SITE	0
	K-40		NA	3965 (23/23) (1517/6790)	4026 (12/12) (2136/5816)	4430 (11/11) (2353/6790)	35 INDICATOR EAST OF RT 9 AND NORTH OF OCGS DISCHG 0.4 MILES ESE OF SITE	0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	64.2 (3/23) (61.5/67.8)	<LLD	64.2 (3/12) (61.5/67.8)	115 INDICATOR EAST OF SITE ON FINNINNGER FARM 0.3 MILES E OF SITE	0
	I-131		60	<LLD	NA	-		0
	BA-140		NA	<LLD	<LLD	-		0

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Location of Facility:	**OCEAN COUNTY, NJ**			**REPORTING PERIOD:**		**2012**		
				INDICATOR LOCATIONS	**CONTROL LOCATION**	**LOCATION WITH HIGHEST ANNUAL MEAN (M)**		
MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	MEAN (M) (F) RANGE	STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION (PCI/KG WET)	LA-140		NA	<LLD	<LLD	-		0
	CS-134		60	<LLD	NA	-		0
	CS-137		80	64.2 (3/23) (61.5/67.8)	NA	64.2 (3/12) (61.5/67.8)	115 INDICATOR EAST OF SITE ON FINNINGER FARM 0.3 MILES E OF SITE	0
	BA-140		NA	<LLD	NA	-		0
	LA-140		NA	<LLD	NA	-		0
DIRECT RADIATION (MILLIREM/STD.MO.)	OSLD-QUARTERLY	244	NA	19.8 (236/236) (0/27.6)	20.6 (8/8) (18.3/22.2)	26.6 (4/4) (25.5/27.6)	55 INDICATOR SOUTHERN AREA STORES SECURITY FENCE 0.3 MILES W	0

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APPENDIX B

LOCATION DESIGNATION, DISTANCE & DIRECTION, AND SAMPLE COLLECTION & ANALYTICAL METHODS

TABLE B-1: Location Designation and Identification System for the Oyster Creek Generating Station

Sample Medium	–	APT = Air Particulate AIO = Air Iodine DW = Drinking Water VEG = Vegetation SWA = Surface Water AQS = Aquatic Sediment	Clam = Clam OSLD = Optically Stimulated Dosimetry Fish = Fish Crab = Crab
Station Code	–	Station's Designation	
Distance	–	Distance from the OCGS in miles	
Azimuth	–	Azimuth with respect to the OCGS in degrees	
Description	–	Meteorological sector in which the station is located and a narrative description	

TABLE B-2: Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2012

Sample Medium	Station Code	Distance (miles)	Azimuth (degrees)	Description
OSLD	1	0.4	219	SW of site at OCGS Fire Pond, Forked River, NJ
DW	1S	0.1	209	On-site southern domestic well at OCGS, Forked River, NJ
DW	1N	0.2	349	On-site northern domestic well at OCGS, Forked River, NJ
APT, AIO, OSLD	3	6.0	97	East of site, near old Coast Guard Station, Island Beach State Park
OSLD	4	4.6	213	SSW of site, Route 554 and Garden State Parkway, Barnegat, NJ
OSLD	5	4.2	353	North of site, at Garden State Parkway Rest Area, Forked River, NJ
OSLD	6	2.1	13	NNE of site, Lane Place, behind St. Pius Church, Forked River, NJ
OSLD	8	2.3	177	South of site, Route 9 at the Waretown Substation, Waretown, NJ
OSLD	9	2.0	230	SW of site, where Route 532 and the Garden State Parkway meet, Waretown, NJ
APT, AIO, OSLD	C	24.7	313	NW of site, JCP&L office in rear parking lot, Cookstown, NJ
OSLD	11	8.2	152	SSE of site, 80th and Anchor Streets, Harvey Cedars, NJ
OSLD	14	20.8	2	North of site, Larrabee Substation on Randolph Road, Lakewood, NJ
APT, AIO	20	0.7	95	East of site, on Finninger Farm on south side of access road, Forked River, NJ
OSLD	22	1.6	145	SE of site, on Long John Silver Way, Skippers Cove, Waretown, NJ
SWA, CLAM, AQS	23	3.6	64	ENE of site, Barnegat Bay off Stouts Creek, approximately 400 yards SE of "Flashing Light 1"
SWA, CLAM, AQS	24	2.1	101	East of site, Barnegat Bay, approximately 250 yards SE of "Flashing Light 3"
SWA, AQS, FISH, CRAB	33	0.4	123	ESE of site, east of Route 9 Bridge in OCGS Discharge Canal
VEG	35	0.4	111	ESE of site, east of Route 9 and north of the OCGS Discharge Canal, Forked River, NJ
VEG	36	23.1	319	NW of site, at "U-Pick" Farm, New Egypt, NJ

TABLE B-2: Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2012

Sample Medium	Station Code	Distance (miles)	Azimuth (degrees)	Description
DW	37	2.2	18	NNE of Site, off Boox Road at Lacey MUA Pumping Station, Forked River, NJ
DW	38	1.6	197	SSW of Site, on Route 532, at Ocean Township MUA Pumping Station, Waretown, NJ
DW	39	3.5	353	North of Site, Trenton Ave. off Lacey Rd, Lacey Twp. MUA Pump Station, Forked River, NJ
OSLD	46	5.6	323	NW of site, on Lacey Road, adjacent to utility pole BT 259 65, Forked River, NJ
OSLD	47	4.6	26	NNE of site, Route 9 and Harbor Inn Road, Bayville, NJ
OSLD	48	4.5	189	South of site, at intersection of Brook and School Streets, Barnegat, NJ
OSLD	51	0.4	358	North of site, on the access road to Forked River site, Forked River, NJ
OSLD	52	0.3	333	NNW of site, on the access road to Forked River site, Forked River, NJ
OSLD	53	0.3	309	NW of site, at sewage lift station on the access road to the Forked River site, Forked River, NJ
OSLD	54	0.3	288	WNW of site, on the access road to Forked River site, Forked River, NJ
OSLD	55	0.3	263	West of site, on Southern Area Stores security fence, west of OCGS Switchyard, Forked River, NJ
OSLD	56	0.3	249	WSW of site, on utility pole east of Southern Area Stores, west of the OCGS Switchyard, Forked River, NJ
OSLD	57	0.2	206	SSW of site, on Southern Area Stores access road, Forked River, NJ
OSLD	58	0.2	188	South of site, on Southern Area Stores access road, Forked River, NJ
OSLD	59	0.3	166	SSE of site, on Southern Area Stores access road, Waretown, NJ
OSLD	61	0.3	104	ESE of site, on Route 9 south of OCGS Main Entrance, Forked River, NJ

TABLE B-2: Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2012

Sample Medium	Station Code	Distance (miles)	Azimuth (degrees)	Description
OSLD	62	0.2	83	East of site, on Route 9 at access road to OCGS Main Gate, Forked River, NJ
OSLD	63	0.2	70	ENE of site, on Route 9, between main gate and OCGS North Gate access road, Forked River, NJ
OSLD	64	0.3	42	NE of site, on Route 9 North at entrance to Finninger Farm, Forked River, NJ
OSLD	65	0.4	19	NNE of site, on Route 9 at Intake Canal Bridge, Forked River, NJ
APT, AIO, OSLD, VEG	66	0.4	133	SE of site, east of Route 9 and south of the OCGS Discharge Canal, inside fence, Waretown, NJ
OSLD	68	1.3	266	West of site, on Garden State Parkway North at mile marker 71.7, Lacey Township, NJ
APT, AIO, OSLD	71	1.6	164	SSE of site, on Route 532 at the Waretown Municipal Building, Waretown, NJ
APT, AIO, OSLD	72	1.9	25	NNE of site, on Lacey Road at Knights of Columbus Hall, Forked River, NJ
APT, AIO, OSLD	73	1.8	108	ESE of site, on Bay Parkway, Sands Point Harbor, Waretown, NJ
OSLD	74	1.8	88	East of site, Orlando Drive and Penguin Court, Forked River, NJ
OSLD	75	2.0	71	ENE of site, Beach Blvd. and Maui Drive, Forked River, NJ
OSLD	78	1.8	2	North of site, 1514 Arient Road, Forked River, NJ
OSLD	79	2.9	160	SSE of site, Hightide Drive and Bonita Drive, Waretown, NJ
OSLD	81	3.5	201	SSW of site, on Rose Hill Road at intersection with Barnegat Boulevard, Barnegat, NJ
OSLD	82	4.4	36	NE of site, Bay Way and Clairmore Avenue, Lanoka Harbor, NJ
OSLD	84	4.4	332	NNW of site, on Lacey Road, 1.3 miles west of the Garden State Parkway on siren pole, Lacey Township, NJ
OSLD	85	3.9	250	WSW of site, on Route 532, just east of Wells Mills Park, Waretown, NJ
OSLD	86	5.0	224	SW of site, on Route 554, 1 mile west of the Garden State Parkway, Barnegat, NJ
OSLD	88	6.6	125	SE of site, eastern end of 3rd Street, Barnegat Light, NJ
OSLD	89	6.1	108	ESE of site, Job Francis residence, Island Beach State Park

TABLE B-2: Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2012

Sample Medium	Station Code	Distance (miles)	Azimuth (degrees)	Description
OSLD	90	6.3	75	ENE of site, parking lot A-5, Island Beach State Park
OSLD	92	9.0	46	NE of site, at Guard Shack/Toll Booth, Island Beach State Park
FISH, CRAB	93	0.1	242	WSW of site, OCGS Discharge Canal between Pump Discharges and Route 9, Forked River, NJ
SWA, AQS, CLAM, FISH	94	20.0	198	SSW of site, in Great Bay/Little Egg Harbor
OSLD	98	1.6	318	NW of site, on Garden State Parkway North at mile marker 73, Lacey Township, NJ
OSLD	99	1.5	310	NW of site, on Garden State Parkway at mile marker 72.8, Lacey Township, NJ
OSLD	100	1.4	43	NE of site, Yacht Basin Plaza South off Lakeside Dr., Lacey Township, NJ
OSLD	101	1.7	49	NE of site, end of Lacey Rd. East, Lacey Township, NJ
OSLD	102	1.6	344	NNW of site, end of Sheffield Dr., Barnegat Pines, Lacey Township, NJ
OSLD	103	2.4	337	NNW of site, Llewellyn Pkwy., Barnegat Pines, Lacey Township, NJ
OSLD	104	1.8	221	SW of site, Rt. 532 West, before Garden State Parkway, Ocean Township, NJ
OSLD	105	2.8	222	SW of site, Garden State Parkway North beside mile marker 69.6, Ocean Township, NJ
OSLD	106	1.2	288	NW of site, Garden State Parkway North beside mile marker 72.2, Lacey Township, NJ
OSLD	107	1.3	301	NW of site, Garden State Parkway North beside mile marker 72.5, Lacey Township, NJ
OSLD	109	1.2	141	SE of site, Lighthouse Dr., Waretown, Ocean Township, NJ
OSLD	110	1.5	127	SE of site, Tiller Dr. and Admiral Way, Waretown, Ocean Township, NJ
APT, AIO	111	0.3	64	ENE of site, Finninger Farm property along access road, Lacey Township, NJ
OSLD	112	0.2	178	S of site, along southern access road

TABLE B-2: Radiological Environmental Monitoring Program – Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2012

Sample Medium	Station Code	Distance (miles)	Azimuth (degrees)	Description
OSLD	113	0.3	90	E of site, along Rt. 9, North
DW	114	0.8	267	Well at Bldg 25 on Forked River site
VEG	115	0.3	96	E of Site, on Finninger Farm
OSLD	T1	0.4	219	SW of site, at OCGS Fire Pond, Forked River, NJ
GW	MW-24-3A	0.8	97	ESE of site, Finninger Farm on South side of access road, Lacey Township, NJ
GW	W-3C	0.4	112	ESE of site, Finninger Farm adjacent to Station 35, Lacey Township, NJ

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Oyster Creek Generating Station, 2012

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Drinking Water	Gamma Spectroscopy	Monthly samples	ER-OCGS-06, Collection of water samples for radiological analysis CY-OC-120-1200, REMP sample collection procedure – well water	1 gallon	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Drinking Water	Tritium	Monthly samples	ER-OCGS-06, Collection of water samples for radiological analysis CY-OC-120-1200, REMP sample collection procedure – well water	1 gallon	TBE, TBE-2010 Tritium and carbon-14 analysis by liquid scintillation Env. Inc., T-02 Determination of tritium in water (direct method)
Drinking water	Iodine	Monthly Samples	ER-OCGS-06, Collection of water samples for radiological analysis CY-OC-120-1200, REMP sample collection procedure – well water	1 gallon	TBE, TBE-2031 Radioiodine in drinking water Env. Inc., I-131-01 Determination of I-131 in water by an ion exchange
Surface Water	Gamma Spectroscopy	Grab Sample	ER-OCGS-06, Collection of water samples for radiological analysis	1 gallon	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Surface Water	Tritium	Grab Sample	ER-OCGS-06, Collection of water samples for radiological analysis	1 gallon	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 hook and line technique and traps	ER-OCGS-14, Collection of fish samples for radiological analysis	250 grams (wet)	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Clams and Crabs	Gamma Spectroscopy	Semi-annual and annual samples collected using clam tongs and traps.	ER-OCGS-16, Collection of clam and crab samples for radiological analysis	300 grams (wet)	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Sediment	Gamma Spectroscopy	Semi-annual grab samples	ER-OCGS-03, Collection of aquatic sediment samples for radiological analysis	1000 grams (dry)	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Oyster Creek Generating Station, 2012

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
Air Particulates	Gross Beta	One-week composite of continuous air sampling through glass fiber filter paper	ER-OCGS-05, Collection of air iodine and air particulate samples for radiological analysis	1 filter (approximately 300 cubic meters weekly)	TBE, TBE-2008 Gross alpha and/or beta activity in various matrices Env. Inc., AP-02 Determination of gross alpha and/or gross beta in air particulate filters
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 4000 cubic meters)	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Air Particulates	Strontium-89/90	Quarterly composite of each station	ER-OCGS-05, Collection of air iodine and air particulate samples for radiological analysis	13 filters (approximately 4000 cubic meters)	TBE, TBE-2019 Radiostrontium analysis by ion exchange
Air Iodine	Gamma Spectroscopy	One-week composite of continuous air sampling through charcoal filter	ER-OCGS-05, Collection of air iodine and air particulate samples for radiological analysis	1 filter (approximately 300 cubic meters weekly)	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., I-131-02 Determination of I-131 in charcoal canisters by gamma spectroscopy (batch method)
Vegetation	Gamma Spectroscopy	Grab sample during growing season	ER-OCGS-04, Collection of food products and broadleaf vegetation samples for radiological analysis	1000 grams	TBE, TBE-2007 Gamma emitting radioisotopes analysis Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy
Vegetation	Strontium-89/90	Grab sample during growing season	ER-OCGS-04, Collection of food products and broadleaf vegetation samples for radiological analysis	1000 grams	TBE, TBE-2019 Radiostrontium analysis by ion exchange
OSLD	Optically Stimulated Luminescence Dosimetry	Quarterly OSLDs comprised of two Al_2O_3:C Landauer Incorporated elements.	ER OCGS-02, Collection of optically stimulated dosimeters (OSLDs) for radiological analysis	2 dosimeters	Landauer Incorporated

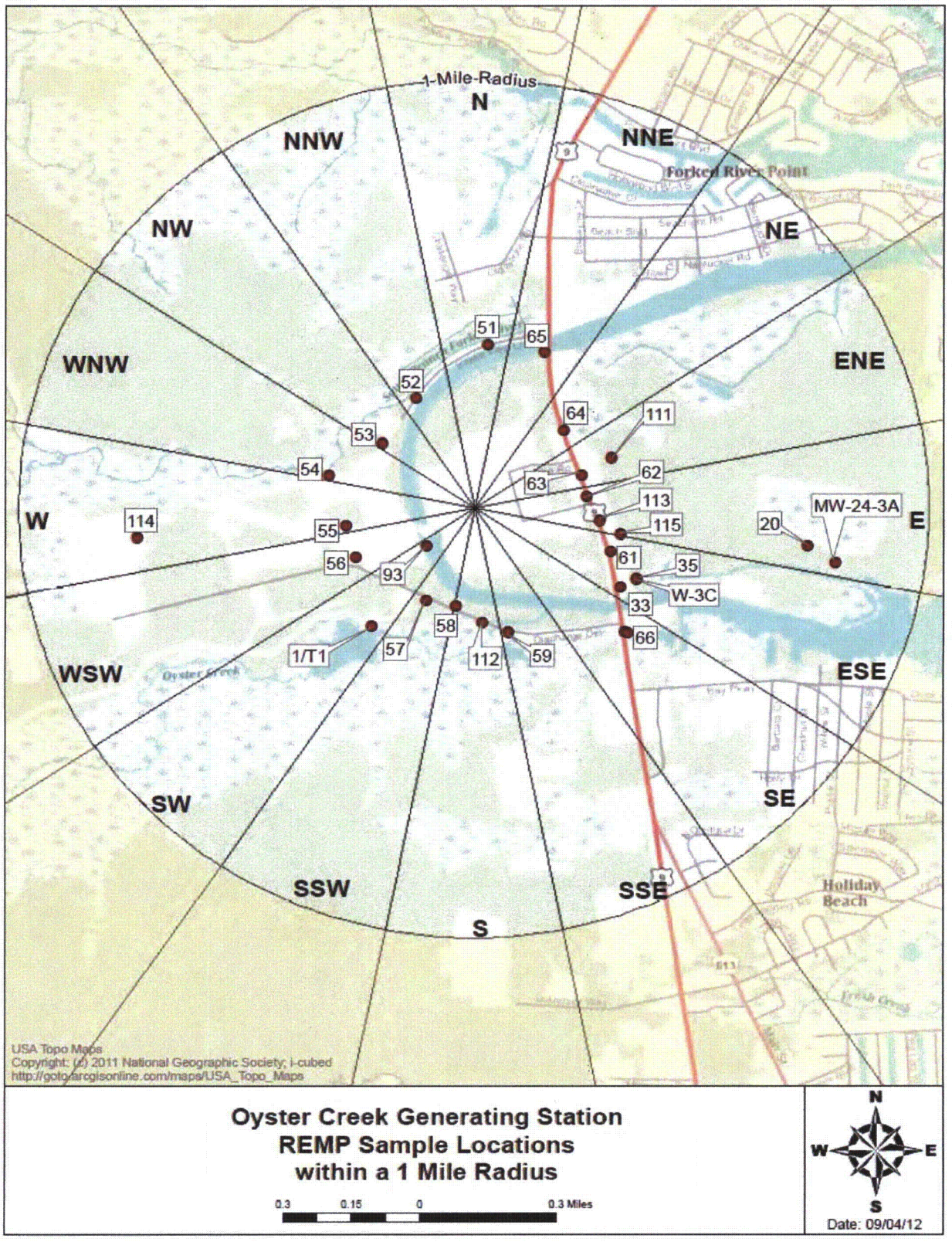


Figure B-1
Locations of REMP Stations within a 1-mile radius
of the Oyster Creek Generating Station

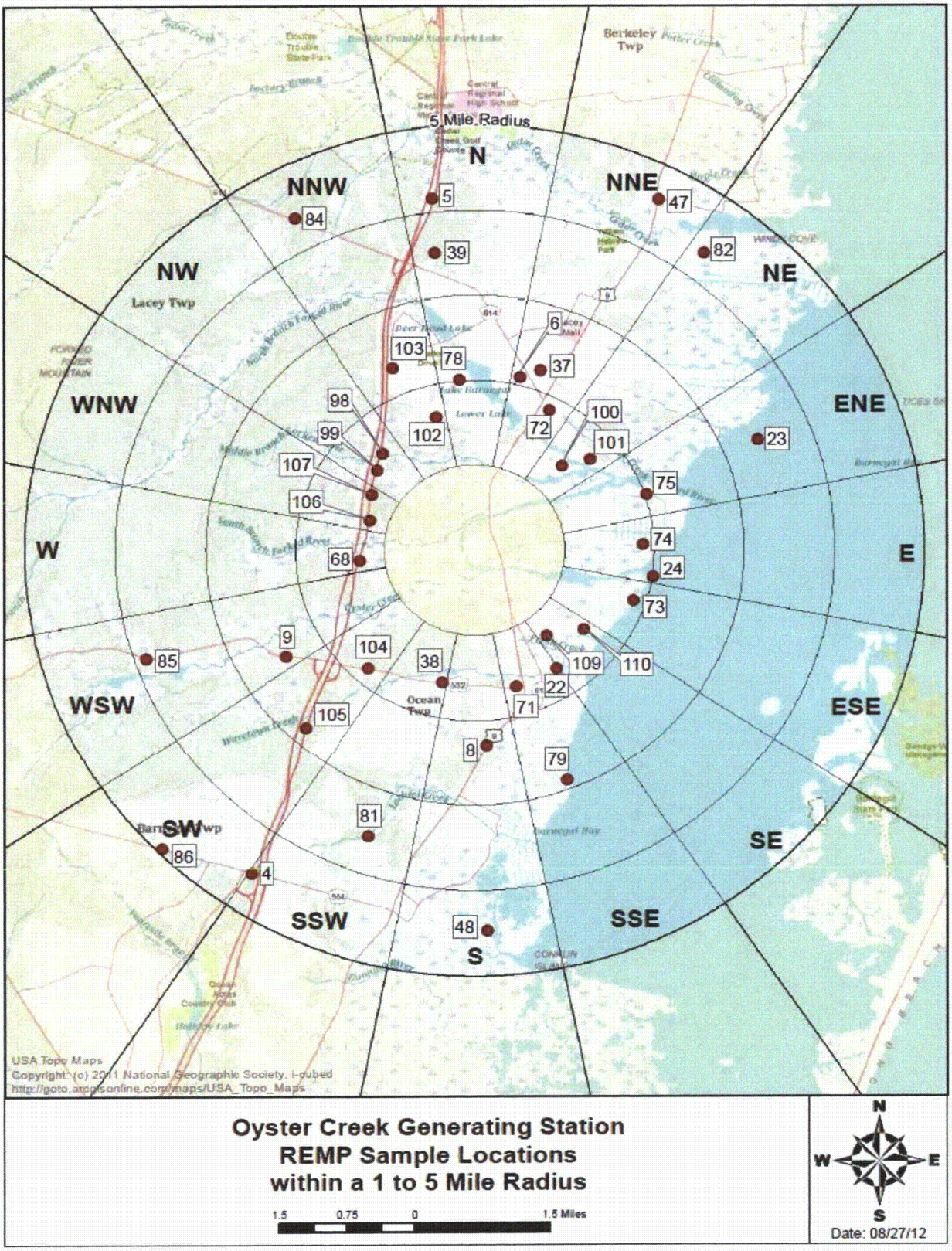


Figure B-2
Locations of REMP Stations within a 1 to 5-mile radius
of the Oyster Creek Generating Station

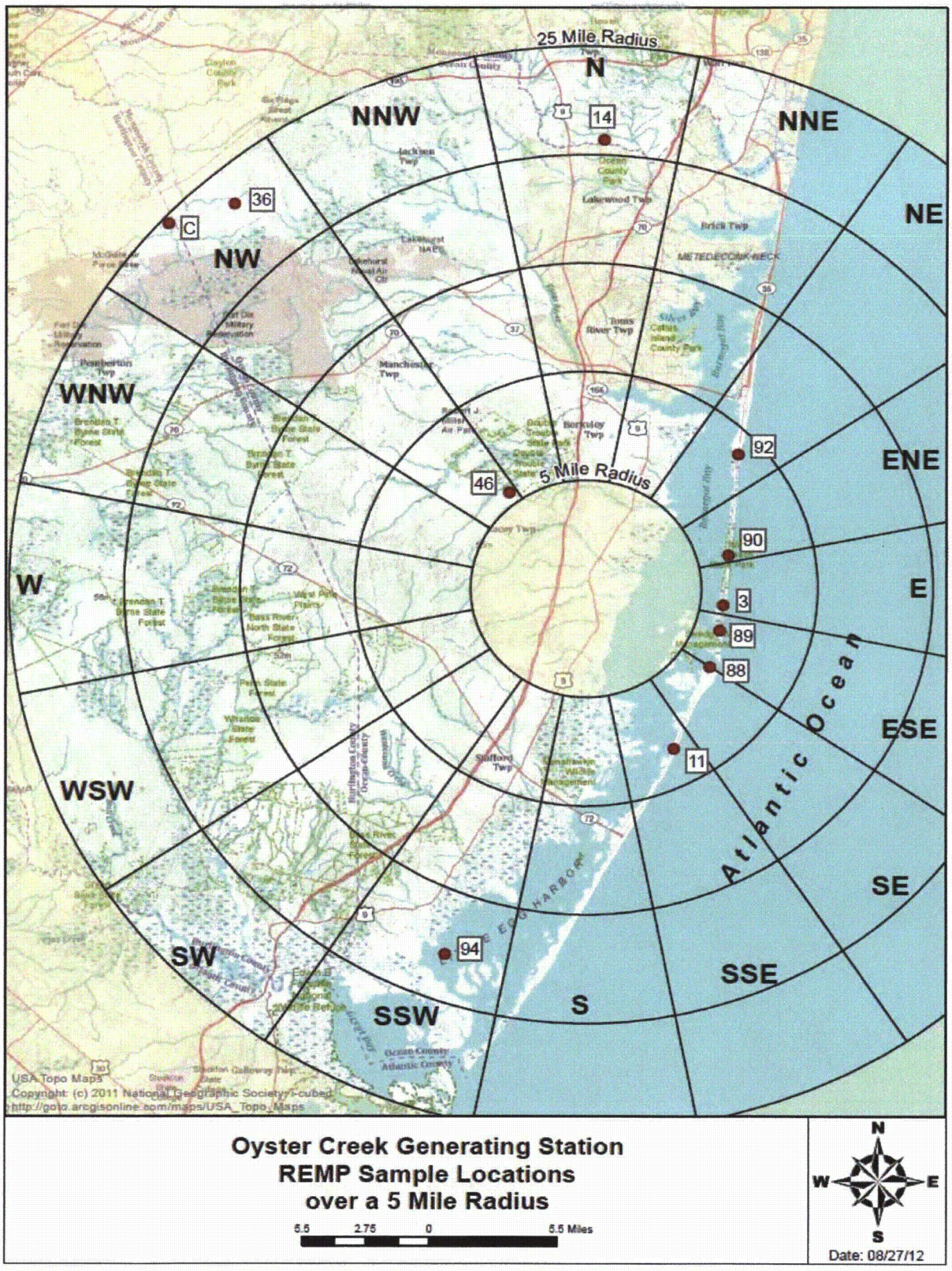


Figure B-3
Locations of REMP Stations greater than 5 miles
from the Oyster Creek Generating Station

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

TABLE C-I.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 201**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	23	24	33	94
01/05/12 - 01/26/12			< 169	< 171
02/02/12 - 02/23/12			< 167	< 170
03/02/12 - 03/29/12			< 188	< 184
04/04/12 - 04/26/12	< 168	< 169	< 170	< 182
05/01/12 - 05/31/12			< 160	< 161
06/08/12 - 06/28/12			< 188	< 188
07/03/12 - 07/26/12			< 173	< 167
08/02/12 - 08/30/12			< 167	< 168
09/06/12 - 09/26/12	< 160	< 160	< 158	< 168
10/03/12 - 10/24/12			< 184	< 187
11/01/12 - 11/29/12			< 187	< 184
12/07/12 - 12/27/12			< 189	< 186
MEAN	-	-	-	-

TABLE C-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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
23	04/10/12 - 04/10/12	< 6	< 5	< 12	< 7	< 10	< 6	< 12	< 9	< 6	< 6	< 27	< 9
	09/24/12 - 09/24/12	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 8	< 2	< 2	< 17	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
24	04/09/12 - 04/09/12	< 6	< 7	< 15	< 7	< 15	< 7	< 13	< 11	< 6	< 8	< 30	< 13
	09/25/12 - 09/25/12	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 14	< 3	< 3	< 25	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
33	01/05/12 - 01/25/12	< 5	< 4	< 9	< 4	< 9	< 4	< 8	< 9	< 4	< 4	< 20	< 7
	02/02/12 - 02/23/12	< 4	< 3	< 8	< 4	< 10	< 4	< 8	< 7	< 4	< 5	< 19	< 8
	03/02/12 - 03/29/12	< 4	< 5	< 9	< 4	< 8	< 4	< 6	< 7	< 3	< 4	< 21	< 5
	04/04/12 - 04/26/12	< 4	< 5	< 8	< 5	< 9	< 4	< 7	< 6	< 4	< 4	< 20	< 5
	05/01/12 - 05/31/12	< 4	< 5	< 11	< 6	< 9	< 5	< 8	< 12	< 4	< 4	< 24	< 9
	06/08/12 - 06/28/12	< 4	< 4	< 11	< 4	< 9	< 4	< 9	< 13	< 4	< 5	< 30	< 7
	07/03/12 - 07/26/12	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 7	< 2	< 3	< 17	< 6
	08/02/12 - 08/30/12	< 5	< 4	< 8	< 4	< 7	< 4	< 7	< 6	< 4	< 4	< 16	< 6
	09/06/12 - 09/24/12	< 3	< 4	< 7	< 3	< 6	< 4	< 6	< 15	< 4	< 4	< 30	< 5
	10/03/12 - 10/24/12	< 1	< 1	< 3	< 1	< 3	< 2	< 2	< 4	< 1	< 1	< 9	< 3
	11/01/12 - 11/28/12	< 4	< 5	< 9	< 4	< 9	< 4	< 6	< 9	< 4	< 4	< 26	< 4
	12/07/12 - 12/27/12	< 5	< 6	< 12	< 6	< 11	< 6	< 7	< 9	< 5	< 6	< 25	< 6
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
94	01/05/12 - 01/26/12	< 3	< 4	< 9	< 5	< 8	< 4	< 8	< 6	< 4	< 5	< 20	< 7
	02/02/12 - 02/23/12	< 3	< 3	< 8	< 4	< 9	< 5	< 8	< 7	< 4	< 5	< 19	< 5
	03/02/12 - 03/29/12	< 6	< 6	< 12	< 7	< 10	< 6	< 11	< 11	< 6	< 7	< 24	< 10
	04/04/12 - 04/26/12	< 5	< 6	< 11	< 6	< 10	< 5	< 9	< 8	< 6	< 7	< 26	< 10
	05/01/12 - 05/31/12	< 3	< 3	< 7	< 3	< 7	< 3	< 6	< 13	< 3	< 3	< 29	< 7
	06/08/12 - 06/28/12	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 9	< 3	< 3	< 21	< 7
	07/03/12 - 07/26/12	< 3	< 4	< 9	< 4	< 7	< 4	< 7	< 9	< 3	< 3	< 21	< 8
	08/02/12 - 08/29/12	< 6	< 5	< 12	< 5	< 13	< 5	< 9	< 9	< 5	< 5	< 26	< 8
	09/06/12 - 09/26/12	< 3	< 4	< 8	< 4	< 8	< 4	< 7	< 9	< 3	< 4	< 22	< 7
	10/04/12 - 10/24/12	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 12	< 4
	11/16/12 - 11/29/12	< 9	< 6	< 16	< 8	< 16	< 9	< 13	< 15	< 7	< 9	< 37	< 9
	12/07/12 - 12/27/12	< 5	< 5	< 12	< 5	< 9	< 5	< 9	< 9	< 5	< 6	< 26	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.1 **CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	1N	1S	37	38	39
01/04/12 - 01/26/12	< 170	< 172	< 168	< 169	(1)	< 168
01/31/12 - 02/23/12	< 176	< 169	< 174	< 174	(1)	< 178
02/28/12 - 03/29/12	< 185	< 183	< 187	< 182	(1)	< 182
04/03/12 - 04/26/12	< 186	< 165	< 183	< 183	(1)	< 179
05/01/12 - 05/31/12	< 164	< 163	< 168	< 162	< 164	< 164
06/05/12 - 06/28/12	< 186	(1)	< 184	< 185	< 188	< 187
07/03/12 - 07/26/12	< 173	< 172	< 173	< 173	< 171	< 169
07/31/12 - 08/30/12	< 155	< 172	< 173	< 167	< 153	< 151
09/04/12 - 09/27/12	< 162	< 168	< 165	< 165	< 167	< 158
10/02/12 - 10/25/12	< 183	< 187	< 175	< 184	< 186	< 175
11/01/12 - 11/29/12	< 179	< 186	< 175	< 174	< 178	(1)
12/05/12 - 12/27/12	< 198	< 188	< 195	< 197	< 199	(1)
MEAN*	-	-	-	-	-	-

TABLE C-II.2 **CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	1N	1S	37	38	39
01/04/12 - 01/26/12	3.5 ± 1.4	15.1 ± 1.9	2.9 ± 1.1	2.7 ± 1.0	(1)	1.9 ± 1.2
01/31/12 - 02/23/12	3.7 ± 1.7	18.4 ± 2.5	< 2.8	< 2.3	(1)	< 2.3
02/28/12 - 03/29/12	4.0 ± 1.6	16.7 ± 2.1	3.5 ± 1.7	< 2.2	(1)	< 2.2
04/03/12 - 04/26/12	3.7 ± 1.8	20.2 ± 2.6	< 2.6	2.4 ± 1.6	(1)	< 2.3
05/01/12 - 05/31/12	4.2 ± 1.7	17.6 ± 2.4	3.0 ± 1.7	< 2.3	3.1 ± 1.6	< 2.2
06/05/12 - 06/28/12	3.6 ± 1.8	(1)	< 2.5	< 2.3	< 2.4	< 2.3
07/03/12 - 07/26/12	3.7 ± 1.7	18.5 ± 2.4	< 2.3	< 2.2	3.8 ± 1.6	< 2.2
07/31/12 - 08/30/12	4.1 ± 1.7	13.1 ± 2.1	3.3 ± 1.5	2.5 ± 1.5	< 2.1	< 2.1
09/04/12 - 09/27/12	3.1 ± 1.3	15.5 ± 2.1	< 1.8	< 1.7	< 1.7	< 1.7
10/02/12 - 10/25/12	4.7 ± 1.8	10.6 ± 2.1	< 2.4	< 2.3	2.8 ± 1.6	< 2.3
11/01/12 - 11/29/12	4.8 ± 2.7	13.2 ± 2.2	4.6 ± 1.7	< 2.4	4.8 ± 2.1	(1)
12/05/12 - 12/27/12	4.1 ± 1.2	19.7 ± 2.5	1.8 ± 1.1	< 1.6	3.2 ± 1.1	(1)
MEAN*	3.9 ± 1.0	16.2 ± 6.1	3.2 ± 1.8	2.5 ± 0.2	3.5 ± 1.6	-

TABLE C-II.3 **CONCENTRATIONS OF I-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	37	38	39	1N TBE	1S TBE	1N EIML	1S EIML
01/04/12 - 01/26/12	< 0.4	< 0.4	(1)	< 0.4	< 0.4	< 0.6	(1)	(1)
01/31/12 - 02/23/12	< 0.5	< 0.5	(1)	< 0.5	< 0.5	< 0.5	(1)	(1)
02/28/12 - 03/29/12	< 0.3	< 0.3	(1)	< 0.4	< 0.5	< 0.5	(1)	(1)
04/03/12 - 04/26/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.3	< 0.3
05/01/12 - 05/31/12	(1)	(1)	(1)	(1)	(1)	(1)	< 2.5 (2)	< 0.8
06/05/12 - 06/28/12	(1)	(1)	(1)	(1)	(1)	(1)	(1)	< 0.4
07/03/12 - 07/26/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.3	< 0.3
07/31/12 - 08/30/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.2	< 0.2
09/04/12 - 09/27/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.4	< 0.3
10/02/12 - 10/25/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.4	< 0.4
11/01/12 - 11/29/12	(1)	(1)	(1)	(1)	(1)	(1)	< 1.4 (2)	< 0.4
12/05/12 - 12/27/12	(1)	(1)	(1)	(1)	(1)	(1)	< 0.4	< 0.5
MEAN*	-	-	-	-	-	-		

* THE MEAN AND TWO STANDARD DEVIATION ARE CALCULATED USING THE POSITIVE VALUES
(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION
(2) LLD NOT MET DUE TO AGE OF SAMPLE

TABLE C-II.3 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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
114	01/05/12 - 01/26/12	< 4	< 5	< 10	< 4	< 10	< 5	< 8	< 7	< 4	< 5	< 18	< 7
	02/02/12 - 02/23/12	< 4	< 4	< 8	< 4	< 7	< 4	< 6	< 6	< 4	< 4	< 18	< 5
	03/02/12 - 03/29/12	< 5	< 5	< 7	< 4	< 10	< 5	< 8	< 8	< 4	< 4	< 21	< 7
	04/04/12 - 04/26/12	< 5	< 4	< 9	< 5	< 11	< 5	< 10	< 10	< 5	< 5	< 28	< 7
	05/01/12 - 05/31/12	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 15	< 3	< 3	< 27	< 8
	06/08/12 - 06/28/12	< 4	< 4	< 8	< 4	< 8	< 4	< 6	< 10	< 3	< 4	< 26	< 10
	07/03/12 - 07/26/12	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 10	< 3	< 3	< 23	< 7
	08/02/12 - 08/30/12	< 5	< 5	< 8	< 5	< 10	< 4	< 6	< 7	< 5	< 5	< 21	< 6
	09/06/12 - 09/27/12	< 4	< 4	< 9	< 4	< 9	< 5	< 8	< 13	< 3	< 4	< 31	< 9
	10/04/12 - 10/24/12	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 13	< 4
	11/09/12 - 11/29/12	< 6	< 6	< 12	< 7	< 14	< 6	< 11	< 9	< 5	< 7	< 32	< 8
	12/07/12 - 12/27/12	< 6	< 7	< 14	< 6	< 14	< 6	< 9	< 12	< 5	< 6	< 31	< 9
	MEAN*	-	-	-	-	-	-	-	-	-	-	-	-
1N	01/10/12 - 01/24/12	< 5	< 4	< 9	< 4	< 9	< 5	< 7	< 10	< 4	< 4	< 25	< 6
	01/31/12 - 02/21/12	< 4	< 4	< 8	< 5	< 7	< 4	< 7	< 7	< 3	< 4	< 19	< 6
	02/28/12 - 03/27/12	< 5	< 5	< 13	< 6	< 11	< 6	< 9	< 11	< 5	< 6	< 28	< 9
	04/03/12 - 04/23/12	< 6	< 5	< 12	< 7	< 11	< 7	< 10	< 13	< 5	< 6	< 34	< 10
	05/02/12 - 05/15/12	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 10	< 1	< 1	< 14	< 4
	06/08/12 - 06/28/12	-	-	-	-	-	-	-	-	-	-	-	-
	07/06/12 - 07/24/12	< 3	< 4	< 8	< 4	< 7	< 4	< 6	< 13	< 4	< 4	< 28	< 7
	07/31/12 - 08/28/12	< 6	< 5	< 10	< 4	< 9	< 5	< 9	< 10	< 4	< 6	< 28	< 7
	09/04/12 - 09/25/12	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 16	< 5
	10/02/12 - 10/23/12	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 14	< 4
	11/03/12 - 11/06/12	< 1	< 1	< 3	< 1	< 2	< 1	< 3	< 15	< 1	< 1	< 18	< 6
	12/05/12 - 12/26/12	< 4	< 3	< 9	< 4	< 6	< 4	< 7	< 9	< 3	< 5	< 18	< 6
	MEAN*	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.3 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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
1S	01/04/12 - 01/24/12	< 4	< 4	< 8	< 4	< 9	< 5	< 9	< 10	< 4	< 5	< 25	< 5
	01/31/12 - 02/21/12	< 5	< 5	< 10	< 6	< 10	< 5	< 9	< 8	< 4	< 5	< 22	< 8
	02/28/12 - 03/27/12	< 6	< 6	< 9	< 4	< 11	< 5	< 8	< 10	< 5	< 5	< 27	< 9
	04/03/12 - 04/23/12	< 4	< 4	< 8	< 5	< 9	< 5	< 7	< 10	< 4	< 4	< 24	< 5
	05/02/12 - 05/29/12	< 2	< 3	< 7	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 28	< 9
	06/05/12 - 06/25/12	< 3	< 3	< 6	< 4	< 5	< 3	< 5	< 13	< 3	< 3	< 24	< 7
	07/03/12 - 07/24/12	< 3	< 3	< 8	< 4	< 7	< 4	< 6	< 11	< 3	< 3	< 24	< 8
	07/31/12 - 08/28/12	< 4	< 3	< 9	< 4	< 8	< 5	< 7	< 8	< 4	< 5	< 21	< 7
	09/04/12 - 09/25/12	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 13	< 4
	10/02/12 - 10/23/12	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 5	< 2	< 2	< 11	< 4
	11/01/12 - 11/26/12	< 5	< 6	< 11	< 5	< 12	< 5	< 10	< 13	< 5	< 5	< 30	< 10
	12/11/12 - 12/26/12	< 4	< 5	< 9	< 4	< 10	< 5	< 10	< 9	< 5	< 5	< 26	< 7
	MEAN*	-	-	-	-	-	-	-	-	-	-	-	-
37	01/05/12 - 01/26/12	< 4	< 5	< 9	< 4	< 9	< 5	< 8	< 7	< 4	< 5	< 19	< 6
	02/02/12 - 02/23/12	< 3	< 4	< 8	< 4	< 7	< 4	< 6	< 6	< 4	< 4	< 16	< 5
	03/02/12 - 03/29/12	< 5	< 5	< 10	< 5	< 9	< 5	< 9	< 8	< 5	< 6	< 23	< 6
	04/04/12 - 04/26/12	< 6	< 5	< 12	< 5	< 11	< 5	< 8	< 9	< 5	< 6	< 23	< 5
	05/01/12 - 05/31/12	< 3	< 3	< 8	< 3	< 5	< 4	< 6	< 15	< 3	< 3	< 27	< 8
	06/08/12 - 06/28/12	< 4	< 4	< 8	< 3	< 8	< 4	< 7	< 11	< 4	< 3	< 23	< 9
	07/03/12 - 07/25/12	< 3	< 3	< 6	< 3	< 5	< 4	< 5	< 9	< 3	< 3	< 21	< 6
	08/01/12 - 08/30/12	< 6	< 7	< 12	< 7	< 12	< 6	< 9	< 9	< 6	< 7	< 26	< 9
	09/06/12 - 09/27/12	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 13	< 4
	10/03/12 - 10/25/12	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 13	< 4
	11/01/12 - 11/28/12	< 6	< 6	< 14	< 6	< 11	< 7	< 11	< 10	< 6	< 6	< 31	< 10
	12/07/12 - 12/27/12	< 3	< 3	< 7	< 4	< 6	< 2	< 5	< 5	< 2	< 4	< 14	< 2
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-II.3 CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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
38	01/05/12 - 01/26/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	02/02/12 - 02/23/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	03/02/12 - 03/29/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	04/04/12 - 04/26/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	05/11/12 - 05/25/12	< 1	< 1	< 3	< 1	< 3	< 1	< 3	< 8	< 1	< 1	< 14	< 4
	06/08/12 - 06/08/12	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< 15	< 1	< 1	< 18	< 5
	07/12/12 - 07/26/12	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 7	< 2	< 2	< 16	< 6
	08/09/12 - 08/29/12	< 4	< 3	< 8	< 4	< 9	< 5	< 7	< 7	< 4	< 4	< 19	< 6
	09/06/12 - 09/27/12	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 13	< 4
	10/04/12 - 10/18/12	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 7	< 1	< 2	< 13	< 4
	11/16/12 - 11/28/12	< 6	< 6	< 9	< 7	< 12	< 8	< 11	< 12	< 6	< 7	< 32	< 8
	12/05/12 - 12/27/12	< 5	< 5	< 12	< 5	< 10	< 6	< 10	< 9	< 6	< 6	< 27	< 6
	MEAN*	-	-	-	-	-	-	-	-	-	-	-	-
39	01/05/12 - 01/26/12	< 4	< 5	< 8	< 5	< 9	< 5	< 9	< 9	< 4	< 5	< 21	< 7
	02/02/12 - 02/23/12	< 4	< 4	< 8	< 4	< 8	< 5	< 7	< 6	< 4	< 4	< 18	< 5
	03/02/12 - 03/29/12	< 5	< 5	< 12	< 4	< 10	< 5	< 8	< 11	< 5	< 6	< 26	< 8
	04/04/12 - 04/26/12	< 5	< 3	< 10	< 6	< 10	< 4	< 7	< 8	< 5	< 6	< 24	< 6
	05/01/12 - 05/31/12	< 3	< 4	< 8	< 4	< 5	< 4	< 6	< 14	< 3	< 3	< 25	< 11
	06/08/12 - 06/28/12	< 4	< 4	< 10	< 4	< 7	< 5	< 7	< 11	< 3	< 4	< 27	< 9
	07/03/12 - 07/25/12	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 10	< 3	< 3	< 22	< 7
	08/01/12 - 08/30/12	< 4	< 5	< 10	< 4	< 9	< 4	< 8	< 6	< 5	< 4	< 19	< 6
	09/06/12 - 09/27/12	< 4	< 4	< 9	< 4	< 9	< 5	< 7	< 13	< 4	< 4	< 31	< 9
	10/03/12 - 10/18/12	< 1	< 1	< 4	< 1	< 3	< 1	< 3	< 6	< 1	< 1	< 11	< 4
	11/16/12 - 11/28/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	12/05/12 - 12/27/12 (1)	-	-	-	-	-	-	-	-	-	-	-	-
	MEAN*	-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	MW-24-3A	W-3C
01/16/12 - 01/16/12	< 186	< 162
04/16/12 - 04/16/12	< 179	< 180
07/03/12 - 07/03/12	< 190	< 155
10/03/12 - 10/03/12	< 178	< 177
MEAN	-	-

TABLE C-III.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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-24-3A	01/16/12 - 01/16/12	< 3	< 4	< 9	< 2	< 8	< 4	< 7	< 15	< 3	< 4	< 30	< 9
	04/16/12 - 04/16/12	< 5	< 6	< 10	< 7	< 10	< 6	< 8	< 14	< 5	< 6	< 34	< 9
	07/03/12 - 07/03/12	< 4	< 4	< 10	< 4	< 8	< 5	< 8	< 15	< 3	< 4	< 31	< 10
	10/03/12 - 10/03/12	< 4	< 4	< 11	< 4	< 8	< 4	< 7	< 14	< 4	< 4	< 33	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
W-3C	01/16/12 - 01/16/12	< 4	< 4	< 9	< 4	< 8	< 5	< 7	< 13	< 4	< 4	< 28	< 9
	04/16/12 - 04/16/12	< 5	< 5	< 10	< 5	< 9	< 5	< 8	< 12	< 5	< 5	< 31	< 8
	07/03/12 - 07/03/12	< 3	< 4	< 9	< 4	< 7	< 4	< 6	< 13	< 3	< 3	< 28	< 9
	10/03/12 - 10/03/12	< 4	< 4	< 8	< 5	< 8	< 5	< 8	< 13	< 4	< 4	< 26	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE C-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN PREDATOR AND BOTTOM FEEDER (FISH) SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137
33	PREDATOR								
	04/10/12	4854 ± 646	< 33	< 31	< 69	< 33	< 83	< 33	< 36
	05/03/12	3895 ± 845	< 75	< 68	< 156	< 71	< 158	< 74	< 75
	09/25/12	5520 ± 724	< 45	< 44	< 113	< 50	< 95	< 44	< 45
	MEAN	4756 ± 1634	-	-	-	-	-	-	-
33	BOTTOM FEEDER								
	09/26/12	2832 ± 791	< 50	< 59	< 137	< 52	< 112	< 53	< 57
	MEAN	2832 ± 0	-	-	-	-	-	-	-
93	PREDATOR								
	04/10/12	3996 ± 838	< 34	< 38	< 83	< 50	< 92	< 36	< 39
	04/10/12	4306 ± 603	< 32	< 35	< 76	< 34	< 82	< 29	< 34
	04/10/12	4919 ± 1202	< 59	< 45	< 102	< 60	< 112	< 53	< 50
	09/25/12	4673 ± 673	< 37	< 39	< 95	< 47	< 75	< 43	< 40
	09/25/12	4471 ± 778	< 54	< 49	< 123	< 63	< 126	< 53	< 54
	MEAN	4473 ± 703	-	-	-	-	-	-	-
93	BOTTOM FEEDER								
	09/25/12	4366 ± 835	< 55	< 50	< 135	< 59	< 113	< 50	< 51
	MEAN	4366 ± 0	-	-	-	-	-	-	-
94	PREDATOR								
	04/09/12	4080 ± 710	< 49	< 45	< 97	< 48	< 100	< 45	< 50
	04/09/12	4750 ± 706	< 44	< 39	< 83	< 47	< 87	< 39	< 44
	09/26/12	4606 ± 883	< 46	< 53	< 113	< 55	< 122	< 47	< 56
	09/26/12	5052 ± 895	< 52	< 52	< 120	< 54	< 92	< 44	< 47
	MEAN	4622 ± 813	-	-	-	-	-	-	-
94	BOTTOM FEEDER								
	04/09/12	4612 ± 800	< 49	< 49	< 110	< 53	< 93	< 51	< 54
	09/26/12	4257 ± 1176	< 94	< 97	< 227	< 67	< 174	< 77	< 82
	09/26/12	4307 ± 925	< 62	< 59	< 134	< 65	< 129	< 61	< 62
	MEAN	4392 ± 384	-	-	-	-	-	-	-

TABLE C-IV.2 CONCENTRATIONS OF GAMMA EMITTERS IN CLAM AND CRAB SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137
23	CLAMS								
	04/10/12	1699 ± 597	< 39	< 45	< 88	< 44	< 87	< 39	< 44
	09/24/12	832 ± 413	< 40	< 40	< 67	< 33	< 72	< 36	< 37
	MEAN	1266 ± 1226	-	-	-	-	-	-	-
24	CLAMS								
	04/10/12	1199 ± 643	< 46	< 51	< 101	< 50	< 100	< 48	< 48
	09/24/12	1059 ± 509	< 43	< 46	< 116	< 47	< 87	< 41	< 43
	MEAN	1129 ± 198	-	-	-	-	-	-	-
33	CRABS								
	09/24/12	3341 ± 838	< 48	< 53	< 99	< 47	< 98	< 47	< 56
	MEAN	-	-	-	-	-	-	-	-
93	CRABS								
	09/25/12	2592 ± 524	< 33	< 35	< 82	< 48	< 83	< 37	< 41
	MEAN	-	-	-	-	-	-	-	-
94	CLAMS								
	04/09/12	1692 ± 478	< 27	< 25	< 62	< 25	< 71	< 30	< 30
	09/26/12	1672 ± 616	< 42	< 58	< 132	< 52	< 102	< 54	< 51
	MEAN	1682 ± 28	-	-	-	-	-	-	-

TABLE C-V.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

SITE	COLLECTION PERIOD	Be-7	K-40	Mn-54	Co-58	Co-60	Cs-134	Cs-137
23	04/10/12	323 ± 195	1428 ± 446	< 28	< 23	< 32	< 26	< 30
	09/24/12	< 385	1750 ± 571	< 36	< 34	< 30	< 30	< 37
	MEAN	-	1589 ± 455	-	-	-	-	-
24	04/10/12	< 294	571 ± 317	< 33	< 29	< 29	< 28	< 33
	09/24/12	< 411	1127 ± 496	< 35	< 43	< 40	< 37	< 40
	MEAN	-	849 ± 787	-	-	-	-	-
33	04/09/12	695 ± 363	5080 ± 834	< 41	< 47	< 44	< 46	< 43
	09/24/12	< 578	5087 ± 838	< 58	< 53	< 62	< 46	< 53
	MEAN	-	5084 ± 10	-	-	-	-	-
94	04/09/12	< 553	13840 ± 1381	< 71	< 58	< 84	< 64	< 80
	09/26/12	< 463	2144 ± 513	< 47	< 50	< 47	< 40	< 39
	MEAN	-	7992 ± 16541	-	-	-	-	-

TABLE C-VI.1 CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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

COLLECTION	GROUP I			GROUP II			GROUP III	
PERIOD	20	66	111	71	72	73	3	C
12/28/11 - 01/04/12	16 ± 5	15 ± 5	17 ± 5	18 ± 5	18 ± 5	16 ± 5	14 ± 5	14 ± 5
01/04/12 - 01/11/12	17 ± 5	11 ± 5	20 ± 6	20 ± 6	22 ± 6	17 ± 5	16 ± 5	27 ± 6
01/11/12 - 01/18/12	19 ± 5	12 ± 4	20 ± 5	18 ± 5	15 ± 5	15 ± 5	12 ± 4	16 ± 4
01/18/12 - 01/25/12	17 ± 5	11 ± 5	17 ± 5	16 ± 5	11 ± 5	16 ± 5	9 ± 5	14 ± 5
01/25/12 - 02/01/12	20 ± 5	19 ± 5	25 ± 6	21 ± 5	23 ± 6	19 ± 5	(1)	22 ± 6
02/01/12 - 02/08/12	19 ± 6	18 ± 6	22 ± 6	20 ± 6	21 ± 6	18 ± 6	14 ± 5	19 ± 6
02/08/12 - 02/15/12	16 ± 5	< 6	17 ± 5	14 ± 5	9 ± 5	17 ± 5	15 ± 5	13 ± 5
02/15/12 - 02/22/12	18 ± 5	14 ± 5	16 ± 5	15 ± 5	14 ± 5	16 ± 5	11 ± 5	18 ± 5
02/22/12 - 02/29/12	21 ± 5	18 ± 5	16 ± 5	16 ± 5	20 ± 5	20 ± 5	14 ± 5	19 ± 5
02/29/12 - 03/07/12	11 ± 5	17 ± 5	15 ± 5	13 ± 5	11 ± 5	11 ± 5	11 ± 5	13 ± 5
03/07/12 - 03/14/12	18 ± 5	17 ± 5	14 ± 5	17 ± 5	19 ± 5	14 ± 5	16 ± 5	14 ± 5
03/14/12 - 03/21/12	14 ± 5	15 ± 5	14 ± 5	15 ± 5	14 ± 5	11 ± 5	18 ± 5	18 ± 5
03/21/12 - 03/27/12	13 ± 6	12 ± 6	15 ± 6	10 ± 6	12 ± 6	< 8	12 ± 6	11 ± 6
03/27/12 - 04/04/12	11 ± 4	11 ± 4	12 ± 4	11 ± 4	14 ± 4	15 ± 4	11 ± 4	11 ± 4
04/04/12 - 04/11/12	15 ± 5	12 ± 5	15 ± 5	14 ± 5	14 ± 5	12 ± 5	11 ± 5	16 ± 5
04/11/12 - 04/18/12	13 ± 5	13 ± 5	15 ± 5	13 ± 5	15 ± 5	11 ± 5	11 ± 5	11 ± 5
04/18/12 - 04/25/12	9 ± 5	10 ± 5	9 ± 4	12 ± 5	9 ± 5	9 ± 5	8 ± 4	8 ± 5
04/25/12 - 05/01/12	11 ± 5	16 ± 6	17 ± 6	15 ± 6	17 ± 6	12 ± 6	13 ± 6	14 ± 6
05/01/12 - 05/08/12	7 ± 3	11 ± 3	9 ± 3	9 ± 3	8 ± 3	5 ± 3	9 ± 3	12 ± 3
05/08/12 - 05/16/12	15 ± 5	12 ± 5	9 ± 5	14 ± 5	11 ± 5	13 ± 5	11 ± 5	13 ± 5
05/16/12 - 05/23/12	7 ± 4	7 ± 4	8 ± 3	10 ± 4	11 ± 4	7 ± 4	< 5	7 ± 4
05/23/12 - 05/30/12	10 ± 5	8 ± 5	9 ± 5	8 ± 5	8 ± 5	8 ± 5	7 ± 4	11 ± 5
05/30/12 - 06/06/12	13 ± 5	15 ± 5	13 ± 5	13 ± 5	12 ± 5	10 ± 5	11 ± 5	9 ± 5
06/06/12 - 06/13/12	7 ± 5	12 ± 5	7 ± 5	12 ± 5	< 7	9 ± 5	9 ± 5	14 ± 5
06/13/12 - 06/20/12	9 ± 4	10 ± 4	7 ± 4	7 ± 4	12 ± 5	8 ± 4	11 ± 4	13 ± 5
06/20/12 - 06/27/12	18 ± 5	17 ± 5	15 ± 5	16 ± 5	(1)	17 ± 5	17 ± 5	21 ± 5
06/27/12 - 07/03/12	23 ± 7	(1)	24 ± 7	23 ± 7	26 ± 7	22 ± 7	20 ± 7	19 ± 7
07/03/12 - 07/11/12	16 ± 5	19 ± 5	20 ± 5	19 ± 5	21 ± 5	20 ± 5	18 ± 5	17 ± 5
07/11/12 - 07/18/12	21 ± 5	21 ± 5	17 ± 5	23 ± 5	21 ± 5	14 ± 5	17 ± 5	21 ± 5
07/18/12 - 07/25/12	10 ± 5	14 ± 5	12 ± 5	14 ± 5	12 ± 5	13 ± 5	10 ± 5	14 ± 5
07/25/12 - 08/01/12	11 ± 5	12 ± 5	9 ± 5	9 ± 5	8 ± 5	12 ± 5	7 ± 5	14 ± 5
08/01/12 - 08/08/12	14 ± 3	15 ± 5	15 ± 5	14 ± 5	19 ± 5	10 ± 5	16 ± 5	16 ± 5
08/08/12 - 08/15/12	(1)	17 ± 5	12 ± 5	19 ± 5	16 ± 5	13 ± 5	14 ± 5	17 ± 5
08/15/12 - 08/22/12	22 ± 5	19 ± 5	16 ± 5	21 ± 5	15 ± 5	17 ± 5	17 ± 5	21 ± 5
08/22/12 - 08/29/12	23 ± 5	25 ± 6	21 ± 5	24 ± 6	23 ± 6	19 ± 5	20 ± 5	22 ± 5
08/29/12 - 09/05/12	28 ± 6	25 ± 6	32 ± 6	24 ± 6	30 ± 6	25 ± 6	26 ± 6	30 ± 6
09/05/12 - 09/12/12	10 ± 5	14 ± 5	14 ± 5	9 ± 5	14 ± 5	12 ± 5	15 ± 5	13 ± 5
09/12/12 - 09/19/12	17 ± 5	19 ± 5	18 ± 5	21 ± 5	21 ± 5	18 ± 5	16 ± 5	22 ± 5
09/19/12 - 09/26/12	11 ± 5	14 ± 5	14 ± 5	12 ± 5	15 ± 6	16 ± 6	11 ± 5	12 ± 5
09/26/12 - 10/03/12	24 ± 6	21 ± 6	16 ± 5	22 ± 6	22 ± 6	20 ± 5	23 ± 6	28 ± 6
10/03/12 - 10/10/12	11 ± 5	20 ± 6	23 ± 6	19 ± 6	22 ± 6	23 ± 6	22 ± 6	21 ± 6
10/10/12 - 10/17/12	12 ± 5	13 ± 5	< 7	14 ± 5	19 ± 6	11 ± 5	14 ± 5	11 ± 5
10/17/12 - 10/24/12	24 ± 6	26 ± 6	26 ± 6	24 ± 6	22 ± 6	25 ± 6	22 ± 6	24 ± 6
10/24/12 - 11/01/12	9 ± 4	14 ± 6	11 ± 4	14 ± 6	21 ± 7	16 ± 6	(1)	18 ± 6
11/01/12 - 11/07/12	11 ± 6	< 9	< 9	< 9	(1)	(1)	(1)	(1)
11/07/12 - 11/14/12	11 ± 5	13 ± 5	11 ± 5	11 ± 5	15 ± 6	(1)	(1)	16 ± 6
11/14/12 - 11/20/12	15 ± 6	20 ± 6	21 ± 6	18 ± 6	21 ± 6	19 ± 6	(1)	24 ± 6
11/20/12 - 11/28/12	18 ± 5	20 ± 5	15 ± 5	21 ± 5	17 ± 5	20 ± 5	(1)	21 ± 5
11/28/12 - 12/05/12	28 ± 6	30 ± 6	27 ± 6	27 ± 6	28 ± 6	29 ± 6	(1)	26 ± 6
12/05/12 - 12/12/12	15 ± 5	15 ± 5	12 ± 5	10 ± 5	13 ± 5	10 ± 5	(1)	13 ± 5
12/12/12 - 12/18/12	22 ± 7	19 ± 7	20 ± 7	12 ± 6	20 ± 7	19 ± 7	(1)	17 ± 7
12/18/12 - 12/26/12	21 ± 5	18 ± 5	14 ± 4	15 ± 4	20 ± 5	20 ± 5	(1)	19 ± 5
12/26/12 - 01/02/13	9 ± 5	15 ± 5	11 ± 5	13 ± 5	16 ± 5	12 ± 5	(1)	15 ± 5
MEAN*	15 ± 11	16 ± 9	16 ± 11	16 ± 10	17 ± 11	15 ± 10	14 ± 9	17 ± 10

* THE MEAN AND TWO STANDARD DEVIATION 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 OYSTER CREEK GENERATING STATION, 2012**

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
12/28/11 - 02/01/12	11	25	17 ± 8	12/28/11 - 02/01/12	11	23	18 ± 6	12/28/11 - 02/01/12	9	27	16 ± 11
02/01/12 - 02/29/12	14	22	18 ± 5	02/01/12 - 02/29/12	9	21	17 ± 7	02/01/12 - 02/29/12	11	19	15 ± 6
02/29/12 - 03/27/12	11	18	15 ± 4	02/29/12 - 03/27/12	10	19	13 ± 6	02/29/12 - 03/27/12	11	18	14 ± 6
03/27/12 - 05/01/12	9	17	13 ± 5	03/27/12 - 05/01/12	9	17	13 ± 5	03/27/12 - 05/01/12	8	16	11 ± 5
05/01/12 - 05/30/12	7	15	9 ± 5	05/01/12 - 05/30/12	5	14	9 ± 5	05/01/12 - 05/30/12	7	13	10 ± 5
05/30/12 - 07/03/12	7	24	13 ± 11	05/30/12 - 07/03/12	7	26	14 ± 12	05/30/12 - 07/03/12	9	21	14 ± 9
07/03/12 - 08/01/12	9	21	15 ± 9	07/03/12 - 08/01/12	8	23	15 ± 10	07/03/12 - 08/01/12	7	21	15 ± 9
08/01/12 - 08/29/12	12	25	18 ± 8	08/01/12 - 08/29/12	10	24	17 ± 8	08/01/12 - 08/29/12	14	22	18 ± 6
08/29/12 - 10/03/12	10	32	18 ± 13	08/29/12 - 10/03/12	9	30	19 ± 12	08/29/12 - 10/03/12	11	30	19 ± 14
10/03/12 - 11/01/12	9	26	17 ± 13	10/03/12 - 11/01/12	11	25	19 ± 9	10/03/12 - 11/01/12	11	24	19 ± 10
11/01/12 - 11/28/12	11	21	16 ± 8	11/07/12 - 11/28/12	11	21	18 ± 7	11/07/12 - 11/28/12	16	24	20 ± 9
11/28/12 - 01/02/13	9	30	18 ± 13	11/28/12 - 01/02/13	10	29	17 ± 13	11/28/12 - 01/02/13	13	26	18 ± 10
12/28/11 - 01/02/13	7	32	16 ± 10	12/28/11 - 01/02/13	5	30	16 ± 10	12/28/11 - 01/02/13	7	30	15 ± 10

TABLE C-VI.3 **CONCENTRATIONS OF STRONTIUM IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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

SITE	COLLECTION PERIOD	Sr-89	Sr-90
3	12/28/11 - 03/27/12	< 5	< 5
	03/27/12 - 07/03/12	< 4	< 4
	07/03/12 - 10/03/12	< 5	< 3
	10/03/12 - 01/02/13	< 7	< 7
	MEAN	-	-
20	12/28/11 - 03/27/12	< 5	< 5
	03/27/12 - 07/03/12	< 4	< 3
	07/03/12 - 10/03/12	< 4	< 3
	10/03/12 - 01/02/13	< 4	< 2
	MEAN	-	-
66	12/28/11 - 03/27/12	< 4	< 4
	03/27/12 - 07/03/12	< 4	< 3
	07/03/12 - 10/03/12	< 5	< 3
	10/03/12 - 01/02/13	< 4	< 2
	MEAN	-	-
71	12/28/11 - 03/27/12	< 6	< 5
	03/27/12 - 07/03/12	< 4	< 4
	07/03/12 - 10/03/12	< 4	< 2
	10/03/12 - 01/02/13	< 4	< 5
	MEAN	-	-

SITE	COLLECTION PERIOD	Sr-89	Sr-90
72	12/28/11 - 03/27/12	< 5	< 5
	03/27/12 - 07/03/12	< 4	< 3
	07/03/12 - 10/03/12	< 5	< 3
	10/03/12 - 01/02/13	< 6	< 7
	MEAN	-	-
73	12/28/11 - 03/27/12	< 6	< 6
	03/27/12 - 07/03/12	< 4	< 3
	07/03/12 - 10/03/12	< 4	< 3
	10/03/12 - 01/02/13	< 6	< 2
	MEAN	-	-
111	12/28/11 - 03/27/12	< 4	< 4
	03/27/12 - 07/03/12	< 5	< 3
	07/03/12 - 10/03/12	< 5	< 3
	10/03/12 - 01/02/13	< 4	< 2
	MEAN	-	-
C	12/28/11 - 03/27/12	< 5	< 5
	03/27/12 - 07/03/12	< 4	< 3
	07/03/12 - 10/03/12	< 5	< 3
	10/03/12 - 01/02/13	< 5	< 6
	MEAN	-	-

TABLE C-VI.4 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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

SITE	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	Cs-134	Cs-137
3	12/28/11 - 03/27/12	67 ± 29	< 3	< 4	< 3	< 4	< 3
	03/27/12 - 07/03/12	45 ± 16	< 2	< 2	< 3	< 2	< 2
	07/03/12 - 10/03/12	49 ± 25	< 2	< 3	< 2	< 3	< 3
	10/03/12 - 01/02/13	< 112	< 12	< 11	< 13	< 10	< 10
	MEAN*	54 ± 23	-	-	-	-	-
20	12/28/11 - 03/27/12	61 ± 20	< 2	< 2	< 2	< 2	< 2
	03/27/12 - 07/03/12	81 ± 24	< 3	< 3	< 2	< 3	< 2
	07/03/12 - 10/03/12	51 ± 27	< 4	< 4	< 5	< 4	< 3
	10/03/12 - 01/02/13	53 ± 20	< 2	< 2	< 3	< 2	< 2
	MEAN	61 ± 27	-	-	-	-	-
66	12/28/11 - 03/27/12	57 ± 18	< 2	< 2	< 1	< 2	< 2
	03/27/12 - 07/03/12	84 ± 23	< 3	< 3	< 3	< 3	< 3
	07/03/12 - 10/03/12	71 ± 26	< 2	< 3	< 3	< 3	< 3
	10/03/12 - 01/02/13	34 ± 17	< 2	< 2	< 2	< 2	< 2
	MEAN	62 ± 42	-	-	-	-	-
71	12/28/11 - 03/27/12	57 ± 21	< 2	< 3	< 2	< 2	< 2
	03/27/12 - 07/03/12	71 ± 20	< 2	< 2	< 2	< 2	< 3
	07/03/12 - 10/03/12	72 ± 30	< 3	< 3	< 3	< 4	< 3
	10/03/12 - 01/02/13	50 ± 20	< 2	< 2	< 2	< 2	< 2
	MEAN	63 ± 22	-	-	-	-	-
72	12/28/11 - 03/27/12	86 ± 31	< 3	< 3	< 3	< 4	< 3
	03/27/12 - 07/03/12	53 ± 21	< 2	< 3	< 2	< 3	< 2
	07/03/12 - 10/03/12	76 ± 22	< 2	< 3	< 2	< 3	< 3
	10/03/12 - 01/02/13	50 ± 25	< 2	< 3	< 2	< 2	< 3
	MEAN	66 ± 35	-	-	-	-	-
73	12/28/11 - 03/27/12	53 ± 35	< 3	< 3	< 3	< 3	< 3
	03/27/12 - 07/03/12	57 ± 25	< 2	< 2	< 2	< 1	< 1
	07/03/12 - 10/03/12	80 ± 30	< 4	< 4	< 4	< 4	< 4
	10/03/12 - 01/02/13	50 ± 24	< 3	< 3	< 2	< 2	< 3
	MEAN	60 ± 27	-	-	-	-	-
111	12/28/11 - 03/27/12	75 ± 19	< 2	< 3	< 2	< 3	< 2
	03/27/12 - 07/03/12	< 34	< 3	< 3	< 3	< 4	< 4
	07/03/12 - 10/03/12	55 ± 21	< 4	< 3	< 3	< 3	< 2
	10/03/12 - 01/02/13	47 ± 28	< 3	< 3	< 3	< 2	< 2
	MEAN*	59 ± 29	-	-	-	-	-

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

TABLE C-VI.4 CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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

SITE	COLLECTION PERIOD	Be-7	Mn-54	Co-58	Co-60	Cs-134	Cs-137
C	12/28/11 - 03/27/12	46 ± 35	< 2	< 3	< 3	< 2	< 2
	03/27/12 - 07/03/12	63 ± 21	< 2	< 2	< 2	< 2	< 2
	07/03/12 - 10/03/12	72 ± 31	< 4	< 4	< 3	< 4	< 3
	10/03/12 - 01/02/13	< 36	< 2	< 3	< 2	< 3	< 3
	MEAN*	60 ± 26	-	-	-	-	-

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

TABLE C-VII.1 CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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

COLLECTION	GROUP I			GROUP II			GROUP III	
PERIOD	20	66	111	71	72	73	3	C
12/28/11 - 01/04/12	< 36	< 38	< 37	< 20	< 21	< 38	< 37	< 37
01/04/12 - 01/11/12	< 47	< 54	< 48	< 53	< 49	< 54	< 43	< 43
01/11/12 - 01/18/12	< 52	< 33	< 32	< 32	< 54	< 33	< 52	< 50
01/18/12 - 01/25/12	< 27	< 23	< 23	< 22	< 29	< 23	< 28	< 33
01/25/12 - 02/01/12	< 60	< 62	< 61	< 26	< 27	< 63	(1)	< 48
02/01/12 - 02/08/12	< 48	< 50	< 49	< 19	< 48	< 50	< 47	< 47
02/08/12 - 02/15/12	< 55	< 66	< 65	< 65	< 59	< 67	< 58	< 57
02/15/12 - 02/22/12	< 37	< 34	< 33	< 33	< 39	< 13	< 38	< 38
02/22/12 - 02/29/12	< 33	< 37	< 36	< 36	< 35	< 37	< 35	< 35
02/29/12 - 03/07/12	< 57	< 23	< 57	< 58	< 54	< 58	< 52	< 54
03/07/12 - 03/14/12	< 32	< 33	< 32	< 33	< 33	< 33	< 32	< 34
03/14/12 - 03/21/12	< 28	< 30	< 19	< 29	< 29	< 30	< 28	< 34
03/21/12 - 03/27/12	< 55	< 61	< 59	< 61	< 57	< 61	< 55	< 57
03/27/12 - 04/04/12	< 13	< 39	< 29	< 39	< 30	< 39	< 29	< 30
04/04/12 - 04/11/12	< 49	< 64	< 61	< 65	< 49	< 65	< 46	< 47
04/11/12 - 04/18/12	< 26	< 24	< 23	< 23	< 11	< 18	< 26	< 28
04/18/12 - 04/25/12	< 19	< 29	< 28	< 29	< 20	< 29	< 19	< 20
04/25/12 - 05/01/12	< 65	< 68	< 65	< 67	< 67	< 67	< 27	< 67
05/01/12 - 05/08/12	< 31	< 34	< 33	< 34	< 32	< 34	< 31	< 32
05/08/12 - 05/16/12	< 43	< 40	< 39	< 40	< 44	< 40	< 43	< 58
05/16/12 - 05/23/12	< 46	< 58	< 56	< 57	< 48	< 57	< 46	< 48
05/23/12 - 05/30/12	< 58	< 60	< 57	< 60	< 59	< 60	< 49	< 51
05/30/12 - 06/06/12	< 50	< 35	< 34	< 35	< 51	< 35	< 50	< 51
06/06/12 - 06/13/12	< 57	< 58	< 56	< 22	< 55	< 57	< 53	< 55
06/13/12 - 06/20/12	< 47	< 60	< 58	< 60	< 48	< 60	< 47	< 48
06/20/12 - 06/27/12	< 57	< 58	< 56	< 58	(1)	< 26	< 20	< 53
06/27/12 - 07/03/12	< 54	(1)	< 53	< 20	< 55	< 54	< 22	< 68
07/03/12 - 07/11/12	< 57	< 23	< 56	< 58	< 67	< 58	< 63	< 66
07/11/12 - 07/18/12	< 50	< 47	< 45	< 47	< 54	< 47	< 48	< 49
07/18/12 - 07/25/12	< 51	< 52	< 19	< 51	< 60	< 51	< 58	< 61
07/25/12 - 08/01/12	< 43	< 38	< 37	< 38	< 46	< 38	< 43	< 43
08/01/12 - 08/08/12	< 16	< 42	< 16	< 42	< 43	< 42	< 28	< 30
08/08/12 - 08/15/12	(1)	< 29	< 28	< 29	< 32	< 29	< 31	< 33
08/15/12 - 08/22/12	< 19	< 43	< 42	< 43	< 37	< 43	< 36	< 38
08/22/12 - 08/29/12	< 51	< 43	< 41	< 43	< 52	< 43	< 49	< 50
08/29/12 - 09/05/12	< 45	< 59	< 58	< 58	< 19	< 59	< 45	< 48
09/05/12 - 09/12/12	< 27	< 29	< 28	< 29	< 29	< 29	< 26	< 27
09/12/12 - 09/19/12	< 39	< 50	< 47	< 48	< 43	< 50	< 16	< 40
09/19/12 - 09/26/12	< 17	< 18	< 17	< 18	< 20	< 18	< 17	< 18
09/26/12 - 10/03/12	< 47	< 49	< 48	< 49	< 49	< 49	< 47	< 20
10/03/12 - 10/10/12	< 64	< 45	< 43	< 45	< 69	< 45	< 63	< 66
10/10/12 - 10/17/12	< 46	< 36	< 34	< 35	< 51	< 35	< 46	< 47
10/17/12 - 10/24/12	< 66	< 54	< 52	< 53	< 68	< 53	< 66	< 69
10/24/12 - 11/01/12	< 39	< 58	< 38	< 24	< 63	< 61	(1)	< 61
11/01/12 - 11/07/12	< 42	< 42	< 41	< 42	(1)	(1)	(1)	(1)
11/07/12 - 11/14/12	< 56	< 58	< 55	< 21	< 63	(1)	(1)	< 47
11/14/12 - 11/20/12	< 45	< 45	< 44	< 17	< 22	< 45	(1)	< 52
11/20/12 - 11/28/12	< 34	< 35	< 34	< 35	< 17	< 15	(1)	< 31
11/28/12 - 12/05/12	< 42	< 43	< 42	< 26	< 29	< 43	(1)	< 57
12/05/12 - 12/12/12	< 51	< 23	< 50	< 52	< 11	< 52	(1)	< 30
12/12/12 - 12/18/12	< 41	< 41	< 40	< 16	< 20	< 41	(1)	< 47
12/18/12 - 12/26/12	< 59	< 60	< 22	< 60	< 29	< 60	(1)	< 68
12/26/12 - 01/02/13	< 32	< 33	< 32	< 13	< 15	< 33	(1)	< 35
MEAN	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VIII.1 **CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD		Sr-89	Sr-90	Be-7	K-40	I-131	Cs-134	Cs-137	Ba-140	La-140
115	07/19/12	Cabbage	< 16.9	5.5 ± 2.3	257 ± 200	2933 ± 449	< 32	< 16	< 27	< 76	< 32
	07/19/12	Collards	< 15.8	10.2 ± 2.1	< 185	3986 ± 515	< 21	< 14	< 29	< 71	< 20
	07/19/12	Kale	< 12.8	7.1 ± 1.9	< 316	4367 ± 811	< 42	< 28	< 35	< 131	< 31
	08/14/12	Cabbage	< 12.9	13.4 ± 3.3	< 183	1865 ± 331	< 33	< 15	< 57	< 101	< 31
	08/14/12	Collards	< 15.6	20.6 ± 3.8	< 234	3224 ± 501	< 38	< 23	68 ± 21	< 118	< 32
	08/14/12	Kale	< 11.5	< 3.4	255 ± 167	3274 ± 396	< 35	< 18	63 ± 30	< 95	< 25
	09/19/12	Cabbage	< 12.5	< 3.3	< 100	1517 ± 188	< 17	< 10	< 13	< 46	< 16
	09/19/12	Collards	< 12.7	< 3.1	937 ± 238	3688 ± 498	< 27	< 17	62 ± 29	< 74	< 22
	09/19/12	Kale	< 20.6	15.6 ± 3.6	423 ± 184	4662 ± 503	< 34	< 20	< 29	< 84	< 22
	10/16/12	Cabbage	< 12.6	< 3.0	< 253	2092 ± 516	< 53	< 24	< 27	< 140	< 44
	10/16/12	Collards	< 16.9	< 3.1	475 ± 155	6304 ± 485	< 39	< 18	< 25	< 100	< 26
	10/16/12	Kale	< 17.8	< 3.6	526 ± 150	4552 ± 425	< 40	< 17	< 21	< 93	< 27
	MEAN*		-	12.1 ± 11.3	479 ± 502	3539 ± 2721	-	-	64 ± 6	-	-
35	07/19/12	Cabbage	< 14.3	4.4 ± 1.7	154 ± 113	3775 ± 416	< 29	< 17	< 17	< 73	< 18
	07/19/12	Collards	< 13.9	3.7 ± 1.9	< 207	5144 ± 630	< 39	< 18	< 21	< 106	< 37
	07/19/12	Kale	< 15.4	4.1 ± 2.0	< 306	4853 ± 643	< 55	< 26	< 34	< 116	< 29
	08/14/12	Cabbage	< 10.5	3.7 ± 1.9	< 163	2353 ± 318	< 27	< 15	< 16	< 64	< 22
	08/14/12	Collards	< 10.5	< 4.4	625 ± 262	3402 ± 506	< 42	< 21	< 26	< 106	< 25
	08/14/12	Kale	< 10.6	8.9 ± 2.9	625 ± 330	4090 ± 628	< 56	< 30	< 31	< 157	< 48
	09/19/12	Cabbage	< 13.3	< 3.4	< 266	2690 ± 474	< 42	< 29	< 30	< 127	< 38
	09/19/12	Collards	< 11.6	< 3.0	708 ± 264	4832 ± 592	< 50	< 28	< 28	< 151	< 40
	09/19/12	Kale	< 13.9	< 3.5	637 ± 190	5071 ± 516	< 46	< 27	< 28	< 122	< 36
	09/19/12	Swiss Chard	< 13.4	< 3.2	782 ± 202	6790 ± 655	< 32	< 16	< 27	< 105	< 22
	10/16/12	Swiss Chard	< 15.1	< 2.5	488 ± 148	5724 ± 492	< 55	< 23	< 26	< 125	< 37
	10/16/12	(1)	-	-	-	-	-	-	-	-	-
	10/16/12	(1)	-	-	-	-	-	-	-	-	-
	MEAN*		-	4.9 ± 4.4	574 ± 411	4429 ± 2642	-	-	-	-	-

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

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-VIII.1 **CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD		Sr-89	Sr-90	Be-7	K-40	I-131	Cs-134	Cs-137	Ba-140	La-140
36	07/19/12	Cabbage	< 12.8	3.7 ± 1.8	< 196	2960 ± 439	< 33	< 21	< 18	< 113	< 31
	07/19/12	Collards	< 12.9	3.1 ± 1.5	544 ± 251	5816 ± 520	< 33	< 21	< 21	< 100	< 29
	07/19/12	Kale	< 14.8	< 2.4	< 206	5483 ± 536	< 43	< 25	< 25	< 123	< 26
	08/14/12	Cabbage	< 10.6	3.4 ± 2.0	< 149	2563 ± 495	< 28	< 18	< 19	< 87	< 25
	08/14/12	Collards	< 10.5	3.6 ± 2.1	< 233	5639 ± 573	< 36	< 18	< 21	< 113	< 21
	08/14/12	Kale	< 12.0	4.3 ± 2.1	< 202	4859 ± 500	< 39	< 19	< 21	< 94	< 25
	09/19/12	Cabbage	< 12.4	< 3.4	< 113	2136 ± 306	< 21	< 14	< 13	< 63	< 19
	09/19/12	Collards	< 13.4	< 2.3	227 ± 150	4500 ± 399	< 23	< 14	< 16	< 64	< 17
	09/19/12	Kale	< 10.4	< 3.0	< 158	3761 ± 418	< 26	< 16	< 17	< 79	< 26
	10/16/12	Cabbage	< 16.4	< 3.2	< 120	2411 ± 276	< 30	< 14	< 14	< 67	< 19
	10/16/12	Collards	< 12.7	< 2.8	316 ± 137	4467 ± 335	< 29	< 14	< 16	< 75	< 21
	10/16/12	Kale	< 18.9	6.9 ± 2.9	258 ± 150	3719 ± 344	< 39	< 18	< 20	< 101	< 21
	MEAN*		-	4.2 ± 2.8	336 ± 286	4026 ± 2605	-	-	-	-	-
66	07/19/12	(1)	-	-	-	-	-	-	-	-	-
	07/19/12	(1)	-	-	-	-	-	-	-	-	-
	07/19/12	(1)	-	-	-	-	-	-	-	-	-
	08/14/12	(1)	-	-	-	-	-	-	-	-	-
	08/14/12	(1)	-	-	-	-	-	-	-	-	-
	08/14/12	(1)	-	-	-	-	-	-	-	-	-
	09/19/12	(1)	-	-	-	-	-	-	-	-	-
	09/19/12	(1)	-	-	-	-	-	-	-	-	-
	09/19/12	(1)	-	-	-	-	-	-	-	-	-
	10/16/12	(1)	-	-	-	-	-	-	-	-	-
	10/16/12	(1)	-	-	-	-	-	-	-	-	-
	10/16/12	(1)	-	-	-	-	-	-	-	-	-

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

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-IX.1 QUARTERLY OSLD RESULTS FOR OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF MREM/STANDARD QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
1	21.4 ± 1.1	21.3 ± 1.2	21.0 ± 3.6	21.0 ± 0.6	22.2 ± 2.1
3	18.6 ± 1.9	19.5 ± 0.9	17.4 ± 0.3	18.3 ± 0.0	19.2 ± 0.0
4	20.0 ± 1.4	20.4 ± 1.8	18.9 ± 0.6	20.1 ± 0.9	20.4 ± 0.3
5	24.6 ± 0.8	24.9 ± 2.4	24.6 ± 2.1	24.0 ± 4.5	24.9 ± 2.4
6	19.9 ± 2.9	20.4 ± 1.2	18.3 ± 1.8	19.2 ± 0.0	21.6 ± 0.0
8	18.8 ± 1.2	18.9 ± 1.2	18.0 ± 1.5	18.6 ± 0.0	19.5 ± 0.0
9	17.8 ± 2.0	17.1 ± 0.0	17.1 ± 0.3	17.7 ± 0.0	19.2 ± 0.3
C	19.4 ± 1.6	19.8 ± 1.5	18.3 ± 2.4	19.5 ± 1.5	20.1 ± 0.6
11	19.4 ± 1.0	19.2 ± 3.0	18.9 ± 1.8	19.2 ± 0.6	20.1 ± 0.6
14	21.7 ± 1.0	21.9 ± 2.4	21.0 ± 4.2	21.6 ± 0.0	22.2 ± 1.2
22	18.7 ± 3.2	19.5 ± 0.3	16.5 ± 0.9	18.6 ± 0.6	20.1 ± 0.9
46	17.7 ± 1.8	17.4 ± 0.6	16.8 ± 0.3	17.7 ± 0.3	18.9 ± 1.2
47	19.5 ± 1.8	20.4 ± 3.9	18.6 ± 1.8	18.9 ± 0.9	20.1 ± 0.3
48	19.5 ± 1.8	19.8 ± 0.0	18.3 ± 0.9	19.5 ± 1.5	20.4 ± 1.2
51	22.2 ± 1.1	22.5 ± 1.2	21.6 ± 0.9	21.9 ± 0.6	22.8 ± 1.2
52	23.3 ± 2.0	22.8 ± 2.4	22.2 ± 3.3	23.4 ± 2.4	24.6 ± 0.3
53	22.5 ± 1.1	22.8 ± 0.6	22.2 ± 3.0	21.9 ± 0.3	23.1 ± 0.9
54	19.0 ± 1.6	18.9 ± 5.1	18.3 ± 0.3	18.6 ± 1.2	20.1 ± 0.6
55	26.6 ± 2.0	25.5 ± 1.2	26.1 ± 3.3	27.6 ± 1.8	27.3 ± 0.0
56	24.3 ± 1.5	25.2 ± 7.5	23.4 ± 0.0	24.0 ± 1.2	24.6 ± 0.3
57	21.1 ± 0.8	21.0 ± 0.9	21.6 ± 3.6	20.7 ± 0.9	21.0 ± 0.6
58	20.9 ± 2.7	21.9 ± 3.6	19.5 ± 0.3	20.1 ± 0.0	22.2 ± 3.6
59	20.5 ± 0.8	20.1 ± 4.2	20.4 ± 1.8	20.4 ± 0.3	21.0 ± 0.0
61	19.1 ± 1.7	19.5 ± 0.3	18.6 ± 0.3	18.3 ± 0.9	20.1 ± 0.6
62	19.5 ± 1.9	19.8 ± 0.3	18.9 ± 0.3	18.6 ± 0.0	20.7 ± 0.9
63	19.5 ± 1.3	19.2 ± 1.2	18.9 ± 1.2	19.5 ± 0.3	20.4 ± 0.0
64	19.5 ± 1.8	20.1 ± 0.6	18.6 ± 1.2	18.9 ± 1.5	20.4 ± 0.9
65	20.0 ± 1.0	20.4 ± 0.3	19.5 ± 2.7	19.5 ± 2.1	20.4 ± 0.6
66	19.2 ± 1.5	19.8 ± 2.4	18.3 ± 2.1	18.9 ± 0.9	19.8 ± 1.2
68	17.6 ± 2.2	16.8 ± 3.3	17.1 ± 1.8	17.1 ± 0.6	19.2 ± 0.6
71	20.4 ± 1.5	21.3 ± 0.9	19.5 ± 1.8	20.1 ± 0.9	20.7 ± 0.0
72	20.8 ± 4.7	21.0 ± 2.1	19.5 ± 3.0	18.6 ± 0.0	24.0 ± 0.6
73	18.7 ± 1.0	18.6 ± 0.9	18.9 ± 3.0	18.0 ± 0.3	19.2 ± 0.3
74	18.9 ± 1.8	19.5 ± 2.1	18.3 ± 0.3	18.0 ± 0.6	19.8 ± 0.0
75	20.2 ± 2.0	19.5 ± 2.7	19.5 ± 1.8	20.1 ± 2.4	21.6 ± 0.9
78	19.2 ± 2.1	18.9 ± 6.0	18.3 ± 3.0	18.9 ± 0.6	20.7 ± 0.0
79	20.3 ± 1.7	20.7 ± 1.2	19.5 ± 2.7	19.8 ± 0.3	21.3 ± 0.6
81	19.2 ± 2.1	20.1 ± 2.4	18.0 ± 3.9	18.6 ± 0.9	20.1 ± 0.0
82	20.2 ± 1.3	20.4 ± 1.5	20.4 ± 2.7	19.2 ± 1.5	20.7 ± 0.6
84	19.4 ± 0.8	19.8 ± 0.3	19.5 ± 0.0	19.5 ± 0.6	18.9 ± 3.3
85	18.2 ± 1.0	18.3 ± 3.9	17.7 ± 0.9	18.0 ± 1.8	18.9 ± 1.8
86	20.4 ± 2.1	19.8 ± 4.2	21.3 ± 7.5	19.2 ± 0.0	21.3 ± 2.4
88	17.9 ± 2.7	19.2 ± 1.2	16.5 ± 2.7	17.1 ± 0.0	18.9 ± 0.0
89	17.8 ± 2.0	18.6 ± 0.3	16.5 ± 0.9	17.4 ± 0.3	18.6 ± 0.0
90	17.7 ± 2.5	18.6 ± 2.4	16.2 ± 1.2	17.1 ± 0.3	18.9 ± 0.9
92	20.2 ± 1.2	20.7 ± 0.9	19.5 ± 1.5	19.8 ± 1.2	20.7 ± 0.3
98	18.5 ± 2.6	17.7 ± 3.0	17.7 ± 2.1	18.3 ± 0.3	20.4 ± 0.9
99	18.3 ± 1.5	18.9 ± 0.6	18.0 ± 3.3	17.4 ± 0.9	18.9 ± 0.9
T1	21.1 ± 1.2	21.6 ± 0.6	20.4 ± 2.1	20.7 ± 0.6	21.6 ± 0.3
100	19.3 ± 2.3	20.1 ± 2.4	18.0 ± 2.7	18.6 ± 1.2	20.4 ± 2.1
101	19.5 ± 1.3	20.1 ± 1.8	19.5 ± 0.6	18.6 ± 1.2	19.8 ± 0.3
102	20.3 ± 3.2	21.6 ± 0.0	18.3 ± 4.8	19.8 ± 0.3	21.6 ± 1.8
103	19.4 ± 2.0	18.9 ± 3.6	18.3 ± 2.4	19.5 ± 0.3	20.7 ± 0.3
104	19.3 ± 1.5	19.5 ± 0.0	18.3 ± 0.3	19.2 ± 0.3	20.1 ± 0.3

TABLE C-IX.1 QUARTERLY OSLD RESULTS FOR OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF MREM/STANDARD QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
105	17.2 ± 1.3	17.4 ± 2.1	16.5 ± 0.0	16.8 ± 1.8	18.0 ± 0.9
106	18.6 ± 2.1	19.5 ± 1.5	17.7 ± 2.4	17.7 ± 0.6	19.5 ± 0.9
107	18.8 ± 1.1	19.2 ± 1.8	18.9 ± 2.7	18.0 ± 0.0	19.2 ± 1.5
109	19.9 ± 2.0	20.4 ± 1.2	18.9 ± 3.0	19.2 ± 0.6	21.0 ± 0.3
110	19.2 ± 1.3	18.6 ± 0.6	18.9 ± 1.5	19.2 ± 0.0	20.1 ± 0.3
112	22.1 ± 1.7	21.3 ± 3.9	21.3 ± 0.9	22.8 ± 2.4	22.8 ± 0.3
113	15.7 ± 21.2	19.2 ± 1.2	0.0 ± 0.0	23.1 ± 0.9	20.4 ± 0.3

TABLE C-IX.2 MEAN QUARTERLY OSLD RESULTS FOR THE SITE BOUNDARY, INTERMEDIATE, SPECIAL INTEREST AND CONTROL LOCATIONS FOR OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF MREM/STANDARD QUARTER ± 2 STANDARD DEVIATIONS OF THE STATION DATA

COLLECTION PERIOD	SITE BOUNDARY ± 2 S.D.	INTERMEDIATE	SPECIAL INTEREST	CONTROL
JAN-MAR	21.2 ± 3.8	19.5 ± 3.0	19.8 ± 2.0	20.9 ± 3.0
APR-JUN	19.5 ± 10.3	18.6 ± 3.1	18.0 ± 2.8	19.7 ± 3.8
JUL-SEP	21.0 ± 4.7	18.9 ± 2.6	18.5 ± 2.2	20.6 ± 3.0
OCT-DEC	21.9 ± 3.9	20.2 ± 2.6	20.1 ± 3.3	21.2 ± 3.0

TABLE C-IX.3 SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF MREM/STANDARD QUARTER ± 2 STANDARD DEVIATIONS OF THE STATION DATA

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
SITE BOUNDARY	75	0.0	27.6	20.9 ± 6.4
INTERMEDIATE	124	16.5	24.9	19.3 ± 3.1
SPECIAL INTEREST	36	16.2	24.0	19.1 ± 3.1
CONTROL	8	18.3	22.2	20.6 ± 2.7

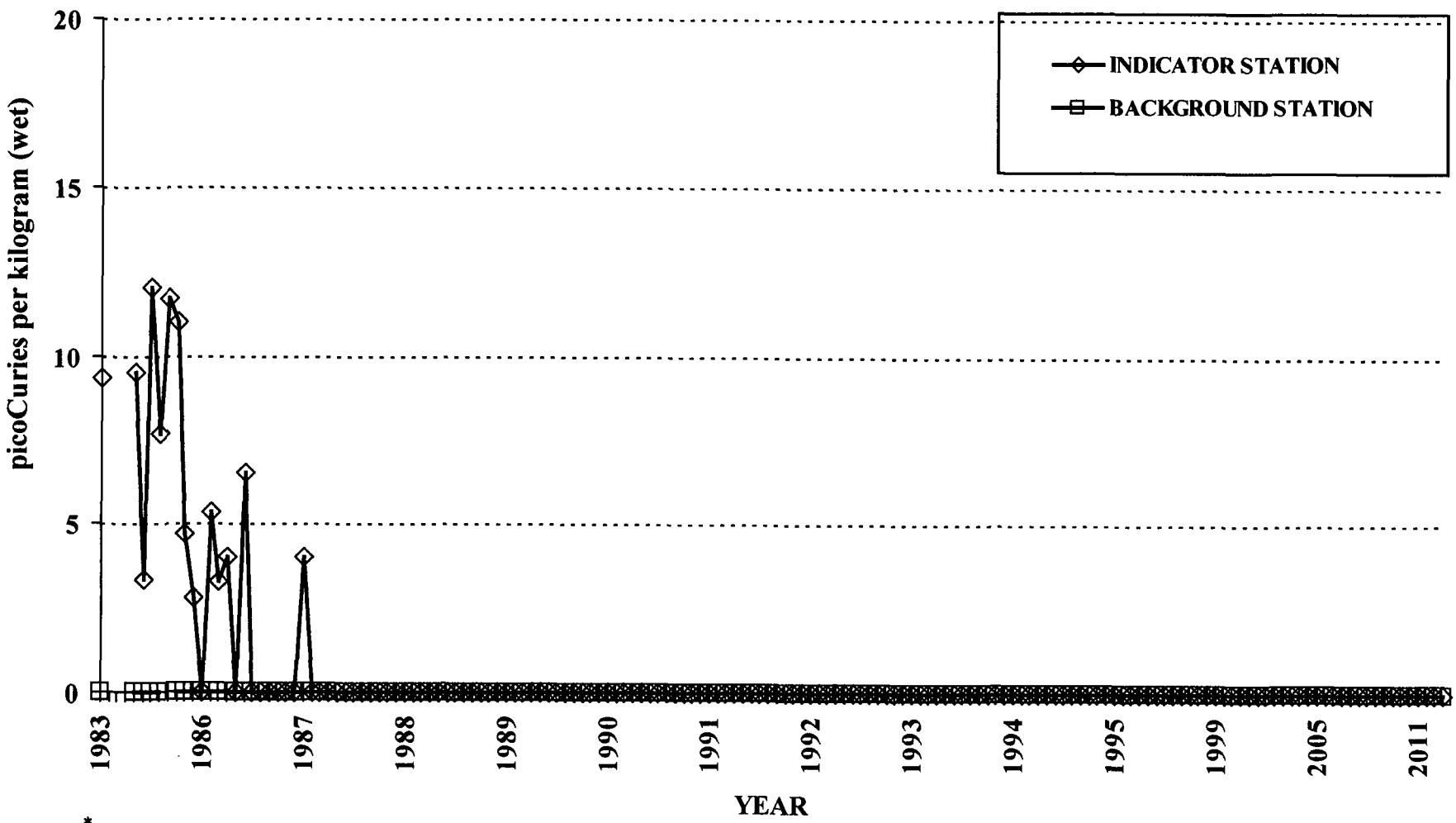
SITE BOUNDARY STATIONS - 1, 112, 113, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, T1

INTERMEDIATE STATIONS - 100, 101, 102, 103, 104, 105, 106, 107, 109, 110, 22, 4, 46, 47, 48, 5, 6, 68, 73, 74, 75, 78, 79, 8, 82, 84, 85, 86, 9, 98, 99

SPECIAL INTEREST STATIONS - 11, 3, 71, 72, 81, 88, 89, 90, 92

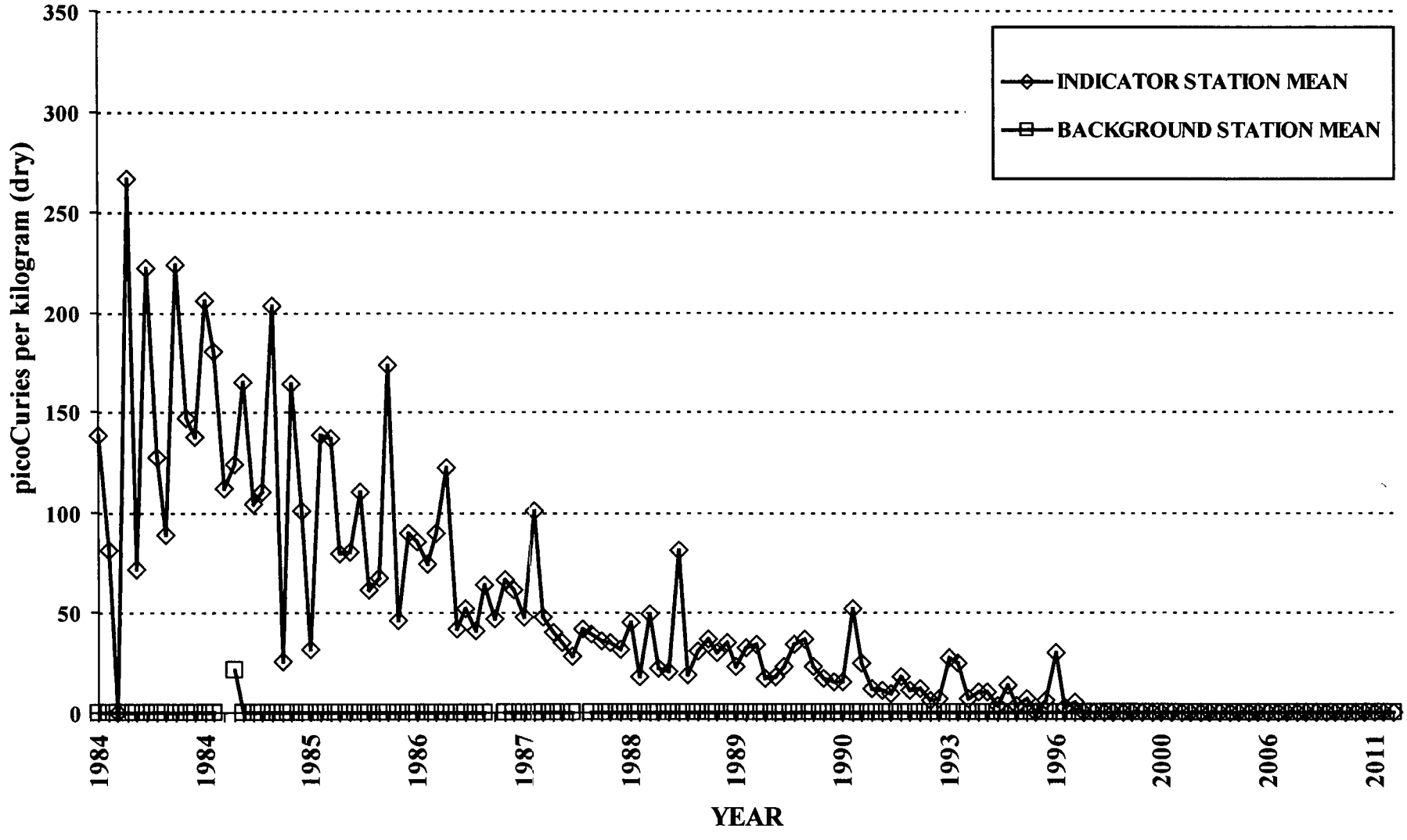
CONTROL STATIONS - 14, C

FIGURE C-1
MEAN COBALT-60 CONCENTRATION IN CLAMS
OYSTER CREEK GENERATING STATION, 1983 - 2012



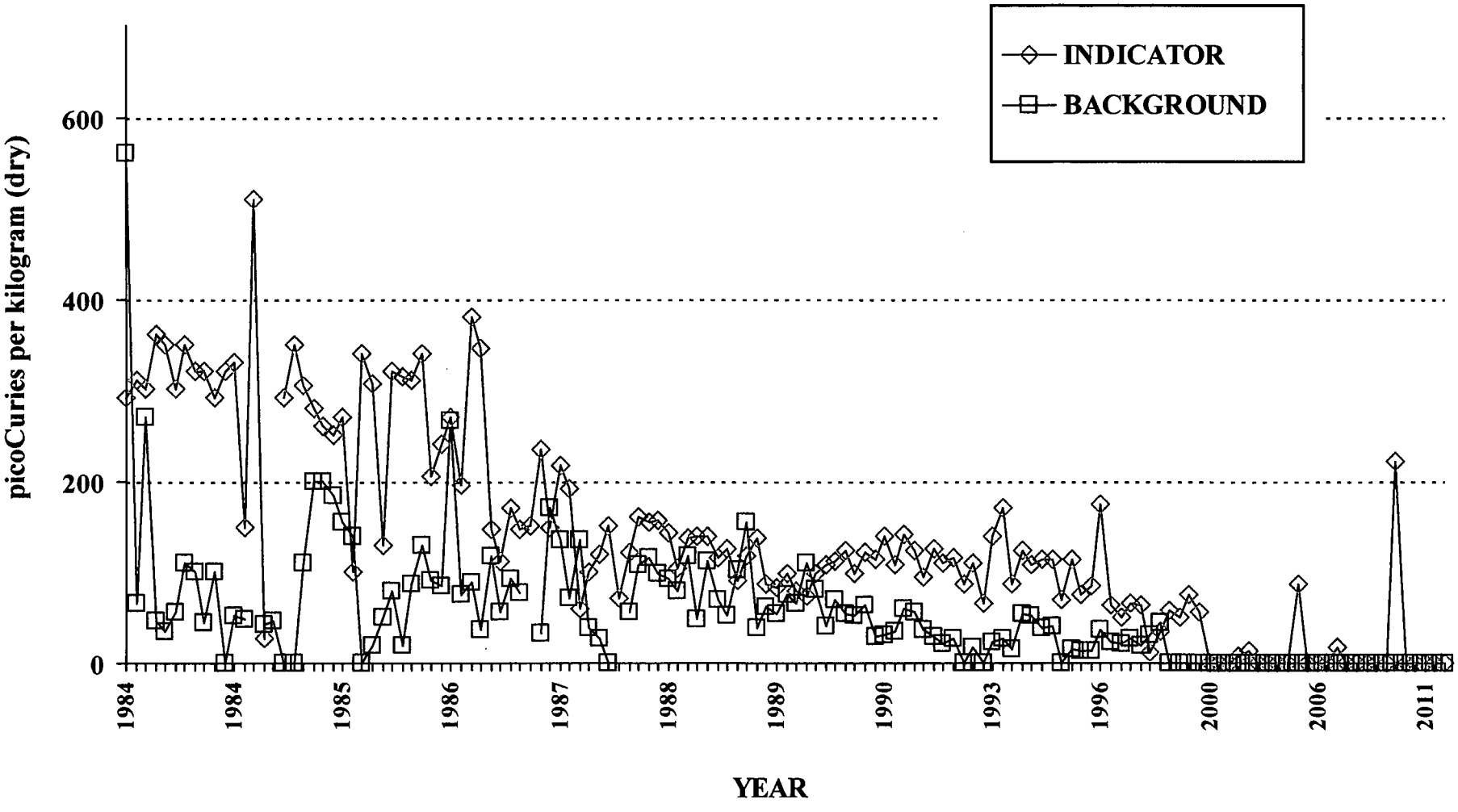
* The year designations on the x-axis reflect multiple sampling periods in a given year, as well as historical changes in the number of sampling periods per year.

FIGURE C-2
MEAN COBALT-60 CONCENTRATION IN AQUATIC SEDIMENT
OYSTER CREEK GENERATING STATION, 1984 - 2012



* The year designations on the x-axis reflect multiple sampling periods in a given year, as well as historical changes in the number of sampling periods per year.

FIGURE C-3
MEAN CESIUM-137 CONCENTRATION IN AQUATIC SEDIMENT
OYSTER CREEK GENERATING STATION, 1984 - 2012



* The year designations on the x-axis reflect multiple sampling periods in a given year, as well as historical changes in the number of sampling periods per year.

FIGURE C-4
MEAN WEEKLY GROSS BETA CONCENTRATIONS
IN AIR PARTICULATES
OYSTER CREEK GENERATING STATION, 2008 - 2012

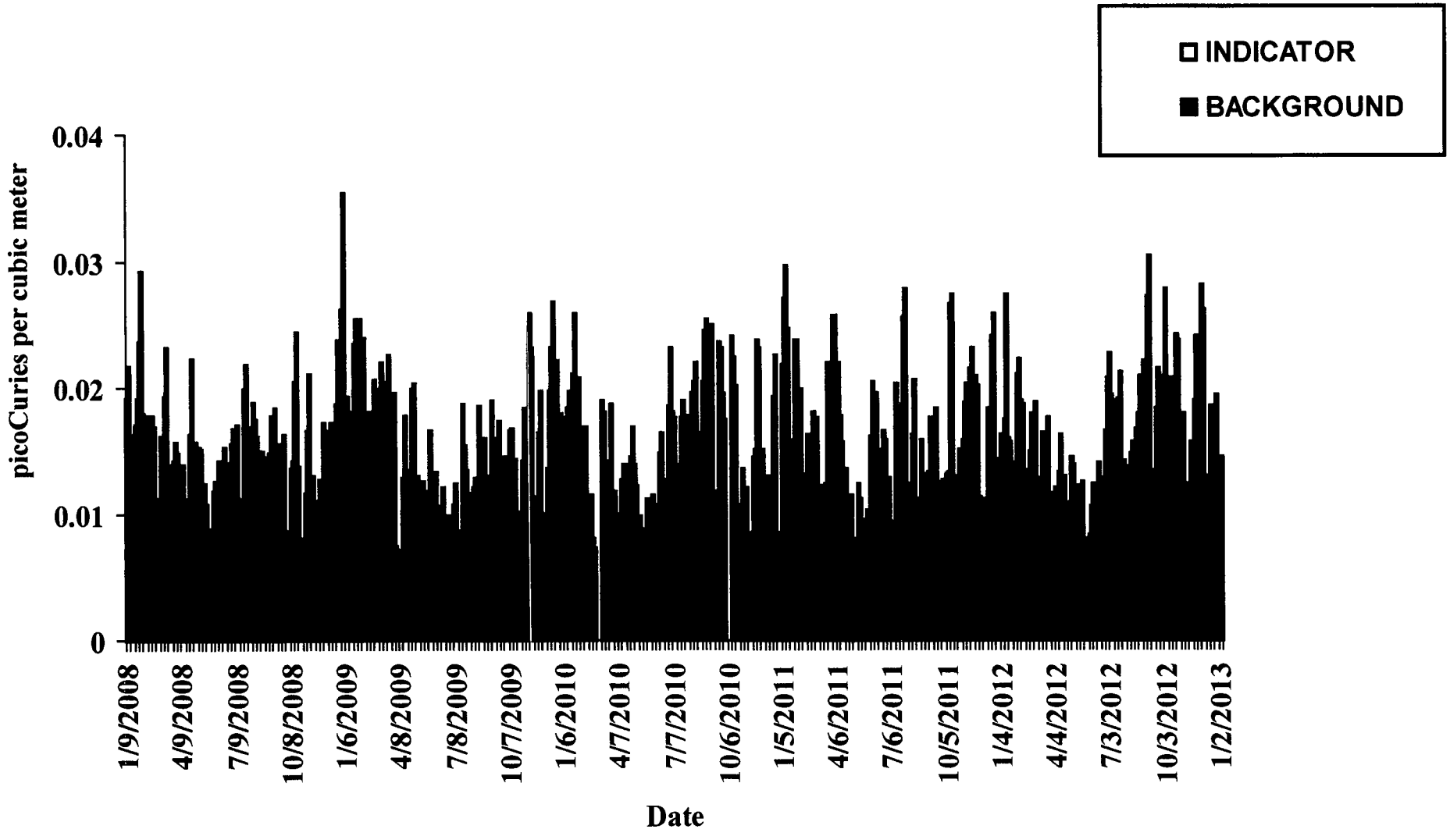
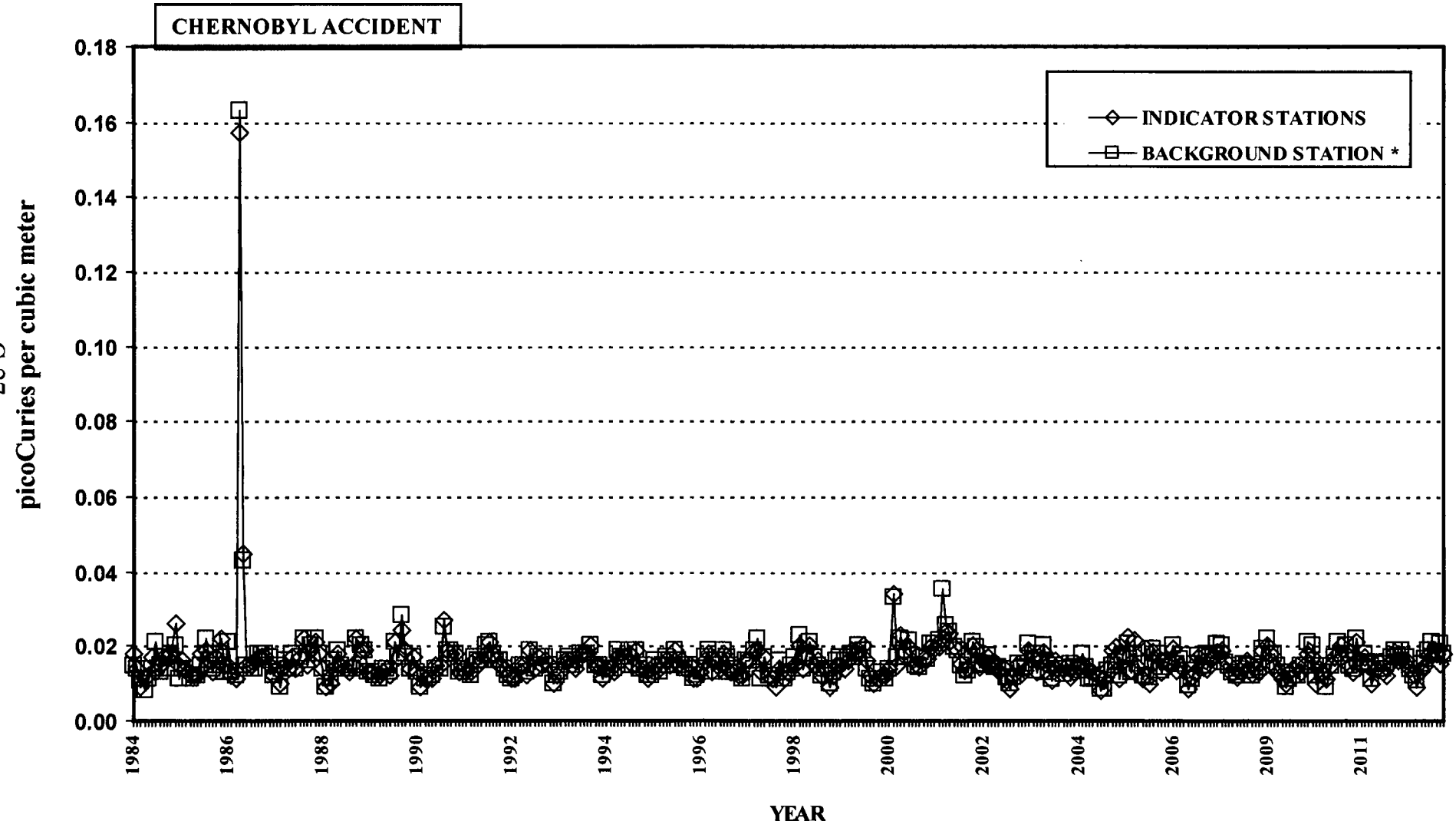
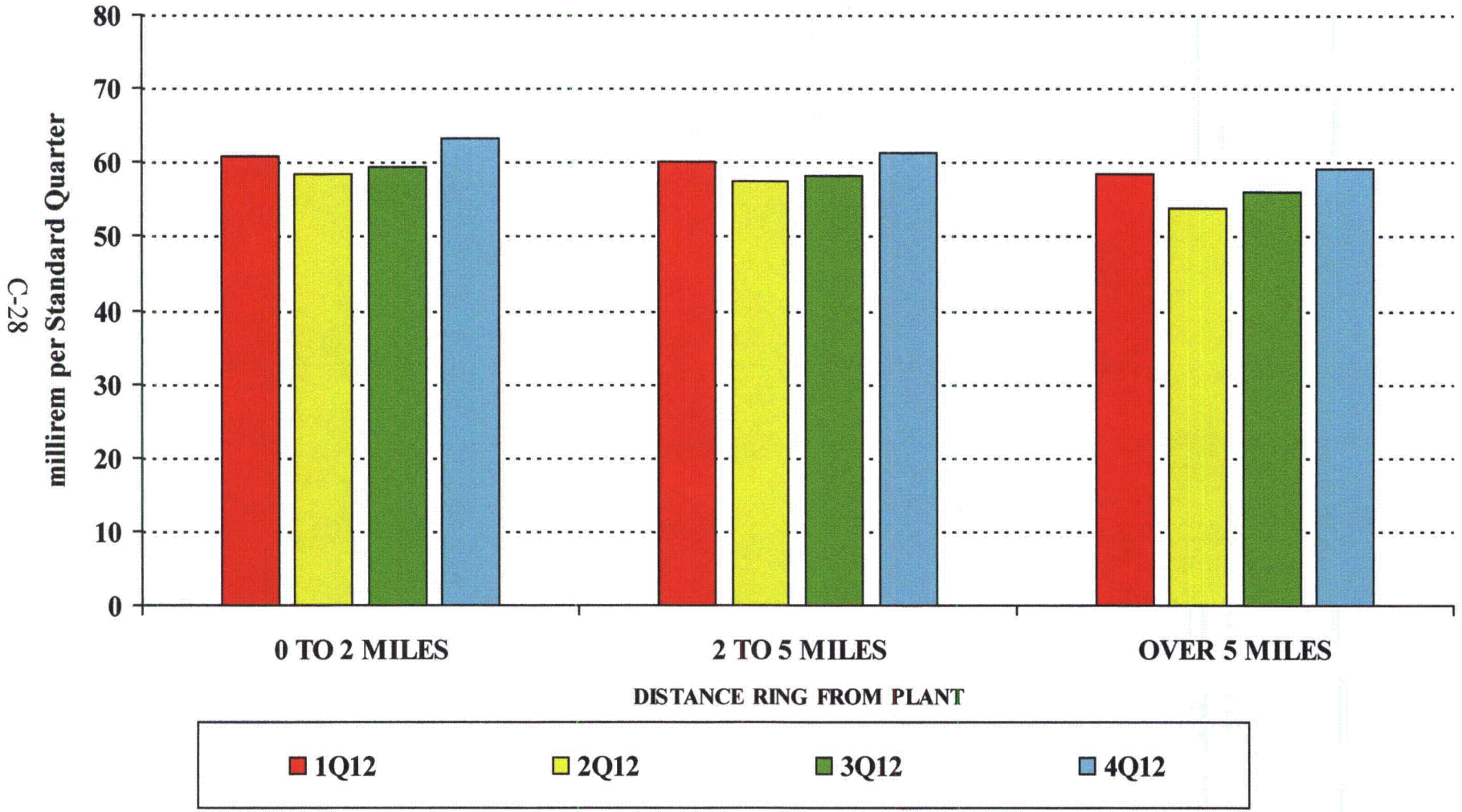


FIGURE C-5
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATES OYSTER CREEK GENERATING STATION, 1984 - 2012



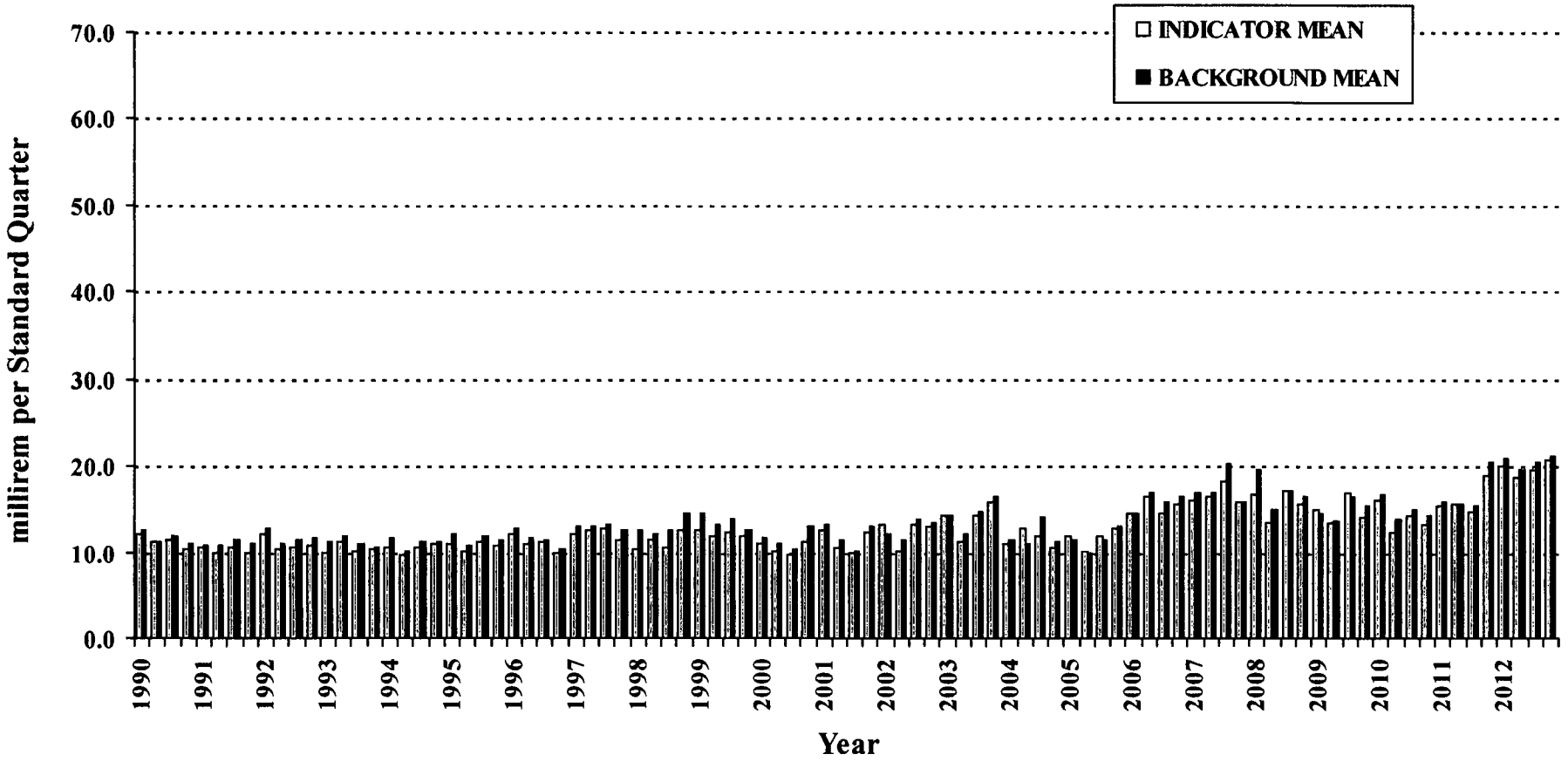
* Data from Cookstown station ONLY after December 1996

FIGURE C-6
MEAN QUARTERLY OSLD GAMMA DOSE
OYSTER CREEK GENERATING STATION, 2012



Oyster Creek's dosimetry changed from TLD to OSLD in 2012.

FIGURE C-7
MEAN QUARTERLY TLD/OSLD GAMMA DOSE
OYSTER CREEK GENERATING STATION, 1990 – 2012*



•Harshaw Model 110 TLDs were used during the first quarter of 2001. Panasonic Model 814 TLDs were used in the second, third, and fourth quarters of 2001.

•Oyster Creek's dosimetry changed from TLD to OSLD in 2012. Due to the dosimeter change, OSLD values appear higherr.

APPENDIX D

DATA TABLES AND FIGURES
COMPARISON LABORATORY

The following section presents the results of data analysis performed by the QC laboratory, Environmental Inc. Duplicate samples were obtained from several locations and media and split between the primary laboratory, Teledyne Brown Engineering (TBE) and the QC laboratory. Comparisons of the results for all media were within expected ranges.

TABLE D-I.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	24	QCA	QCB
04/09/12	< 169	< 168	< 143
09/25/12	< 160	< 160	< 152
MEAN	-	-	-

TABLE D-I.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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	Cs-134	Cs-137	Ba-140	La-140
24	04/09/12	< 6	< 7	< 15	< 7	< 15	< 7	< 13	< 6	< 8	< 30	< 13
	09/25/12	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 3	< 3	< 25	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-
QCA	04/09/12	< 5	< 7	< 16	< 6	< 11	< 7	< 9	< 6	< 6	< 34	< 9
	09/25/12	< 4	< 4	< 11	< 5	< 9	< 4	< 7	< 3	< 4	< 27	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-
QCB	04/09/12	< 3	< 3	< 7	< 2	< 2	< 3	< 4	< 2	< 3	< 17	< 2
	09/25/12	< 3	< 2	< 5	< 2	< 6	< 3	< 4	< 4	< 3	< 18	< 2
	MEAN	-	-	-	-	-	-	-	-	-	-	-

TABLE D-II.1 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1N	1S	QCB 1N	QCB 1S
01/10/12 - 01/24/12	< 172	< 168	< 144	< 144
01/31/12 - 02/21/12	< 169	< 174	< 148	< 148
02/28/12 - 03/27/12	< 183	< 187	< 134	< 134
04/03/12 - 04/23/12	< 165	< 183	< 153	< 153
05/02/12 - 05/29/12	< 163	< 168	< 155	< 155
06/05/12 - 06/25/12	(1)	< 184	(1)	< 145
07/03/12 - 07/24/12	< 172	< 173	< 152	< 152
07/31/12 - 08/28/12	< 172	< 173	< 150	< 150
09/04/12 - 09/25/12	< 168	< 165	< 152	< 152
10/02/12 - 10/23/12	< 187	< 175	< 158	< 158
11/01/12 - 11/26/12	< 186	< 175	< 149	< 148
12/05/12 - 12/26/12	< 188	< 195	< 141	< 141
MEAN	-	-	-	-

TABLE D-II.2 CONCENTRATIONS OF I-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1N	1S	QCB 1N	QCB 1S
01/10/12 - 01/24/12	< 0.4	< 0.6	(1)	(1)
01/31/12 - 02/21/12	< 0.5	< 0.5	(1)	(1)
02/28/12 - 03/27/12	< 0.5	< 0.5	(1)	(1)
04/03/12 - 04/23/12	(1)	(1)	< 0.3	< 0.3
05/02/12 - 05/29/12	(1)	(1)	< 2.5 (2)	< 0.8
06/05/12 - 06/25/12	(1)	(1)	(1)	< 0.4
07/03/12 - 07/24/12	(1)	(1)	< 0.3	< 0.3
07/31/12 - 08/28/12	(1)	(1)	< 0.2	< 0.2
09/04/12 - 09/25/12	(1)	(1)	< 0.4	< 0.3
10/02/12 - 10/23/12	(1)	(1)	< 0.4	< 0.4
11/01/12 - 11/26/12	(1)	(1)	< 1.4 (2)	< 0.4
12/05/12 - 12/26/12	(1)	(1)	< 0.4	< 0.5
MEAN	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION
(2) LLD NOT MET DUE TO AGE OF SAMPLE

TABLE D-II.3 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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	Cs-134	Cs-137	Ba-140	La-140
1N	01/10/12 - 01/24/12		< 5	< 4	< 9	< 4	< 9	< 3	< 7	< 4	< 4	< 25	< 6
	01/31/12 - 02/21/12		< 4	< 4	< 8	< 5	< 7	< 4	< 7	< 3	< 4	< 19	< 6
	02/28/12 - 03/27/12		< 5	< 5	< 13	< 6	< 11	< 6	< 9	< 5	< 6	< 28	< 9
	04/03/12 - 04/23/12		< 6	< 5	< 12	< 7	< 11	< 7	< 10	< 5	< 6	< 34	< 10
	05/02/12 - 05/15/12		< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 1	< 1	< 14	< 4
	06/08/12 - 06/28/12	(1)	-	-	-	-	-	-	-	-	-	-	-
	07/06/12 - 07/24/12		< 3	< 4	< 8	< 4	< 7	< 4	< 6	< 4	< 4	< 28	< 7
	07/31/12 - 08/28/12		< 6	< 5	< 10	< 4	< 9	< 5	< 9	< 4	< 6	< 28	< 7
	09/04/12 - 09/25/12		< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 2	< 2	< 16	< 5
	10/02/12 - 10/23/12		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 2	< 2	< 14	< 4
	11/03/12 - 11/06/12		< 1	< 1	< 3	< 1	< 2	< 1	< 3	< 1	< 1	< 18	< 6
	12/05/12 - 12/26/12		< 4	< 3	< 9	< 4	< 6	< 4	< 7	< 3	< 5	< 18	< 6
	MEAN		-	-	-	-	-	-	-	-	-	-	-
1S	01/04/12 - 01/24/12		< 4	< 4	< 8	< 4	< 9	< 5	< 9	< 4	< 5	< 25	< 5
	01/31/12 - 02/21/12		< 5	< 5	< 10	< 6	< 10	< 5	< 9	< 4	< 5	< 22	< 8
	02/28/12 - 03/27/12		< 6	< 6	< 9	< 4	< 11	< 5	< 8	< 5	< 5	< 27	< 9
	04/03/12 - 04/23/12		< 4	< 4	< 8	< 5	< 9	< 5	< 7	< 4	< 4	< 24	< 5
	05/02/12 - 05/29/12		< 2	< 3	< 7	< 3	< 5	< 3	< 5	< 2	< 3	< 28	< 9
	06/05/12 - 06/25/12		< 3	< 3	< 6	< 4	< 5	< 3	< 5	< 3	< 3	< 24	< 7
	07/03/12 - 07/24/12		< 3	< 3	< 8	< 4	< 7	< 4	< 6	< 3	< 3	< 24	< 8
	07/31/12 - 08/28/12		< 4	< 3	< 9	< 4	< 8	< 5	< 7	< 4	< 5	< 21	< 7
	09/04/12 - 09/25/12		< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 2	< 2	< 13	< 4
	10/02/12 - 10/23/12		< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 2	< 2	< 11	< 4
	11/01/12 - 11/26/12		< 5	< 6	< 11	< 5	< 12	< 5	< 10	< 5	< 5	< 30	< 10
	12/11/12 - 12/26/12		< 4	< 5	< 9	< 4	< 10	< 5	< 10	< 5	< 5	< 26	< 7
	MEAN		-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-II.3 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012**

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	Cs-134	Cs-137	Ba-140	La-140
QCB 1N	01/10/12 - 01/24/12	< 3	< 3	< 6	< 2	< 6	< 3	< 6	< 3	< 3	< 17	< 2
	01/31/12 - 02/21/12	< 2	< 3	< 5	< 1	< 5	< 4	< 3	< 2	< 2	< 18	< 2
	02/28/12 - 03/27/12	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 3	< 2	< 11	< 3
	04/03/12 - 04/23/12	< 2	< 3	< 5	< 2	< 3	< 3	< 5	< 4	< 3	< 13	< 3
	05/02/12 - 05/15/12	< 2	< 2	< 7	< 2	< 3	< 3	< 2	< 2	< 2	< 29	< 5
	06/05/12 - 06/25/12 (1)	-	-	-	-	-	-	-	-	-	-	-
	07/06/12 - 07/24/12	< 3	< 3	< 7	< 3	< 4	< 3	< 5	< 3	< 3	< 12	< 3
	07/31/12 - 08/28/12	< 2	< 2	< 6	< 2	< 4	< 2	< 5	< 2	< 3	< 8	< 2
	09/04/12 - 09/25/12	< 2	< 2	< 7	< 3	< 3	< 3	< 4	< 3	< 3	< 15	< 2
	10/02/12 - 10/23/12	< 2	< 2	< 5	< 3	< 3	< 2	< 3	< 2	< 3	< 14	< 3
	11/01/12 - 11/06/12	< 2	< 4	< 11	< 2	< 4	< 5	< 5	< 2	< 3	< 33	< 14
	12/05/12 - 12/26/12	< 3	< 3	< 8	< 2	< 5	< 4	< 6	< 3	< 2	< 11	< 2
	MEAN											
QCB 1S	01/04/12 - 01/24/12	< 3	< 2	< 5	< 3	< 2	< 2	< 4	< 2	< 2	< 18	< 2
	01/31/12 - 02/21/12	< 2	< 2	< 8	< 3	< 5	< 3	< 4	< 4	< 3	< 14	< 2
	02/28/12 - 03/27/12	< 2	< 2	< 6	< 1	< 4	< 2	< 3	< 2	< 2	< 12	< 3
	04/03/12 - 04/23/12	< 3	< 2	< 5	< 1	< 4	< 3	< 2	< 3	< 3	< 13	< 2
	05/02/12 - 05/29/12	< 3	< 3	< 4	< 2	< 3	< 3	< 3	< 4	< 3	< 10	< 2
	06/05/12 - 06/25/12	< 2	< 1	< 4	< 1	< 3	< 2	< 5	< 3	< 2	< 13	< 2
	07/03/12 - 07/24/12	< 2	< 3	< 8	< 3	< 3	< 2	< 4	< 3	< 3	< 14	< 4
	07/31/12 - 08/28/12	< 2	< 2	< 5	< 1	< 3	< 3	< 4	< 3	< 2	< 11	< 1
	09/04/12 - 09/25/12	< 4	< 3	< 8	< 4	< 6	< 2	< 7	< 4	< 4	< 15	< 5
	10/02/12 - 10/23/12	< 4	< 3	< 8	< 3	< 4	< 4	< 5	< 3	< 3	< 22	< 3
	11/01/12 - 11/26/12	< 2	< 3	< 5	< 3	< 5	< 3	< 3	< 3	< 2	< 20	< 3
	12/11/12 - 12/26/12	< 2	< 2	< 7	< 2	< 5	< 3	< 4	< 3	< 3	< 11	< 2
	MEAN											

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE D-III.1 CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	W-3C	QCB
01/16/12	< 162	< 147
04/16/12	< 180	< 142
07/03/12	< 155	< 152
10/03/12	< 177	< 151
MEAN	-	-

TABLE D-III.2 CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

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
W-3C	01/16/12	< 4	< 4	< 9	< 4	< 8	< 5	< 7	< 13	< 4	< 4	< 28	< 9
	04/16/12	< 5	< 5	< 10	< 5	< 9	< 5	< 8	< 12	< 5	< 5	< 31	< 8
	07/03/12	< 3	< 4	< 9	< 4	< 7	< 4	< 6	< 13	< 3	< 3	< 28	< 9
	10/03/12	< 4	< 4	< 8	< 5	< 8	< 5	< 8	< 13	< 4	< 4	< 26	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
QCB	01/16/12	< 2	< 2	< 6	< 2	< 4	< 3	< 3	< 9	< 3	< 2	< 10	< 3
	04/16/12	< 3	< 2	< 4	< 2	< 3	< 4	< 4	< 6	< 3	< 3	< 14	< 2
	07/03/12	< 2	< 3	< 7	< 2	< 6	< 3	< 5	< 15	< 2	< 3	< 29	< 5
	10/03/12	< 3	< 4	< 8	< 2	< 6	< 3	< 4	< 6	< 4	< 4	< 15	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE D-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN CLAM SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137
24	04/10/12	1199 ± 643	< 46	< 51	< 101	< 50	< 100	< 48	< 48
	09/24/12	1059 ± 509	< 43	< 46	< 116	< 47	< 87	< 41	< 43
QCA	04/10/12	1697 ± 478	< 41	< 29	< 75	< 43	< 83	< 29	< 42
QCB	04/10/12	1853 ± 241	< 10	< 7	< 22	< 8	< 13	< 8	< 9
	MEAN	1452 ± 765	-	-	-	-	-	-	-

TABLE D-V.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

SITE	COLLECTION PERIOD	Be-7	K-40	Mn-54	Co-58	Co-60	Cs-134	Cs-137	Ra-226	Th-228
24	04/10/12	< 294	571 ± 317	< 33	< 29	< 29	< 28	< 33	< 820	197 ± 47
	09/24/12	< 411	1127 ± 496	< 35	< 43	< 40	< 37	< 40	< 895	130 ± 56
	MEAN	-	849 ± 787	-	-	-	-	-	-	163 ± 95
QCA	04/10/12	< 402	< 414	< 40	< 39	< 41	< 45	< 39	1260 ± 847	130 ± 80
	09/24/12	1500 ± 800	14300 ± 1630	< 76	< 86	< 96	< 78	< 109	< 1680	702 ± 123
	MEAN	-	-	-	-	-	-	-	-	416 ± 809
QCB	04/10/12	< 109	580 ± 154	< 8	< 6	< 9	< 9	< 6	408 ± 408	< 810
	09/24/12	< 128	1237 ± 196	< 13	< 12	< 8	< 9	< 11	< 281	< 836
	MEAN	-	909 ± 929	-	-	-	-	-	-	-

TABLE D-VI.1 CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE		COLLECTION PERIOD	Sr-89	Sr-90	K-40	I-131	Cs-134	Cs-137	Ba-140	La-140
36	Cabbage	08/14/12	< 11	3.4 ± 2.0	2563 ± 495	< 28	< 18	< 19	< 87	< 25
	Collards	08/14/12	< 11	3.6 ± 2.1	5639 ± 573	< 36	< 18	< 21	< 113	< 21
	Kale	08/14/12	< 12	4.3 ± 2.1	4859 ± 500	< 39	< 19	< 21	< 94	< 25
		MEAN		3.8 ± 1.0	4354 ± 3198	-	-	-	-	-
QCA	Cabbage	08/14/12	< 13	< 4.3	3160 ± 384	< 31	< 19	< 24	< 74	< 31
	Collards	08/14/12	< 10	4.9 ± 1.9	5970 ± 465	< 31	< 17	< 20	< 79	< 21
	Kale	08/14/12	< 11	5.1 ± 2.2	4740 ± 515	< 29	< 18	< 23	< 88	< 26
		MEAN*		5.0 ± 0.3	4623 ± 2817	-	-	-	-	-
QCB	Cabbage	08/14/12	< 2	1.0 ± 1.0	1952 ± 215	< 9	< 7	< 4	< 43	< 4
	Collards	08/14/12	< 27	< 19	4738 ± 382	< 24	< 12	< 13	< 45	< 5
	Kale	08/14/12	< 5	5.0 ± 2.0	4550 ± 377	< 13	< 14	< 12	< 60	< 11
		MEAN*	-	3.0 ± 5.7	3747 ± 3114	-	-	-	-	-

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

APPENDIX E

INTER-LABORATORY COMPARISON PROGRAM

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2012
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2012	E10066	Milk	Sr-89	pCi/L	101	94.8	1.07	A
			Sr-90	pCi/L	11.7	13.5	0.87	A
	E10067	Milk	I-131	pCi/L	87.5	92.5	0.95	A
			Ce-141	pCi/L	247	260	0.95	A
			Cr-51	pCi/L	435	436	1.00	A
			Cs-134	pCi/L	133	149	0.89	A
			Cs-137	pCi/L	156	159	0.98	A
			Co-58	pCi/L	127	132	0.96	A
			Mn-54	pCi/L	190	195	0.97	A
			Fe-59	pCi/L	179	168	1.07	A
			Zn-65	pCi/L	327	333	0.98	A
			Co-60	pCi/L	274	279	0.98	A
	E10069	AP	Ce-141	pCi	167	164	1.02	A
			Cr-51	pCi	310	276	1.12	A
			Cs-134	pCi	107	94.5	1.13	A
			Cs-137	pCi	109	101	1.08	A
			Co-58	pCi	87.6	83.5	1.05	A
			Mn-54	pCi	133	123	1.08	A
			Fe-59	pCi	113	106	1.07	A
			Zn-65	pCi	226	210	1.08	A
			Co-60	pCi	185	176	1.05	A
	E10068	Charcoal	I-131	pCi	92.8	94.2	0.99	A
	E10070	Water	Fe-55	pCi/L	1800	1570	1.15	A
June 2012	E10198	Milk	Sr-89	pCi/L	86.1	99.8	0.86	A
			Sr-90	pCi/L	9.2	12.7	0.72	W
	E10199	Milk	I-131	pCi/L	88.9	99.7	0.89	A
			Ce-141	pCi/L	72.8	82.2	0.89	A
			Cr-51	pCi/L	394	402	0.98	A
			Cs-134	pCi/L	159	174	0.91	A
			Cs-137	pCi/L	206	212	0.97	A
			Co-58	pCi/L	89.5	92.3	0.97	A
			Mn-54	pCi/L	129	132	0.98	A
			Fe-59	pCi/L	129	128	1.01	A
			Zn-65	pCi/L	193	199	0.97	A
			Co-60	pCi/L	342	355	0.96	A
	E10201	AP	Ce-141	pCi	73.2	75.1	0.97	A
			Cr-51	pCi	367	366	1.00	A
			Cs-134	pCi	165	159	1.04	A
			Cs-137	pCi	205	193	1.06	A
			Co-58	pCi	84.7	84.2	1.01	A
			Mn-54	pCi	118	121	0.98	A
			Fe-59	pCi	125	117	1.07	A
			Zn-65	pCi	181	182	0.99	A
			Co-60	pCi	338	324	1.04	A
	E10200	Charcoal	I-131	pCi	101	96.6	1.05	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2012
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
June 2012	E10202	Water	Fe-55	pCi/L	1890	1580	1.20	A
September 2012	E10296	Milk	Sr-89	pCi/L	106	99.6	1.06	A
			Sr-90	pCi/L	13.6	16.0	0.85	A
	E10297	Milk	I-131	pCi/L	89.8	99.6	0.90	A
			Ce-141	pCi/L	160	164	0.98	A
			Cr-51	pCi/L	230	248	0.93	A
			Cs-134	pCi/L	101	108	0.94	A
			Cs-137	pCi/L	174	174	1.00	A
			Co-58	pCi/L	97.2	100	0.97	A
			Mn-54	pCi/L	188	196	0.96	A
			Fe-59	pCi/L	159	152	1.05	A
			Zn-65	pCi/L	195	192	1.02	A
			Co-60	pCi/L	155	152	1.02	A
	E10299	AP	Ce-141	pCi	145	135	1.07	A
			Cr-51	pCi	219	205	1.07	A
			Cs-134	pCi	94.1	89.4	1.05	A
			Cs-137	pCi	140	144	0.97	A
			Co-58	pCi	88.3	83.0	1.06	A
			Mn-54	pCi	173	162	1.07	A
			Fe-59	pCi	136	125	1.09	A
			Zn-65	pCi	165	159	1.04	A
			Co-60	pCi	133	125	1.06	A
	E10298	Charcoal	I-131	pCi	95.5	97.2	0.98	A
	E10300	Water	Fe-55	pCi/L	1630	1900	0.86	A
December 2012	E10334	Milk	Sr-89	pCi/L	101	96.6	1.05	A
			Sr-90	pCi/L	11.3	13.8	0.82	A
	E10335	Milk	I-131	pCi/L	93.1	90.0	1.03	A
			Ce-141	pCi/L	52.5	51.0	1.03	A
			Cr-51	pCi/L	373	348	1.07	A
			Cs-134	pCi/L	157	165	0.95	A
			Cs-137	pCi/L	113	117	0.97	A
			Co-58	pCi/L	94.1	98.5	0.96	A
			Mn-54	pCi/L	116	116	1.00	A
			Fe-59	pCi/L	124	116	1.07	A
			Zn-65	pCi/L	190	186	1.02	A
			Co-60	pCi/L	172	170	1.01	A
	E10337A	AP	Ce-141	pCi	51.8	49.6	1.04	A
			Cr-51	pCi	372	338	1.10	A
			Cs-134	pCi	165	161	1.02	A
			Cs-137	pCi	113	114	0.99	A
			Co-58	pCi	96.5	95.8	1.01	A
			Mn-54	pCi	118	112	1.05	A
			Fe-59	pCi	105	112	0.94	A
			Zn-65	pCi	166	181	0.92	A
			Co-60	pCi	179	165	1.08	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2012
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2012	E10336	Charcoal	I-131	pCi	73.1	72.7	1.01	A
	E10333	Water	Fe-55	pCi/L	1550	1750	0.89	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, 2012
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Limits	Evaluation (c)
May 2012	RAD-89	Water	Sr-89	pCi/L	63.4	58.5	46.9 - 66.3	A
			Sr-90	pCi/L	33.5	37.4	27.4 - 43.1	A
			Ba-133	pCi/L	89.2	82.3	69.1 - 90.5	A
			Cs-134	pCi/L	66.5	74.2	60.6 - 81.6	A
			Cs-137	pCi/L	152	155	140 - 172	A
			Co-60	pCi/L	73.3	72.9	65.6 - 82.6	A
			Zn-65	pCi/L	109	105	94.5 - 125	A
			Gr-A	pCi/L	82.4	62.9	33.0 - 78.0	N (1)
			Gr-B	pCi/L	43.6	44.2	29.6 - 51.5	A
			I-131	pCi/L	25.9	27.1	22.5 - 31.9	A
			H-3	pCi/L	15433	15800	13800 - 17400	A
	MRAD-16	Filter	Gr-A	pCi/filter	39.5	77.8	26.1 - 121	A
November, 2012	RAD-91	Water	Sr-89	pCi/L	46.5	39.1	29.7 - 46.1	N (2)
			Sr-90	pCi/L	16.6	20.1	14.4 - 23.8	A
			Ba-133	pCi/L	85.2	84.8	71.3 - 93.3	A
			Cs-134	pCi/L	76.9	76.6	62.6 - 84.3	A
			Cs-137	pCi/L	177	183	165 - 203	A
			Co-60	pCi/L	77.4	78.3	70.5 - 88.5	A
			Zn-65	pCi/L	209	204	184 - 240	A
			Gr-A	pCi/L	50.6	58.6	30.6 - 72.9	A
			Gr-B	pCi/L	59.3	39.2	26.0 - 46.7	N (2)
			I-131	pCi/L	22.9	24.8	20.6 - 29.4	A
			H-3	pCi/L	5020	4890	4190 - 5380	A
	MRAD-17	Filter	Gr-A	pCi/filter	59.6	87.5	29.3 - 136	A

(1) Detector G1 is slightly biased high for Th-230 based measurements used only for ERA Gross Alpha samples. NCR 12-05

(2) The Sr-89 found to known ratio was 1.19, which TBE considers acceptable. It appears the aliquot was entered incorrectly for the Gross Beta NCR 12-13

(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. Reported result falls within the Warning Limits. NA=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, 2012
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
March 2012	12-MaW26	Water	Cs-134	Bq/L	-0.0045		(1)	A
			Cs-137	Bq/L	37.5	39.9	27.9 - 51.9	A
			Co-57	Bq/L	30.8	32.9	23.0 - 42.8	A
			Co-60	Bq/L	22.4	23.72	16.60 - 30.84	A
			H-3	Bq/L	456	437	306 - 568	A
			Mn-54	Bq/L	31.0	31.8	22.3 - 41.3	A
			K-40	Bq/L	144	142	99 - 185	A
			Sr-90	Bq/L	-0.0084		(1)	A
			Zn-65	Bq/L	-0.369		(1)	A
	12-GrW26	Water	Gr-A	Bq/L	2.06	2.14	0.64 - 3.64	A
			Gr-B	Bq/L	7.48	6.36	3.18 - 9.54	A
	12-MaS26	Soil	Cs-134	Bq/kg	831	828	580 - 1076	A
			Cs-137	Bq/kg	0.145		(1)	A
			Co-57	Bq/kg	1270	1179	825 - 1533	A
			Co-60	Bq/kg	7.61	1.56	(2)	N (3)
			Mn-54	Bq/kg	634	558	391 - 725	A
			K-40	Bq/kg	1690	1491	1044 - 1938	A
			Sr-90	Bq/kg	328	392	274 - 540	A
			Zn-65	Bq/kg	753	642	449 - 835	A
	12-RdF26	AP	Cs-134	Bq/sample	2.31	2.38	1.67 - 3.09	A
			Cs-137	Bq/sample	2.15	1.79	1.25 - 2.33	W
			Co-57	Bq/sample	-0.0701		(1)	A
			Co-60	Bq/sample	2.62	2.182	1.527 - 2.837	W
			Mn-54	Bq/sample	4.13	3.24	2.27 - 4.21	W
			Sr-90	Bq/sample	0.0185		(1)	A
			Zn-65	Bq/sample	4.19	2.99	2.09 - 3.89	N (3)
	12-GrF26	AP	Gr-A	Bq/sample	0.365	1.2	0.4 - 2.0	A
			Gr-B	Bq/sample	2.31	2.4	1.2 - 3.6	A
	12-RdV26	Vegetation	Cs-134	Bq/sample	8.72	8.43	5.90 - 10.96	A
			Cs-137	Bq/sample	0.0424		(1)	A
			Co-57	Bq/sample	15.5	12.0	8.4 - 15.6	W
			Co-60	Bq/sample	6.80	6.05	4.24 - 7.87	A
			Mn-54	Bq/sample	0.0057		(1)	A
			Sr-90	Bq/sample	2.24	2.11	1.48 - 2.74	A
			Zn-65	Bq/sample	10.5	8.90	6.23 - 11.57	A
September 2012	12-MaW27	Water	Cs-134	Bq/L	21.4	23.2	16.2 - 30.2	A
			Cs-137	Bq/L	17.0	16.7	11.7 - 21.7	A
			Co-57	Bq/L	28.7	29.3	20.5 - 38.1	A
			Co-60	Bq/L	0.179		(1)	A
			H-3	Bq/L	387	334	234 - 434	A
			Mn-54	Bq/L	18.1	17.8	12.5 - 23.1	A
			K-40	Bq/L	139	134	94 - 174	A
			Sr-90	Bq/L	19.6	12.2	8.5 - 15.9	N (4)
			Zn-65	Bq/L	27.2	25.9	18.1 - 33.7	A
	12-GrW27	Water	Gr-A	Bq/L	0.966	1.79	0.54 - 3.04	A
			Gr-B	Bq/L	10.0	9.1	4.6 - 13.7	A

TABLE E-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2012
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
September 2012	12-MaS27	Soil	Cs-134	Bq/kg	880	939	657 - 1221	A
			Cs-137	Bq/kg	1220	1150	805 - 1495	A
			Co-57	Bq/kg	1330	1316	921 - 1711	A
			Co-60	Bq/kg	552	531	372 - 690	A
			Mn-54	Bq/kg	1000	920	644 - 1196	A
			K-40	Bq/kg	674	632	442 - 822	A
			Sr-90	Bq/kg	528	508	356 - 660	A
			Zn-65	Bq/kg	665	606	424 - 788	A
	12-RdF27	AP	Cs-134	Bq/sample	2.760	2.74	1.92 - 3.56	A
			Cs-137	Bq/sample	0.0415		(1)	A
			Co-57	Bq/sample	2.00	191.00	1.34 - 2.48	A
			Co-60	Bq/sample	1.78	1.728	1.210 - 2.246	A
			Mn-54	Bq/sample	2.40	2.36	1.65 - 3.07	A
			Sr-90	Bq/sample	0.931	1.03	0.72 - 1.34	A
			Zn-65	Bq/sample	-0.688		(1)	A
	12-GrF27	AP	Gr-A	Bq/sample	0.434	0.97	0.29 - 1.65	A
			Gr-B	Bq/sample	1.927	1.92	0.96 - 2.88	A
	12-RdV27	Vegetation	Cs-134	Bq/sample	6.28	6.51	4.56 - 8.46	A
			Cs-137	Bq/sample	4.62	4.38	3.07 - 5.69	A
			Co-57	Bq/sample	6.51	5.66	3.96 - 7.36	A
			Co-60	Bq/sample	5.32	5.12	3.58 - 6.66	A
			Mn-54	Bq/sample	3.59	3.27	2.29 - 4.25	A
			Sr-90	Bq/sample	0.0012		(1)	A
			Zn-65	Bq/sample	-0.046		(1)	A

(1) False positive test.

(2) Sensitivity evaluation

(3) No cause was found for the failed high soil Co-60 sensitivity test or the high Zn-65 in AP, which TBE considers an anomaly. NCR 12-08

(4) Sr-90 in water high due to incorrect aliquot entered in LIMS. 12-11

(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 (a) STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM[a]**
ENVIRONMENTAL, INC., 2012

Lab Code	Date	Concentration (pCi/L)				
		Analysis	Laboratory Result [b]	ERA Result [c]	Control Limits	Acceptance
ERW-1783	04/09/12	Sr-89	62.2 ± 6.0	58.5	46.9 - 66.3	Pass
ERW-1783	04/09/12	Sr-90	33.7 ± 2.1	37.4	27.4 - 43.1	Pass
ERW-1786	04/09/12	Ba-133	75.7 ± 4.1	82.3	69.1 - 90.5	Pass
ERW-1786	04/09/12	Co-60	71.9 ± 4.0	72.9	65.6 - 82.6	Pass
ERW-1786	04/09/12	Cs-134	70.0 ± 4.3	74.2	60.6 - 81.6	Pass
ERW-1786	04/09/12	Cs-137	151.5 ± 6.1	155.0	140.0 - 172.0	Pass
ERW-1786	04/09/12	Zn-65	108.3 ± 89.0	105.0	94.5 - 125.0	Pass
ERW-1789	04/09/12	Gr. Alpha	55.0 ± 2.4	62.9	33.0 - 78.0	Pass
ERW-1789 [d]	04/09/12	Gr. Beta	76.2 ± 1.8	44.2	29.6 - 51.5	Fail
ERW-1798	04/09/12	H-3	16023 ± 355	15800	13800 - 17400	Pass
ERW-6283	10/05/12	Sr-89	41.5 ± 4.1	39.1	29.7 - 46.1	Pass
ERW-6283	10/05/12	Sr-90	19.7 ± 1.6	20.1	14.4 - 23.8	Pass
ERW-6286	10/05/12	Ba-133	82.7 ± 4.4	84.8	71.3 - 93.3	Pass
ERW-6286	10/05/12	Co-60	77.2 ± 3.7	78.3	70.5 - 88.5	Pass
ERW-6286	10/05/12	Cs-134	74.4 ± 1.5	76.6	62.6 - 84.3	Pass
ERW-6286	10/05/12	Cs-137	183.0 ± 6.2	183.0	165.0 - 203.0	Pass
ERW-6286	10/05/12	Zn-65	211.0 ± 9.9	204.0	184.0 - 240.0	Pass
ERW-6288	10/05/12	Gr. Alpha	47.0 ± 2.3	58.6	30.6 - 72.9	Pass
ERW-6288	10/05/12	Gr. Beta	33.4 ± 1.2	39.2	26.0 - 46.7	Pass
ERW-6290	10/05/12	I-131	23.3 ± 1.0	24.8	20.6 - 29.4	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.

[d] Result of reanalysis: 38.3 ± 1.3 pCi/L. Sample dilution problem suspected. A new dilution was prepared.

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
ENVIRONMENTAL, INC., 2012
(Page 1 of 2)

			Concentration [a]			
Lab Code [b]	Date	Analysis	oratory result	Known Activity	Control Limits [c]	Acceptance
STSO-1766	02/01/12	Co-57	1352.10 ± 4.00	1179.00	825.00 - 1533.00	Pass
STSO-1766	02/01/12	Co-60	1.70 ± 0.70	1.56	1.00 - 2.00	Pass
STSO-1766	02/01/12	Cs-134	842.20 ± 4.30	828.00	580.00 - 1076.00	Pass
STSO-1766	02/01/12	Cs-137	0.40 ± 0.90	0.00	0.00 - 1.00	Pass
STSO-1766	02/01/12	K-40	1729.60 ± 22.20	1491.00	1044.00 - 1938.00	Pass
STSO-1766	02/01/12	Mn-54	647.60 ± 4.20	558.00	391.00 - 725.00	Pass
STSO-1766	02/01/12	Sr-90	383.20 ± 15.30	392.00	274.00 - 510.00	Pass
STSO-1766	02/01/12	Zn-65	766.70 ± 6.70	642.00	449.00 - 835.00	Pass
STAP-1772	02/01/12	Co-57	0.010 ± 0.01	0.00	0.000 - 1.00	Pass
STAP-1772	02/01/12	Co-60	2.40 ± 0.08	2.18	1.53 - 2.84	Pass
STAP-1772	02/01/12	Cs-134	2.33 ± 0.13	2.38	1.67 - 3.09	Pass
STAP-1772	02/01/12	Cs-137	2.07 ± 0.10	1.79	1.25 - 2.33	Pass
STAP-1772	02/01/12	Mn-54	3.77 ± 0.14	3.24	2.27 - 4.21	Pass
STAP-1772	02/01/12	Sr-90	-0.010 ± 0.060	0.000	-0.10 - 0.13	Pass
STAP-1772	02/01/12	Zn-65	3.67 ± 0.20	2.99	2.09 - 3.89	Pass
STAP-1773	02/01/12	Gr. Alpha	0.51 ± 0.05	1.20	0.40 - 2.00	Pass
STAP-1773	02/01/12	Gr. Beta	2.75 ± 0.10	2.40	1.20 - 3.60	Pass
STVE-1776	02/01/12	Co-57	14.57 ± 0.28	12.00	8.40 - 15.60	Pass
STVE-1776	02/01/12	Co-60	6.45 ± 0.23	6.05	4.24 - 7.87	Pass
STVE-1776	02/01/12	Cs-134	8.39 ± 0.29	8.43	5.90 - 10.96	Pass
STVE-1776	02/01/12	Cs-137	0.01 ± 0.09	0.00	0.00 - 0.10	Pass
STVE-1776	02/01/12	Mn-54	0.03 ± 0.08	0.00	0.00 - 0.10	Pass
STVE-1776	02/01/12	Zn-65	10.31 ± 0.67	8.90	6.23 - 11.57	Pass
STW-1960	02/01/12	Gr. Alpha	1.68 ± 0.09	2.14	0.64 - 3.64	Pass
STW-1960	02/01/12	Gr. Beta	6.33 ± 0.10	6.36	3.18 - 9.54	Pass
STW-1964	02/01/12	Co-57	33.30 ± 0.40	32.90	23.00 - 42.80	Pass
STW-1964	02/01/12	Co-60	23.20 ± 0.40	23.72	16.60 - 30.84	Pass
STW-1964	02/01/12	Cs-134	0.30 ± 3.00	0.00	0.00 - 1.00	Pass
STW-1964	02/01/12	Cs-137	40.10 ± 0.60	39.90	27.90 - 51.90	Pass
STW-1964	02/01/12	H-3	460.00 ± 12.10	437.00	306.00 - 568.00	Pass
STW-1964	02/01/12	K-40	153.00 ± 4.20	142.00	99.00 - 185.00	Pass
STW-1964	02/01/12	Mn-54	32.70 ± 0.60	31.80	22.30 - 41.30	Pass
STW-1964	02/01/12	Sr-90	0.10 ± 0.20	0.00	0.00 - 1.00	Pass
STW-1964	02/01/12	Zn-65	0.01 ± 0.20	0.00	0.00 - 1.00	Pass

TABLE E-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP) ENVIRONMENTAL, INC., 2012

			Concentration [a]			
Lab Code [b]	Date	Analysis	oratory result	Known Activity	Control Limits [c]	Acceptance
STSO-5392	08/01/12	Sr-90	483.52 ± 16.47	508.00	356.00 - 660.00	Pass
STSO-5394	08/01/12	Co-57	1528.00 ± 4.10	1316.00	921.00 - 1711.00	Pass
STSO-5394	08/01/12	Co-60	592.00 ± 3.20	531.00	372.00 - 690.00	Pass
STSO-5394	08/01/12	Cs-134	933.60 ± 5.82	939.00	657.00 - 1221.00	Pass
STSO-5394	08/01/12	Cs-137	1319.80 ± 5.50	1150.00	805.00 - 1495.00	Pass
STSO-5394	08/01/12	K-40	737.30 ± 17.70	632.00	442.00 - 822.00	Pass
STSO-5394	08/01/12	Mn-54	1083.20 ± 5.20	920.00	644.00 - 1196.00	Pass
STSO-5394	08/01/12	Zn-65	696.10 ± 7.00	606.00	424.00 - 788.00	Pass
STVE-5395 [d]	08/01/12	Co-57	7.44 ± 0.17	5.66	3.96 - 7.36	Fail
STVE-5395	08/01/12	Co-60	5.90 ± 0.15	5.12	3.58 - 6.66	Pass
STVE-5395	08/01/12	Cs-134	7.40 ± 0.31	6.51	4.56 - 8.46	Pass
STVE-5395	08/01/12	Cs-137	5.45 ± 0.18	4.38	3.07 - 5.69	Pass
STVE-5395	08/01/12	Mn-54	4.06 ± 0.21	3.27	2.29 - 4.25	Pass
STAP-5398	08/01/12	Gr. Alpha	0.41 ± 0.05	0.97	0.29 - 1.65	Pass
STAP-5398	08/01/12	Gr. Beta	2.11 ± 0.09	1.92	0.96 - 2.88	Pass
STAP-5403	08/01/12	Co-57	1.96 ± 0.05	1.91	1.34 - 2.48	Pass
STAP-5403	08/01/12	Co-60	1.76 ± 0.07	1.73	1.21 - 2.25	Pass
STAP-5403	08/01/12	Cs-134	2.74 ± 0.18	2.74	1.92 - 3.56	Pass
STAP-5403	08/01/12	Cs-137	0.00 ± 0.03	0.00	-0.01 - 0.01	Pass
STAP-5403	08/01/12	Mn-54	2.52 ± 0.10	2.36	1.65 - 3.07	Pass
STAP-5403	08/01/12	Zn-65	0.01 ± 0.06	0.00	-0.010 - 0.010	Pass

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

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

[c] MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP. A known value of "zero" indicates an analysis was included in the testing series as a "false positive". MAPEP does not provide control limits.

[d] Result of reanalysis; 6.74 ± 0.15 Bq/sample. Gamma emitters for the vegetation matrix exhibited a high bias, only Co-57 exceeded acceptance limits. Recounted using a geometry more closely matched to the MAPEP sample size.

APPENDIX F

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

Docket No: 50-219

OYSTER CREEK GENERATING STATION
UNIT 1

Annual Radiological
Groundwater Protection Program Report

1 January Through 31 December 2012

Prepared By

Teledyne Brown Engineering
Environmental Services

Oyster Creek Generating Station
Forked River, NJ 08731

April 2013

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Appendices

I. Summary and Conclusions

This report on the Radiological Groundwater Protection Program (RGPP) conducted for the Oyster Creek Generating Station (OCGS) by Exelon Generation Company LLC (Exelon) covers the period 01 January 2012 through 31 December 2012.

This report covers groundwater and surface water samples collected from the environment, both on and off station property in 2012. In 2012, 1,142 analyses were performed on 683 samples from 57 locations.

There were three inadvertent releases of contaminated water into the groundwater during 2009. There is a plume located west of the turbine building and is monitored via a series of monitoring wells.

Gamma-emitting radionuclide K-40 was detected in three of the 74 groundwater well samples. The concentrations ranged from 30 to 152 pCi/L. Surface water samples detected Be-7 in one sample with a of concentration 202 pCi/L. Potassium-40 was detected in 345 surface water samples. The concentrations ranged from 159 to 452 pCi/L.

In the case of tritium, Exelon specified that its laboratories achieve a lower limit of detection 100 times lower than the drinking water limit specified by the United States Environmental Protection Agency (USEPA) (200 pCi/l versus 20,000 pCi/l).

As expected, tritium was detected in groundwater samples. The 2012 Tritium concentrations varied from <200 to 353,000 pCi/l. The well with the highest concentration was MW-67. The flow of groundwater is in the direction of the intake and discharge canals.

No detectable tritium (greater than the MDC) was found in surface water or precipitation samples collected from onsite and offsite monitoring locations during 2012.

Strontium-89 and strontium-90 were not detected in any groundwater sample during 2012.

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater samples during the second quarter sampling in 2012.

There were 49 samples taken from 44 groundwater well locations. Gross Alpha (dissolved) was detected in 12 samples and ranged from 0.5 to 4.3 pCi/L. Gross Alpha (suspended) was detected in 18 samples and ranged from 1.3 to 35.1

pCi/L. Gross Beta (dissolved) was detected in 44 samples and ranged from 1.3 to 29.5 pCi/L. Gross Beta (suspended) was detected in 22 samples and ranged from 1.8 to 139 pCi/L.

"Hard-To-Detect" analyses were performed on a select group of groundwater 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-234, U-235, and U-238. The isotopes of U-234 and U-238 were detected in four of 10 groundwater monitoring locations. The U-234 concentrations ranged from 0.13 to 0.78 pCi/L and the U-238 concentrations ranged from 0.32 to 1.01 pCi/L. The levels detected are considered background.

II. Introduction

The Oyster Creek Nuclear Generating Station consists of a single boiling water reactor (BWR) and turbine generator capable of producing 650 megawatts of electricity. The Station operates under Nuclear Regulatory Commission (NRC) renewed facility operating license number DPR-16. Brackish water from Barnegat Bay is supplied to the circulating water system. The circulating water system is designed to supply a continuous flow of water from Barnegat Bay through the plant to remove the waste heat released by the power cycle in the Main Condenser. The circulating water system is comprised of the intake canal from Barnegat Bay to the plant, the Main Condenser Circulating Water System, the dilution plant, and the discharge canal to Barnegat Bay. The dilution plant portion of the system minimizes the adverse effects of hot discharge water on aquatic life in the discharge canal and Barnegat Bay to meet the conditions of the Oyster Creek New Jersey Pollutant Discharge Elimination system (NJPDES) Permit No. NJ0005550. Approximately 1 million gallons per minute of water are withdrawn from the intake canal for dilution and station use and returned to the discharge canal.

The Station is located in the Atlantic Coastal Plain physiographic province. Topography in the region of the Station is a slightly undulating coastal plain having low relief. The land surface gradually rises from sea level at Barnegat Bay, which is located east of the Station, to approximately 50 feet above mean sea level (AMSL) 2 miles inland. This region of the coastal plain has numerous tidal marshes and is incised by easterly flowing streams and creeks. Elevations at the Station property west of Route 9 range from approximately 0 to 15 feet AMSL immediately adjacent to the intake and discharge canals to slightly more than 30 feet AMSL in the northwest portion of the Station property. The 132-acre developed portion of the Site located within the "horseshoe" formed by the intake and discharge canals west of Route 9 has an approximate average elevation of 20 feet AMSL. In the immediate vicinity of the intake and discharge canals, the Station property slopes steeply down to the canal. The average elevation of the surface water level in the intake and discharge canals is approximately 1-foot AMSL. The remaining 637-acre portion of the Station located east of Route 9 is primarily vegetated and undeveloped. The ground surface is relatively level except for the steep slopes at areas adjacent to the intake and discharge canals.

The three shallowest stratigraphic units in the vicinity of the Oyster Creek area in descending order are the Cape May Formation, the Cohansey Formation, and the Kirkwood Formation. Some of the Station structures are constructed to depths of approximately 50 feet below ground surface (bgs). Excavations were completed from grade, through the fill, Cape May Formation, Upper Clay, and into the Cohansey Formation during construction. Consequently, the bottoms of

some Station structures are completed within the Cohansey Formation and some structures breach the Upper Clay.

The Cape May Formation regionally has an average thickness of 40 feet and at OCGS, the Cape May is described as a light gray to tan, medium- to fine-grained sand, with trace to some silt and occasional coarse sand. It is generally poorly compacted. The Cape May Formation varies from 0 to 21 feet in thickness based on historical boring logs. The variation principally is due to the varying amount of material excavated and replaced by fill during Station construction. When present, the thickness of the Cape May generally ranges from 15 to 20 feet thick. The base of the Cape May generally is defined by the presence of a dark clay unit referred to as the Upper Clay unit. The Upper Clay is a stiff to hard, gray, plastic organic clay containing inclusions (also described as lenses or partings) of dense fine sand with trace to some organic silt. The deposits of fine sand within the Upper Clay layer have high relative densities and occur as lenses or inclusions.

The Cohansey Formation is primarily composed of a light-colored, fine- to very coarse-grained quartzose sand with lenses of silt and clay. Although most borings at the Station do not penetrate the entire Cohansey Formation, this formation appears to be approximately 60 to 80 feet thick at OCGS. A clay sequence, referred to at the Station as the "Lower Clay", marks the base of the Cohansey, which generally is present to approximately 90 to 100 feet bgs. The lower clay is a dense gray medium- to fine-grained sand containing trace to some organic silt and layers or inclusions of very stiff to hard gray organic clay. The thickness of the lower clay is estimated to be approximately 10 to 20 feet in the vicinity of OCGS.

The Cohansey Formation is underlain by the Kirkwood Formation which consists of several stratigraphic units. The Kirkwood Formation is described as a medium- to fine-grained sand with trace silt. The thickness of this formation beneath the Station is unknown. The south domestic supply well terminates in the Kirkwood at a depth of 310 feet bgs. The Kirkwood thickness in Ocean County ranges from approximately 300 to 400 feet.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) and Environmental Inc. (Midwest Labs) on samples collected in 2012.

A. Objectives of the RGPP

The long-term objectives of the RGPP are as follows:

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

- Identify site risk based on plant design and work practices

- Evaluate all SSCs that contain or could contain licensed material and for which there is a credible mechanism for the licensed material to reach groundwater.

- Evaluate work practices that involve licensed material and for which there is a credible mechanism for the licensed material to reach groundwater.

- Perform on-site monitoring to ensure timely detection of inadvertent radiological releases to ground water.

- Understand background concentrations of radioactive analytes outside of the REMP, as required.

- Evaluate return/re-use of previously discharged radioactive effluents in gaseous or liquid effluents that are returned from the environment to the operating nuclear power facility.

- Ensure controls are established for the selection, installation and retirement of monitoring wells.

- Perform remediation protocols to prevent migration of licensed material off-site and to minimize decommissioning impacts.

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

- Ensure periodic communications are held on the RGPP with the designated State/Local officials.

- Ensure timely verbal and written reporting occurs if there is an inadvertent release of licensed materials to the soil, groundwater or surface water.

- Document and report all applicable RGPP data.

- Identify and resolve deficiencies via the Corrective Action Process as delineated in LS-AA-120 "Issue Identification and Screening Process".

- Perform program oversight to ensure effective implementation of the voluntary RGPP.

B. Implementation of the Objectives

The objectives identified have been implemented at the Oyster Creek Generating Station through compliance with approved procedures EN-AA-408-4000, Radiological Groundwater Protection Program Implementation and site specific procedure EN-OC-408-4160, RGPP Reference Material for Oyster Creek Generating Station.

C. Program Description

Samples for the OCGS site were collected for Exelon by on-site personnel and Normandeau Associates, Inc. This section describes the general collection methods used to obtain environmental samples for the OCGS RGPP in 2012. Sample locations can be found in Table A–1, Appendix A.

1. Sample Collection

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.

2. Sample Analysis

Samples are analyzed in accordance with approved procedures that are based on industry standards.

3. Quality Control

Analytical laboratories are subject to internal quality assurance programs, industry cross-check programs, nuclear industry audits, as well as being certified by the State of New Jersey.

4. Data Interpretation

Station personnel review and evaluate all analytical data deliverables as data is received. Analytical data results are reviewed by both station personnel and independent consultants, including a hydrogeologist, 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 the 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 10 days.

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. Also, tritium was released into the atmosphere from Chernobyl in 1986. 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 (18.6 keV 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 to analyze the environmental samples for radioactivity for the Oyster Creek Generating Station RGPP in 2012. The sampling frequencies are increased if activity is detected.

In order to achieve the stated objectives, the current program includes the following analyses for groundwater, surface water, and precipitation water:

1. Gamma emitters

2. Strontium-89 and Strontium-90

3. Tritium

4. Gross Alpha, Dissolved and Suspended and Gross Beta, Dissolved and Suspended

5. Selected transuranics

6. Fe-55

7. Ni-63

B. Data Interpretation

The radiological data collected prior to Oyster Creek Generating Station becoming operational, as well as background data from publicly available databases, were used as a baseline with which these operational data were compared. For the purpose of this report, Oyster Creek Generating Station was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) is 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 is intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criterion for the presence of activity. All analyses were designed to achieve the required OCGS detection capabilities for environmental sample analysis.

The minimum detectable concentration (MDC) is 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 as an after the fact estimate of the presence of activity.

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.

C. Background Analysis

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.

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 peaked in 1963 with the signing of the limited test ban treaty. The Canadian heavy water nuclear power reactors, other commercial power reactors, nuclear research and weapons production continue to influence tritium concentrations in the environment. Also, tritium was released into the atmosphere from Chernobyl in 1986.

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. One publicly available database that provides tritium concentrations in precipitation is the USEPA's RadNet database. RadNet provides tritium precipitation concentration data for samples collected at stations throughout the U.S. from 1978 up to and including 1996. Tritium concentrations in precipitation in New Jersey from 1978 through 1996 have ranged from 600 pCi/l in 1979 to 0 pCi/l in 1996, with an average of 185 pCi/l. 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

Tritium concentrations are routinely measured in surface water bodies, including Oyster Creek and the Delaware River. New Jersey surface water data between 1978 and 1998 averaged 185 pCi/l.

The USEPA RadNet surface water data typically has a reported 'Combined Standard Uncertainty' of 2 standard deviations. This corresponds to a ± 36 to ±100 pCi/l confidence bound on each given reported measurement so that the typical surface water background data provided by RadNet may be subject to measurement uncertainty of up to 100 pCi/l.

The radio-analytical laboratory counts tritium results to an Exelon specified LLD of 200 pCi/l with a typical uncertainty of ±100 pCi/l. Therefore, sample results reported by TBE near this LLD can not be distinguished from natural background concentrations in surface water.

IV. Results and Discussion

A. Program Exceptions

1. Sample Anomalies

There are no sample anomalies in 2012.

2. Missed Samples

Exelon maintains a Radiological Groundwater Protection Program (RGPP) as part of the nuclear industry's voluntary groundwater protection initiative as described in NEI 07-07. As part of this program, samples are obtained routinely from monitoring wells and surface waters at Oyster Creek based on the frequencies outlined in station procedures. The following samples were not obtained as required by procedure:

MW-51

- Tritium, monthly
- Gamma, semi-annually
- Gross alpha, annually
- Gross beta, annually
- Select transuranics, annually
- Iron-55, annually
- Nickel-63, annually
- Strontium-89, annually
- Strontium-90, annually

Immediate actions taken:

MW-51 was dry 12 out of 12 months during sampling events. MW-51 is checked for water each sampling event and no additional actions are required.

MW-62

- Tritium, monthly

Immediate actions taken:

MW-62 was not accessible in November and December due to excavation work in the area of the well preventing sampling. MW-62 was sampled for tritium the other months and no additional actions are required.

3. LLDs Not Met

Required LLDs for Surface and Groundwater

Isotope	pCi/liter
H-3	200
Mn-54	15
Co-58	15
Fe-59	30
Co-60	15
Zn-65	30
Nb-95	15
Zr-95	30
I-131	15
Cs-134	15
Cs-137	18
Ba-140	60
La-140	15
Pu-241	50
Fe-55	200
Ni-63	5
Sr-89	10
Sr-90	1
Gross Alpha (diss)	3
Gross Alpha (susp)	10
Gross Beta (diss)	4
Gross Beta (susp)	4

Indicated LLDs for shorter lived radionuclides were not met due to a time lag between taking the samples and analyzing the samples as indicated on table B-I.2 and B-II.2.

B. Groundwater Results

Samples were collected from on-site locations in accordance with the station radiological groundwater protection program. As reported in CRA's 2011 Hydrogeologic Investigation Report, groundwater flow in the vicinity of the Torus Water Storage Tank and the Condensate Storage Tank is towards the intake and discharge canals.

Tritium

Samples from 55 locations were analyzed for tritium activity (Table B–I.1, Appendix B). Tritium was detected in 94 of 312 samples. The values ranged from < 200 to 353,000 pCi/l. The well with the highest concentration was MW-67 (Table B-I.1, Appendix B).

Strontium

Strontium-89 and strontium-90 were not detected in any location sampled in 2012. (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 the second sampling in 2012.

There were 49 samples taken from 44 groundwater well locations. Gross Alpha (dissolved) was detected in 18 samples and ranged from 0.5 to 4.3 pCi/L. Gross Alpha (suspended) was detected in 18 samples and ranged from 1.3 to 35.1 pCi/L. Gross Beta (dissolved) was detected in 46 samples and ranged from 1.3 to 29.5 pCi/L. Gross Beta (suspended) was detected in 22 samples and ranged from 1.7 to 139 pCi/L (Table B-I.1, Appendix B).

Gamma Emitters

Gamma emitting nuclide K-40 was detected in three of 74 samples analyzed during 2012. The concentrations ranged from 30 to 152 pCi/L. (Table B–I.2, Appendix B).

"Hard-To-Detect"

"Hard-To-Detect" analyses were performed on a select group of groundwater locations to establish background levels. The

analyses for groundwater included Fe-55, Ni-63, Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, and U-238. The isotopes of U-234 and U-238 were detected in four of 10 groundwater monitoring locations. The U-234 concentrations ranged from 0.13 to 0.78 pCi/L and the U-238 concentrations ranged from 0.32 to 1.01 pCi/L. The levels detected are considered background due to naturally occurring U-234 and U-238 (Table B-I.3, Appendix B).

C. Surface Water Results

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

Tritium

Samples from 4 locations were analyzed for tritium activity (Table B–II.1, Appendix B). No detectable tritium (greater than the LLD) was found in any surface water samples collected from onsite and offsite monitoring locations.

Strontium

Strontium was not analyzed in 2012.

Gross Alpha and Gross Beta (dissolved and suspended)

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were not analyzed in 2012.

Gamma Emitters

Gamma emitting nuclide, naturally occurring potassium-40, was detected along with Be-7 in the samples analyzed. (Table B–II.2, Appendix B)

"Hard-To-Detect"

"Hard-To-Detect" analyses were not analyzed in 2012.

D. Precipitation Water Results

Precipitation samples were collected from on-site locations in

accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from four locations were analyzed for tritium activity (Table B–III.1, Appendix B). No detectable tritium (greater than the LLD) was found in any precipitation water samples collected from onsite and offsite monitoring locations.

E. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE and Environmental Inc. (Midwest Labs) are presented in the 2012 Oyster Creek AREOR. This report is part of the AREOR

F. Leaks, Spills, and Releases

There were no abnormal releases during 2012.

G. Trends

Active remediation of tritium in groundwater due to the spills that occurred in 2009 was initiated in October 2010. Trending of the data due to active remediation is on-going. Overall the station has seen a decreasing trend in tritium values.

H. Investigations

Conestoga Rovers and Associates performed an independent assessment of the tritium plume. The results of their assessment can be found in References 2 and 3.

I. Actions Taken

1. Compensatory Actions

   Active remediation of tritium in groundwater due to the spills that occurred in 2009 was initiated in October, 2010.

2. Installation of Monitoring Wells

   The following wells were installed in 2010 to better characterize and monitor the tritium plume and site hydrology.

Well Number	Formation	Well Installation Date
W-58 I	Cohansey	July
W-59 I	Cohansey	March
W-60 I	Cohansey	July
W-61 I	Cohansey	July
W-62	Cape May	March
W-63 I	Cohansey	July
W-64	Cape May	March
W-65	Cape May	March
W-66 I	Cohansey	July
W-67	Cape May	March
W-68 I	Cohansey	July
W-69 I	Cohansey	July
W-70 I	Cohansey	July
W-71	Cape May	August
W-72	Cape May	August
W-73 Pumping well	Cohansey	October

3. Actions to Recover/Reverse Plumes

   Oyster Creek Generating Station is currently addressing the tritium in groundwater through pumping of groundwater out of W-73 into the intake structure.

V. References

1. Conestoga Rovers and Associates, Hydrogeologic Investigation Report, Fleetwide Assessment, Oyster Creek Generating Station, Forked River, New Jersey, Ref. No. 055875 (6), April 2011

2. Conestoga Rovers and Associates, Site Investigation Report, Oyster Creek Generating Station, Forked River, New Jersey, Ref. No. 055875 (4), August 2009

3. Conestoga Rovers and Associates, Remedial Investigation Workplan, Oyster Creek Generating Station, Forked River, New Jersey, Ref. No. 055875 (5), October 2009

APPENDIX A

LOCATION DESIGNATION

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2012

Oyster Creek Generating Station RGPP Sample Point List
Page 1 of 8

Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
DWN	North Domestic Well	358373.33 574672.98	300.0	B	2000 pCi/L	Kirkwood
DWS	South Domestic Well	356955.90 574616.69	145.0	B	2000 pCi/L	Kirkwood
LW-1	E of ISFSI - (microwave zone)	357632.49 575569.96	21.0	I	2000 pCi/L	Cape May
LW-2	E of ISFSI - (microwave zone)	357645.30 575581.92	21.0	I	2000 pCi/L	Cape May
LW-3	E of ISFSI - (microwave zone)	357630.20 575575.52	21.0	D	2000 pCi/L	Cape May
LW-4	E of ISFSI - (microwave zone)	357652.78 575573.75	49.0	D	2000 pCi/L	Cohansey
MW-1A-2A	SW of MFOT Moat	357380.76 575043.44	24.0	D	2000 pCi/L	Cape May
MW-1G-1A	East of fueling station	358551.94 575308.91	20.0	I	2000 pCi/L	Cape May
MW-1G-1B	East of fueling station	358550.57 575316.19	45.0	I	2000 pCi/L	Cohansey
MW-1I-1A	Roadway - NW of TWST	357598.17 574412.70	19.0	D	2000 pCi/L	Cape May
MW-1I-2A	Roadway - SE of TWST	357574.80 574493.50	17.5	D	2000 pCi/L	Cape May
MW-15K-1A	Roadway - Intake	357297.90 574469.50	19.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-16D	Yard - W of MAC Building	357573.30 574746.50	25.0	D	2000 pCi/L	Cape May

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
MW-24-2A	Finninger Farm - near DSB	356838.52 579470.94	18.0	I	2000 pci/L	Cape May
MW-24-3A	Finninger Farm - near DSB	356828.49 578969.05	17.0	I	2000 pCi/L	Cape May
MW-50	Between CST and Intake Structure	357368.21 574436.80	20.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-51	Near CST	357378.30 574480.80	20.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-52	Near Intake Structure	357400.90 574353.00	20.0	D/Monthly H-3*	2000 pCi/L	Cape May
MW-53	Near end of CW discharge piping	357272.80 574447.60	20.0	D/Monthly H-3*	2000 pCi/L	Cape May
MW-54	Near Intake Structure	357276.20 574311.70	20.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-55	Between CST and Intake Structure	357354.88 574440.07	30.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-56I	By NaOCl tanks	357305.30 574465.50	52.0	E/Monthly H-3*	2000 pCi/L	Cohansey
MW-57I	Near Intake Structure	357343.71 574373.89	50.0	E/Monthly H-3*	2000 pCi/L	Cohansey
MW-58I	Near Intake Structure	357346.70 574377.28	72.0	D	2000 pCi/L	Cohansey
MW-59I	Intake Roadway - NW of CST	357422.14 574406.38	44.0	D	2000 pCi/L	Cohansey
MW-60I	Near Intake Structure	357346.55 574373.88	92.0	D	2000 pCi/L	Cohansey

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
MW-61I	Between CST and Intake Structure	357328.64 574444.45	72.0	E	2000 pCi/L	Cohansey
MW-62	NW Corner of Turbine Bldg	357467.93 574524.10	25.0	D/Monthly H-3	2000 pCi/L	Cape May
MW-63I	Between CST and Intake Structure	357329.40 574447.67	92.0	D	2000 pCi/L	Cohansey
MW-64	Near Intake Structure	357343.96 574377.88	25.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-65	Intake Roadway - NW of CST	357421.00 574402.55	25.0	D/Monthly H-3*	2000 pCi/L	Cape May
MW-66I	SE of Reactor Bldg	357320.44 574889.18	80.0	D	2000 pCi/L	Cohansey
MW-67	West side of Turbine Bldg	357401.99 574540.38	25.0	E/Monthly H-3*	2000 pCi/L	Cape May
MW-68I	SE of Reactor Bldg	357323.83 574897.64	100.0	D	2000 pCi/L	Cohansey
MW-69I	Yard - NW of DWPC Building	357664.03 574760.93	78.0	D	2000 pCi/L	Cohansey
MW-70I	Yard - NW of DWPC Building	357670.57 574759.18	98.0	D	2000 pCi/L	Cohansey
NW-71	S of Reactor Bldg	357365.52 574841.89	25.0	D	2000 pCi/L	Cape May
MW-72	N of Reactor Bldg	357549.87 574788.52	25.0	D	2000 pCi/L	Cape May
MCD	Main Condenser Discharge	N/A	N/A	Weekly* H-3	2000 pCi/L	Surface Water

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
SW-1	Intake Canal	N/A	N/A	SW/Weekly* H-3	2000 pCi/L	Surface Water
SW-2	RT 9 South Bridge	N/A	N/A	SW	2000 pCi/L	Surface Water
SW-3	Fire Pond	N/A	N/A	SW	2000 pCi/L	Surface Water
W-1	Dilution Pump Area - West Bank	357029.86 574140.61	50.0	I	2000 pCi/L	Cohansey
W-1A	North Yard Area	358311.70 574679.00	50.0	B	2000 pCi/L	Cohansey
W-1B	North Yard Area	358312.80 574685.40	20.0	I	2000 pCi/L	Cape May
W-1C	West end of backsite	357149.22 572741.00	60.0	I	2000 pCi/L	Cohansey
W-1K	West end of backsite	357151.55 572728.77	150.0	I	2000 pCi/L	Kirkwood
W-2	S of EDG Bldg	356965.65 574555.73	57.0	I	2000 pCi/L	Cohansey
W-2A	Field - W of North Yard Bldg	358105.00 574348.60	50.0	I	2000 pCi/L	Cohansey
W-2B	Field - W of North Yard Building	358110.30 574348.50	20.0	B	2000 pCi/L	Cape May
W-2C	Forked River CT Site	357923.67 573809.92	60.0	I	2000 pCi/L	Cohansey
W-2K	Forked River CT Site	358030.88 573762.54	150.0	I	2000 pCi/L	Kirkwood

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
W-3	Intake - Access Road	357173.00 574499.10	24.0	D/Monthly H-3*	2000 pCi/L	Cape May
W-3A	Plant Access Road	358067.92 575664.22	50.0	I	2000 pCi/L	Cohansey
W-3B	Plant Access Road	358070.58 575656.25	20.0	I	2000 pCi/L	Cape May
W-3C	Finninger Farm - N of Discharge	356595.30 576663.33	60.0	I	2000 pCi/L	Cohansey
W-3K	Finninger Farm - N of Discharge	356602.17 576675.04	100.0	I	2000 pCi/L	Kirkwood
W-4	Intake - Access Road	357176.40 574497.70	55.0	D	2000 pCi/L	Cohansey
W-4A	SE of OCAB Building	356913.30 575387.10	50.0	B	2000 pCi/L	Cohansey
W-4B	SE of OCAB Building	356916.40 575388.90	20.0	B	2000 pCi/L	Cape May
W-4C	Finninger Farm - S of Intake	359305.61 575867.58	60.0	I	2000 pCi/L	Cohansey
W-4K	Finninger Farm - S of Intake	359321.83 575874.07	100.0	I	2000 pCi/L	Kirkwood
W-5	NW Yard area, near Fire Water Tank	357510.95 574374.05	20.5	D	2000 pCi/L	Cape May
W-5C	Finninger Farm - E of dredge spoils	356758.59 580642.26	60.0	B	2000 pCi/L	Cohansey
W-5K	Finninger Farm - E of dredge spoils	356743.81 580646.48	150.0	B	2000 pCi/L	Kirkwood

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
W-6	NW Yard - near Fire Water Tank	357514.02 574373.77	52.0	D	2000 pCi/L	Cohansey
W-7	NE - Building 4	357074.46 574713.08	20.0	D	2000 pCi/L	Cape May
W-9	Roadway - NE of SAS Building	357289.29 574892.74	20.0	D	2000 pCi/L	Cape May
W-10	NW of SAS Building	357286.29 574890.61	60.0	D	2000 pCi/L	Cohansey
W-12	Yard - NW of DWPC Building	357669.10 574755.60	20.0	D	2000 pCi/L	Cape May
W-13	Yard - NW of DWPC Building	357666.00 574755.90	50.0	D	2000 pCi/L	Cohansey
W-14	Yard - SW of Warehouse	357702.41 575018.75	53.0	D	2000 pCi/L	Cohansey
W-15	Yard - SW of Warehouse	357705.83 575017.70	20.0	D	2000 pCi/L	Cape May
W-16	Yard - E of LLRW	357967.26 574933.03	20.0	D	2000 pCi/L	Cape May
W-17	Road/ Exit Near W-3A	358078.05 575667.14	150.0	I	2000 pCi/L	Kirkwood
W-18	Near EDG Building	357005.78 574621.6	20.0	I	2000 pCi/L	Cape May
W-19	Near EDG Building	357077.91 574633.23	20.0	I	2000 pCi/L	Cape May
W-20	SW of EDG Building	356927.46 574542.59	20.0	I	2000 pCi/L	Cape May

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
W-21	Near EDG Building	357009.15 574518.22	20.0	I	2000 pCi/L	Cape May
W-22	Near EDG Building	357024.50 574590.19	39.0	I	2000 pCi/L	Cape May
W-23	Near EDG Building	357054.89 574564.88	20.0	I	2000 pCi/L	Cape May
W-24	South of TB W of old Machine Shop	357128.94 574650.77	19.0	D	2000 pCi/L	Cape May
W-25	Near EDG Building	356962.59 574677.59	20.0	I	2000 pCi/L	Cape May
W-26	Near EDG Building	357006.60 574644.03	20.0	I	2000 pCi/L	Cape May
W-27	Near EDG Building	357042.43 574636.35	20.0	I	2000 pCi/L	Cape May
W-28	Near EDG Building	356991.29 574573.64	19.5	I	2000 pCi/L	Cape May
W-29	Near EDG Building	357012.62 574568.69	19.5	I	2000 pCi/L	Cape May
W-30	Near EDG Building	357058.00 574516.71	19.5	I	2000 pCi/L	Cape May
W-31	Near EDG Building	357051.78 574495.62	19.5	I	2000 pCi/L	Cape May
W-32	Near EDG Building	356978.58 574528.44	19.5	I	2000 pCi/L	Cape May
W-33	Near EDG Building	357026.93 574499.17	19.5	I	2000 pCi/L	Cape May

Oyster Creek Generating Station RGPP Sample Point List
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Sample ID Number	Location	Well GPS Coordinates (Northing Easting)	Depth (ft)	RGPP Sample Point Designation	Internal Reporting Values for Tritium	Aquifer or Water Body Monitored
W-34	South of TB W of old Machine Shop	357196.14 574649.43	40.0	D	2000 pCi/L	Cohansey

* Tritium sampling frequency based upon agreement made with the NJDEP on 1/19/11.

D = Daily
W = Weekly
M = Monthly
S = Semi-annual
B = Biennial

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2012

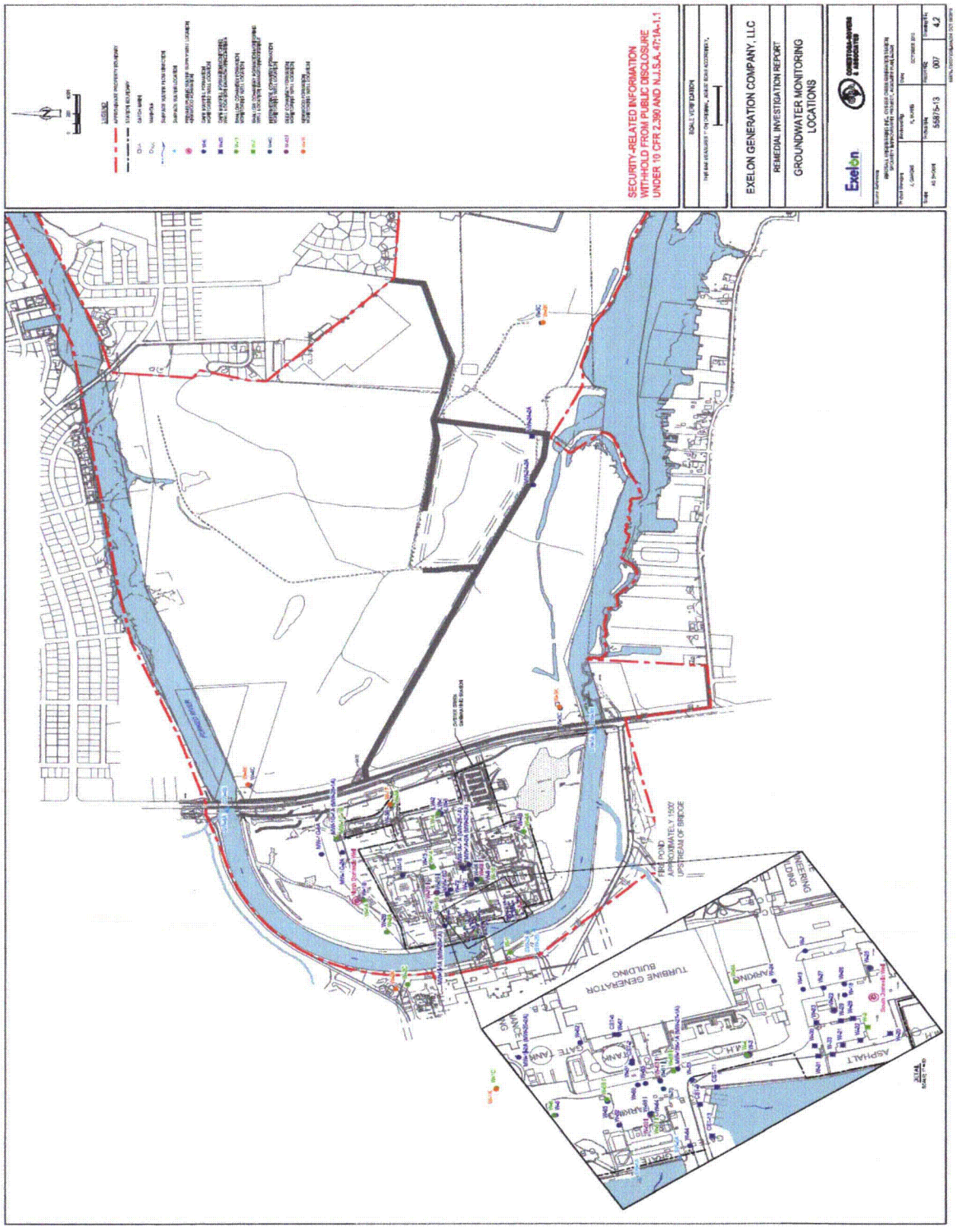

Figure A-1
Sampling Locations – Selected Cohansey and Cape May Formation Wells, Oyster Creek Generating Station, 2012

APPENDIX B

DATA TABLES

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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)
DWN	04/17/12		< 176						
DWN	04/17/12		< 191	< 4.5	< 0.7	< 0.7	< 1.1	2.5 ± 0.8	< 2.0
DWN	04/17/12	EIML	< 142						
DWS	04/18/12		< 180						
LW-3	01/18/12		< 166						
LW-3	04/18/12		< 179	< 3.3	< 0.7	< 0.3	< 0.6	< 0.8	2.3 ± 1.2
LW-3	07/03/12		< 182						
LW-3	10/02/12		< 193						
LW-4	01/18/12		< 169						
LW-4	04/18/12		< 185	< 4.2	< 0.7	0.5 ± 0.2	< 0.5	1.8 ± 0.6	< 1.5
LW-4	07/03/12		< 182						
LW-4	10/02/12		< 175						
MW-15K-1A	01/18/12		757 ± 154						
MW-15K-1A	02/14/12		1150 ± 172						
MW-15K-1A	03/13/12		< 193						
MW-15K-1A	04/18/12		4000 ± 445	< 3.1	< 0.6	0.8 ± 0.5	6.1 ± 1.4	2.5 ± 0.9	13.9 ± 1.6
MW-15K-1A	05/15/12		< 175						
MW-15K-1A	06/20/12		< 176						
MW-15K-1A	07/03/12		< 193						
MW-15K-1A	08/15/12		< 195						
MW-15K-1A	09/19/12		< 171						
MW-15K-1A	10/02/12		< 170						
MW-15K-1A	11/14/12		< 175						
MW-15K-1A	12/05/12		< 162						
MW-16D	01/17/12		< 162						
MW-16D	04/18/12		< 178	< 3.5	< 0.7	1.3 ± 0.9	< 0.5	13.4 ± 1.5	< 1.5
MW-16D	07/03/12		< 180						
MW-16D	10/02/12		< 169						
MW-1A-2A	01/17/12		< 163						
MW-1A-2A	04/17/12		< 181	< 3.4	< 0.6	0.8 ± 0.5	1.3 ± 0.7	4.1 ± 0.9	1.7 ± 1.1
MW-1A-2A	07/02/12		< 180						
MW-1A-2A	07/02/12		< 182						
MW-1A-2A	07/02/12	EIML	< 151						
MW-1A-2A	10/01/12		< 165						
MW-1I-1A	01/18/12		< 169						
MW-1I-1A	04/19/12		< 182	< 3.3	< 0.7	< 0.5	3.4 ± 2.2	1.9 ± 1.1	15.0 ± 3.5
MW-1I-1A	07/03/12		< 185						
MW-1I-1A	10/03/12		< 187						
MW-1I-2A	01/18/12		< 170						
MW-1I-2A	04/19/12		< 185	< 3.9	< 0.7	< 0.7	< 1.6	< 1.2	6.6 ± 1.8
MW-1I-2A	07/03/12		< 184						
MW-1I-2A	10/03/12		< 168						
MW-50	01/17/12		62500 ± 6100						
MW-50	01/17/12		54400 ± 5450						
MW-50	01/17/12	EIML	52061 ± 656						
MW-50	02/14/12		53700 ± 5400						
MW-50	03/13/12		50800 ± 5120						
MW-50	04/18/12		33500 ± 3400	< 3.5	< 0.6	1.3 ± 0.7	< 0.7	12.0 ± 1.3	1.8 ± 1.1
MW-50	05/15/12		30500 ± 3090						
MW-50	06/20/12		11500 ± 1190						
MW-50	06/26/12		10100 ± 1050						
MW-50	07/03/12		10900 ± 1130						

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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-50	08/14/12		12900 ± 1320						
MW-50	09/19/12		7550 ± 798						
MW-50	10/02/12		20800 ± 2130						
MW-50	10/02/12		21300 ± 2160						
MW-50	10/02/12	EIML	20729 ± 420						
MW-50	11/14/12		13300 ± 1370						
MW-50	12/05/12		13600 ± 1400						
MW-52	01/17/12		< 178						
MW-52	02/13/12		< 170						
MW-52	03/13/12		< 176						
MW-52	04/17/12		< 177	< 4.0	< 0.7	< 1.8	3.2 ± 1.0	17.5 ± 2.6	4.4 ± 1.5
MW-52	05/15/12		< 176						
MW-52	06/19/12		< 194						
MW-52	07/02/12		< 189						
MW-52	08/15/12		< 192						
MW-52	09/18/12		< 189						
MW-52	10/02/12		< 192						
MW-52	11/14/12		< 168						
MW-52	12/05/12		< 165						
MW-53	01/17/12		< 179						
MW-53	01/17/12		< 175						
MW-53	01/17/12	EIML	< 146						
MW-53	02/13/12		< 168						
MW-53	03/12/12		< 176						
MW-53	04/17/12		< 176	< 3.5	< 0.6	< 1.2	1.7 ± 0.7	< 2.2	< 2.0
MW-53	05/15/12		< 175						
MW-53	06/20/12		< 179						
MW-53	07/03/12		< 188						
MW-53	08/15/12		< 170						
MW-53	09/18/12		< 169						
MW-53	10/02/12		< 191						
MW-53	11/14/12		< 176						
MW-53	12/05/12		< 167						
MW-54	01/18/12		300 ± 124						
MW-54	I 02/14/12		400 ± 127						
MW-54	I 03/13/12		227 ± 121						
MW-54	I 04/18/12		< 178	< 4.2	< 0.6	< 1.3	5.5 ± 1.9	29.5 ± 2.7	28.7 ± 2.9
MW-54	I 05/16/12		< 175						
MW-54	I 06/20/12		1020 ± 163						
MW-54	I 07/03/12		1650 ± 224						
MW-54	I 08/15/12		653 ± 149						
MW-54	I 09/18/12		4150 ± 461						
MW-54	I 10/02/12		4660 ± 527						
MW-54	I 11/14/12		< 178						
MW-54	I 12/05/12		199 ± 112						
MW-55	01/17/12		10500 ± 1090						
MW-55	02/14/12		9760 ± 1020						
MW-55	03/13/12		6620 ± 711						
MW-55	04/18/12		16400 ± 1690	< 3.4	< 0.6	< 0.5	1.6 ± 0.9	5.6 ± 0.9	2.5 ± 1.2
MW-55	05/15/12		3000 ± 346						
MW-55	06/20/12		1600 ± 215						
MW-55	07/03/12		2620 ± 317						

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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-55	08/14/12		205 ± 119						
MW-55	09/19/12		3310 ± 378						
MW-55	10/02/12		11100 ± 1150						
MW-55	11/14/12		620 ± 137						
MW-55	12/05/12		1060 ± 161						
MW-56I	01/18/12		5760 ± 620						
MW-56I	01/18/12	EIML	5541 ± 226						
MW-56I	01/18/12		5390 ± 582						
MW-56I	02/14/12		15400 ± 1580						
MW-56I	03/13/12		5210 ± 572						
MW-56I	04/18/12		3400 ± 392	< 4.0	< 0.6	< 0.3	< 0.6	2.5 ± 0.7	< 1.5
MW-56I	04/18/12		3520 ± 403	< 3.4	< 0.5	< 0.5	< 0.6	3.5 ± 0.6	< 1.7
MW-56I	04/18/12	EIML	3950 ± 200	< 1.0	< 0.6	1.2 ± 0.9 (1)		4.2 ± 2.3 (1)	
MW-56I	05/15/12		3800 ± 424						
MW-56I	06/20/12		103000 ± 7710						
MW-56I	06/26/12		12100 ± 1260						
MW-56I	07/03/12		11700 ± 1210						
MW-56I	08/14/12		45000 ± 4250						
MW-56I	09/19/12		7420 ± 787						
MW-56I	10/02/12		6850 ± 726						
MW-56I	10/02/12		7200 ± 763						
MW-56I	10/02/12	EIML	6740 ± 247						
MW-56I	11/14/12		47800 ± 4330						
MW-56I	12/05/12		34100 ± 3440						
MW-57I	01/17/12		33300 ± 3370						
MW-57I	02/14/12		21400 ± 2180						
MW-57I	03/13/12		29900 ± 3030						
MW-57I	04/18/12		26700 ± 2720	< 3.8	< 0.5	< 1.1	2.3 ± 1.0	22.5 ± 1.5	2.2 ± 1.1
MW-57I	05/16/12		32000 ± 3230						
MW-57I	06/20/12		35500 ± 3580						
MW-57I	06/26/12		30000 ± 3030						
MW-57I	07/03/12		27100 ± 2740						
MW-57I	07/03/12		22700 ± 2310						
MW-57I	07/03/12	EIML	26306 ± 479						
MW-57I	08/14/12		22200 ± 2250						
MW-57I	09/18/12		13800 ± 1420						
MW-57I	10/02/12		14700 ± 1530						
MW-57I	11/14/12		17300 ± 1770						
MW-57I	12/05/12		14900 ± 1530						
MW-58I	01/18/12		< 169						
MW-58I	04/18/12		< 186	< 3.7	< 0.4	< 1.3	< 0.8	< 2.3	< 1.3
MW-58I	07/03/12		< 181						
MW-58I	10/02/12		< 190						
MW-59I	01/17/12		< 175						
MW-59I	04/18/12		< 177	< 3.9	< 0.6	< 0.5	< 0.7	4.1 ± 0.7	< 1.5
MW-59I	07/02/12		< 187						
MW-59I	10/02/12		< 191						
MW-59I	10/02/12		< 195						
MW-59I	10/02/12	EIML	< 151						

(1) GROSS ALPHA (DIS) AND (SUS) AND GROSS BETA (DIS) AND (SUS) WERE NOT PERFORED ON THE SAMPLE

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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-60I	01/18/12	< 171						
MW-60I	04/18/12	< 186	< 3.6	< 0.6	< 0.7	3.7 ± 1.4	2.5 ± 0.8	6.2 ± 1.7
MW-60I	07/03/12	< 184						
MW-60I	10/02/12	< 177						
MW-61I	01/18/12	< 171						
MW-61I	04/17/12	< 181	< 3.6	< 0.5	< 0.8	< 1.2	1.3 ± 0.8	< 2.0
MW-61I	07/03/12	< 179						
MW-61I	10/03/12	< 169						
MW-62	01/17/12	< 174						
MW-62	02/13/12	< 171						
MW-62	03/13/12	< 174						
MW-62	04/17/12	< 174	< 3.5	< 0.7	< 1.0	3.8 ± 1.1	7.8 ± 1.5	10.5 ± 1.5
MW-62	05/15/12	< 175						
MW-62	06/19/12	< 181						
MW-62	07/02/12	< 190						
MW-62	08/14/12	< 169						
MW-62	09/18/12	< 188						
MW-62	10/01/12	< 195						
MW-63I	01/18/12	< 169						
MW-63I	04/17/12	< 186	< 3.8	< 0.6	< 0.7	< 1.2	2.2 ± 0.8	3.6 ± 1.5
MW-63I	07/03/12	< 181						
MW-63I	10/03/12	< 193						
MW-64	01/17/12	2450 ± 293						
MW-64	02/14/12	3670 ± 415						
MW-64	03/13/12	1970 ± 248						
MW-64	04/18/12	2080 ± 264	< 6.4	< 0.8	< 3.5	7.9 ± 3.0	14.4 ± 2.1	22.9 ± 2.3
MW-64	05/16/12	760 ± 154						
MW-64	06/20/12	< 178						
MW-64	07/03/12	331 ± 135						
MW-64	08/14/12	< 170						
MW-64	09/18/12	224 ± 117						
MW-64	10/02/12	287 ± 132						
MW-64	11/14/12	178 ± 116						
MW-64	12/05/12	248 ± 114						
MW-65	01/17/12	< 173						
MW-65	02/13/12	< 169						
MW-65	03/12/12	< 177						
MW-65	04/17/12	< 175	< 3.7	< 0.8	< 1.9	3.1 ± 1.0	7.3 ± 2.0	5.2 ± 1.5
MW-65	05/16/12	< 174						
MW-65	06/19/12	< 163						
MW-65	07/02/12	< 187						
MW-65	08/15/12	< 195						
MW-65	09/18/12	< 188						
MW-65	10/02/12	< 195						
MW-65	11/14/12	< 175						
MW-65	12/05/12	< 166						
MW-66I	01/17/12	< 163						
MW-66I	04/17/12	< 182	< 4.2	< 0.6	< 0.8	< 1.1	15.4 ± 1.1	< 2.0
MW-66I	07/02/12	< 183						
MW-66I	10/02/12	< 197						
MW-67	01/17/12	319000 ± 31300						
MW-67	02/14/12	353000 ± 34900						

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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-67	03/13/12		317000 ± 31400						
MW-67	04/18/12		257000 ± 25400	< 4.0	< 0.6	1.2 ± 0.6	1.9 ± 1.0	9.6 ± 0.9	2.4 ± 1.4
MW-67	04/18/12		240000 ± 23700	< 3.4	< 0.9	0.8 ± 0.5	1.6 ± 0.9	9.5 ± 0.9	3.9 ± 1.3
MW-67	04/18/12	EIML	233930 ± 1393	< 1.0	< 0.6	5.0 ± 1.3 (1)		12.9 ± 2.2 (1)	
MW-67	05/15/12		163000 ± 16300						
MW-67	06/19/12		80600 ± 8080						
MW-67	06/26/12		81600 ± 8200						
MW-67	07/02/12		73000 ± 5810						
MW-67	07/02/12		66700 ± 6430						
MW-67	07/02/12	EIML	74744 ± 800						
MW-67	08/14/12		58300 ± 5840						
MW-67	09/18/12		63400 ± 6370						
MW-67	10/01/12		87400 ± 8770						
MW-67	11/14/12		33000 ± 3340						
MW-67	12/05/12		30000 ± 3040						
MW-68I	01/17/12		< 164						
MW-68I	04/17/12		< 185	< 4.7	< 0.7	< 0.7	< 1.1	1.9 ± 0.8	< 2.0
MW-68I	07/02/12		< 185						
MW-68I	10/02/12		< 197						
MW-69I	01/17/12		< 163						
MW-69I	04/18/12		< 185	< 4.1	< 0.6	< 0.8	< 1.2	2.7 ± 0.8	< 2.1
MW-69I	07/03/12		< 185						
MW-69I	10/02/12		< 167						
MW-70I	01/17/12		< 162						
MW-70I	04/18/12		< 185	< 4.0	< 0.6	< 0.7	< 1.2	5.2 ± 0.9	< 2.0
MW-70I	07/03/12		< 185						
MW-70I	10/02/12		< 168						
MW-71	01/17/12		< 163						
MW-71	04/17/12		< 184	< 4.2	< 0.4	< 2.3	< 1.2	12.2 ± 1.4	< 2.1
MW-71	10/02/12		< 196						
MW-71	07/02/12		< 182						
MW-72	01/17/12		< 162						
MW-72	04/18/12		< 185	< 4.1	< 0.7	< 2.0	< 1.1	12.8 ± 1.3	< 2.0
MW-72	07/02/12		< 182						
MW-72	10/02/12		< 176						
W-10	01/17/12		< 162						
W-10	04/17/12		< 179	< 4.5	< 0.8	1.3 ± 0.4	< 0.5	3.5 ± 0.6	< 1.7
W-10	04/17/12		< 188	< 4.4	< 0.4	< 0.7	< 1.2	2.3 ± 0.8	< 2.0
W-10	04/17/12	EIML	< 142	< 1.2	< 0.7	< 1.1 (1)		< 3.1 (1)	
W-10	07/02/12		< 183						
W-10	07/02/12		< 178						
W-10	07/02/12	EIML	< 151						
W-10	10/02/12		< 195						
W-12	01/17/12		< 163						
W-12	04/18/12		< 183	< 3.3	< 0.7	< 2.6	35.1 ± 9.8	4.3 ± 2.6	139 ± 7.6
W-12	07/03/12		< 186						
W-12	10/02/12		< 167						
W-13	01/17/12		< 163						
W-13	04/18/12		< 184	< 3.6	< 0.8	< 0.8	1.9 ± 1.2	2.1 ± 0.8	3.2 ± 1.5

(1) GROSS ALPHA (DIS) AND (SUS) AND GROSS BETA (DIS) AND (SUS) WERE NOT PERFORED ON THE SAMPLE

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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)
W-13	04/18/12		< 178	< 3.8	< 0.4	< 0.9	< 1.3	2.1 ± 0.8	< 2.1
W-13	07/03/12		< 184						
W-13	10/02/12		< 168						
W-14	01/17/12		< 162						
W-14	04/17/12		< 181	< 3.7	< 0.5	< 0.7	< 1.1	2.1 ± 0.8	< 2.0
W-14	04/17/12		< 187	< 4.1	< 0.5	< 1.3	< 0.8	< 2.3	< 1.3
W-14	07/02/12		< 183						
W-14	10/01/12		< 174						
W-15	01/17/12		< 162						
W-15	04/17/12		< 186	< 4.3	< 0.8	< 1.0	3.4 ± 1.2	4.6 ± 0.9	6.9 ± 1.1
W-15	07/02/12		< 182						
W-15	10/01/12		< 178						
W-16	01/18/12		< 165						
W-16	04/17/12		< 180	< 3.6	< 0.5	< 1.3	< 4.0	3.6 ± 1.3	19.6 ± 2.3
W-16	07/03/12		< 183						
W-16	10/01/12		< 168						
W-1A	04/16/12		< 181						
W-24	01/18/12	EIML	< 146						
W-24	01/18/12		< 160						
W-24	01/18/12		< 169						
W-24	04/18/12		< 186	< 3.8	< 0.6	4.1 ± 2.4	< 1.1	23.4 ± 1.9	< 2.0
W-24	07/03/12		< 182						
W-24	07/03/12		< 182						
W-24	07/03/12	EIML	< 151						
W-24	10/03/12		< 177						
W-24	10/03/12		< 195						
W-24	10/03/12	EIML	< 151						
W-2B	04/16/12		< 183						
W-3	01/17/12		< 178						
W-3	01/17/12		< 179						
W-3	01/17/12	EIML	< 146						
W-3	02/13/12		< 167						
W-3	03/12/12		< 176						
W-3	04/17/12		< 173	< 3.8	< 0.6	< 0.5	< 0.4	1.6 ± 0.6	< 1.5
W-3	05/16/12		< 177						
W-3	06/19/12		< 167						
W-3	07/03/12		< 188						
W-3	08/15/12		< 194						
W-3	09/19/12		< 171						
W-3	10/02/12		< 194						
W-3	10/02/12		< 196						
W-3	10/02/12	EIML	< 151						
W-3	11/14/12		< 172						
W-3	12/05/12		< 166						
W-34	01/18/12		< 162						
W-34	04/18/12		< 185	< 3.3	< 0.6	< 1.0	< 1.2	1.8 ± 0.9	< 2.0
W-34	07/03/12		< 182						
W-34	10/03/12		< 178						
W-4	01/17/12		< 177						
W-4	04/17/12		< 176	< 3.6	< 0.7	< 1.1	< 0.6	14.5 ± 1.4	< 1.5
W-4	07/03/12		< 186						
W-4	10/02/12		< 195						

TABLE B-I.1 CONCENTRATIONS OF TRITIUM, STRONTIUM-89, STRONTIUM-90, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

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)
W-4A	04/17/12	< 180						
W-4B	04/17/12	< 182						
W-5	01/17/12	< 174						
W-5	04/17/12	< 177	< 3.6	< 0.6	2.2 ± 0.5	< 0.6	14.8 ± 1.0	< 1.6
W-5	07/02/12	< 190						
W-5	10/01/12	< 194						
W-5C	04/16/12	< 180						
W-5K	04/16/12	< 180						
W-6	01/17/12	< 177						
W-6	04/17/12	< 178	< 3.8	< 0.5	4.3 ± 1.0	4.0 ± 2.0	9.5 ± 1.3	6.0 ± 2.3
W-6	07/02/12	< 190						
W-6	10/01/12	< 191						
W-7	01/18/12	< 168						
W-7	04/18/12	< 181	< 3.5	< 0.7	4.3 ± 1.1	< 0.5	22.2 ± 1.6	< 1.7
W-7	07/03/12	< 184						
W-7	10/01/12	< 176						
W-9	01/17/12	< 164						
W-9	04/17/12	< 183	< 3.8	< 0.7	< 1.7	< 0.5	16.3 ± 1.7	< 1.7
W-9	07/02/12	< 185						
W-9	10/02/12	< 197						

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
DWN	04/17/12		< 49	< 57	< 5	< 5	< 12	< 6	< 10	< 6	< 8	< 11	< 5	< 5	< 24	< 7
DWN	04/17/12		< 55	< 52	< 7	< 6	< 12	< 6	< 9	< 6	< 10	< 14	< 6	< 6	< 28	< 11
DWN	04/17/12	EIML	< 22	86 ± 33	< 3	< 2	< 6	< 2	< 5	< 4	< 6	< 6	< 3	< 3	< 14	< 2
DWS	04/18/12		< 46	< 85	< 5	< 5	< 8	< 5	< 9	< 5	< 7	< 9	< 5	< 5	< 26	< 8
LW-3	04/18/12		< 44	< 39	< 5	< 5	< 10	< 5	< 10	< 6	< 8	< 8	< 4	< 5	< 22	< 8
LW-4	04/18/12		< 39	< 89	< 4	< 5	< 10	< 4	< 10	< 5	< 8	< 9	< 5	< 5	< 24	< 8
MW-15K-1A	04/18/12		< 45	< 105	< 5	< 5	< 12	< 6	< 11	< 6	< 9	< 9	< 5	< 5	< 26	< 9
MW-15K-1A	10/02/12		< 18	< 32	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 12	< 4
MW-16D	04/18/12		< 39	< 45	< 4	< 4	< 8	< 5	< 9	< 4	< 7	< 8	< 4	< 3	< 19	< 7
MW-1A-2A	04/17/12		< 47	< 93	< 5	< 5	< 11	< 5	< 12	< 5	< 11	< 11	< 6	< 7	< 29	< 10
MW-1I-1A	04/19/12		< 54	< 38	< 6	< 6	< 12	< 6	< 12	< 6	< 10	< 10	< 5	< 6	< 28	< 8
MW-1I-2A	04/19/12		< 42	< 42	< 5	< 4	< 12	< 5	< 10	< 6	< 8	< 8	< 4	< 5	< 24	< 9
MW-50	04/18/12		< 34	< 42	< 4	< 4	< 10	< 6	< 7	< 4	< 9	< 6	< 5	< 4	< 23	< 7
MW-50	10/02/12		< 15	< 30	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 5	< 2	< 2	< 12	< 4
MW-50	10/02/12		< 17	< 16	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 13	< 4
MW-50	10/02/12	EIML	< 25	< 61	< 2	< 3	< 5	< 2	< 3	< 3	< 4	< 10	< 2	< 3	< 22	< 3
MW-52	04/17/12		< 34	< 63	< 3	< 4	< 8	< 3	< 6	< 4	< 7	< 10	< 3	< 4	< 25	< 7
MW-53	04/17/12		< 38	< 31	< 4	< 4	< 9	< 5	< 9	< 4	< 8	< 9	< 4	< 4	< 23	< 8
MW-54	04/18/12		< 49	< 42	< 4	< 5	< 11	< 5	< 9	< 5	< 7	< 9	< 4	< 6	< 23	< 7
MW-54	10/02/12		< 18	< 37	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 14	< 5
MW-55	04/18/12		< 43	< 102	< 6	< 5	< 13	< 5	< 9	< 7	< 11	< 8	< 6	< 6	< 22	< 8
MW-55	10/02/12		< 18	< 17	< 1	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 13	< 4
MW-56I	04/18/12		< 46	< 37	< 4	< 5	< 10	< 4	< 8	< 4	< 8	< 7	< 4	< 5	< 25	< 7
MW-56I	04/18/12		< 41	< 89	< 4	< 5	< 10	< 6	< 9	< 5	< 8	< 8	< 5	< 5	< 24	< 8
MW-56I	04/18/12	EIML	< 20	< 72	< 3	< 3	< 9	< 2	< 6	< 3	< 6	< 4	< 3	< 4	< 16	< 2
MW-56I	10/02/12		< 18	< 18	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 13	< 5
MW-56I	10/02/12		< 16	< 18	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 5	< 2	< 2	< 12	< 4
MW-56I	10/02/12	EIML	< 28	< 48	< 2	< 1	< 6	< 1	< 5	< 2	< 5	< 8	< 2	< 2	< 21	< 6
MW-57I	04/18/12		< 40	< 32	< 4	< 4	< 11	< 4	< 9	< 4	< 9	< 7	< 5	< 5	< 18	< 6
MW-57I	10/02/12		< 21	< 19	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 15	< 5
MW-58I	04/18/12		< 49	< 79	< 5	< 5	< 12	< 6	< 10	< 6	< 9	< 11	< 5	< 6	< 28	< 10
MW-59I	04/18/12		< 46	< 94	< 5	< 5	< 11	< 5	< 10	< 4	< 9	< 8	< 5	< 6	< 30	< 6
MW-60I	04/18/12		< 40	< 56	< 5	< 5	< 12	< 5	< 10	< 5	< 8	< 8	< 5	< 5	< 26	< 9
MW-61I	04/17/12		< 42	< 50	< 4	< 5	< 10	< 5	< 9	< 6	< 7	< 10	< 4	< 5	< 28	< 10
MW-61I	10/03/12		< 49	< 85	< 5	< 5	< 12	< 4	< 10	< 6	< 9	< 15	< 4	< 4	< 34	< 11
MW-62	04/17/12		< 29	< 36	< 3	< 3	< 7	< 4	< 7	< 4	< 6	< 10	< 3	< 4	< 22	< 7
MW-63I	04/17/12		< 44	< 106	< 6	< 5	< 9	< 6	< 9	< 5	< 9	< 11	< 4	< 5	< 29	< 6
MW-64	04/18/12		< 53	< 58	< 6	< 6	< 12	< 7	< 12	< 6	< 12	< 9	< 6	< 7	< 33	< 10

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		Be-7	K-40	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-64	10/02/12		< 22	< 20	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 16	< 5
MW-65	04/17/12		< 25	< 47	< 2	< 3	< 5	< 2	< 5	< 3	< 4	< 8	< 3	< 2	< 17	< 5
MW-66I	04/17/12		< 57	< 136	< 6	< 6	< 14	< 7	< 12	< 7	< 10	< 13	< 5	< 7	< 33	< 10
MW-67	04/18/12		< 41	< 107	< 4	< 5	< 9	< 6	< 9	< 5	< 9	< 9	< 5	< 5	< 24	< 8
MW-67	04/18/12		< 43	< 55	< 5	< 4	< 11	< 5	< 10	< 5	< 8	< 8	< 5	< 5	< 27	< 8
MW-67	04/18/12	EIML	< 19	< 54	< 3	< 3	< 4	< 2	< 4	< 2	< 3	< 3	< 4	< 3	< 17	< 2
MW-67	10/01/12		< 14	30 ± 18	< 1	< 1	< 3	< 1	< 3	< 2	< 3	< 5	< 1	< 1	< 10	< 4
MW-68I	04/17/12		< 43	< 70	< 6	< 6	< 13	< 5	< 11	< 7	< 10	< 12	< 6	< 6	< 30	< 9
MW-69I	04/18/12		< 43	< 31	< 5	< 5	< 10	< 5	< 10	< 5	< 8	< 11	< 5	< 5	< 24	< 7
MW-70I	04/18/12		< 59	< 121	< 6	< 7	< 13	< 5	< 12	< 7	< 10	< 12	< 5	< 6	< 36	< 7
MW-71	04/17/12		< 46	< 107	< 6	< 5	< 16	< 7	< 12	< 7	< 12	< 13	< 5	< 7	< 37	< 11
MW-72	04/18/12		< 56	< 119	< 6	< 6	< 13	< 6	< 10	< 7	< 13	< 15	< 6	< 7	< 36	< 6
W-10	04/17/12		< 39	< 92	< 6	< 4	< 11	< 4	< 10	< 5	< 8	< 10	< 4	< 6	< 20	< 9
W-10	04/17/12		< 52	< 52	< 5	< 7	< 12	< 7	< 11	< 7	< 12	< 15	< 5	< 6	< 36	< 10
W-10	04/17/12	EIML	< 29	< 49	< 3	< 3	< 4	< 1	< 6	< 3	< 3	< 3	< 3	< 3	< 12	< 2
W-12	04/18/12		< 66	152 ± 90	< 7	< 7	< 14	< 8	< 15	< 8	< 14	< 12	< 6	< 8	< 33	< 9
W-13	04/18/12		< 46	< 45	< 5	< 5	< 10	< 5	< 12	< 5	< 8	< 10	< 5	< 5	< 27	< 9
W-13	04/18/12		< 49	< 47	< 6	< 6	< 12	< 5	< 10	< 5	< 11	< 13	< 6	< 6	< 32	< 10
W-14	04/17/12		< 59	< 55	< 5	< 6	< 15	< 7	< 13	< 6	< 10	< 12	< 5	< 6	< 28	< 9
W-14	04/17/12		< 35	< 46	< 5	< 4	< 9	< 4	< 7	< 4	< 8	< 10	< 4	< 4	< 20	< 8
W-15	04/17/12		< 29	< 55	< 3	< 4	< 8	< 4	< 9	< 4	< 6	< 8	< 4	< 4	< 22	< 8
W-16	04/17/12		< 48	< 103	< 6	< 5	< 10	< 4	< 10	< 6	< 11	< 11	< 6	< 6	< 27	< 11
W-1A	04/16/12		< 40	< 85	< 4	< 5	< 9	< 5	< 11	< 5	< 7	< 8	< 4	< 5	< 22	< 8
W-24	04/18/12		< 57	< 124	< 6	< 7	< 14	< 6	< 12	< 5	< 10	< 11	< 5	< 8	< 29	< 11
W-2B	04/16/12		< 32	< 24	< 4	< 5	< 10	< 4	< 9	< 4	< 7	< 8	< 4	< 4	< 19	< 7
W-3	04/17/12		< 35	< 71	< 3	< 4	< 8	< 4	< 8	< 4	< 7	< 10	< 4	< 4	< 21	< 5
W-34	04/18/12		< 43	< 45	< 5	< 5	< 10	< 5	< 11	< 6	< 7	< 10	< 5	< 6	< 26	< 6
W-4	04/17/12		< 38	< 37	< 4	< 5	< 9	< 5	< 9	< 4	< 8	< 9	< 4	< 4	< 23	< 8
W-4A	04/17/12		< 47	< 101	< 5	< 6	< 12	< 6	< 11	< 6	< 9	< 10	< 5	< 6	< 29	< 11
W-4B	04/17/12		< 45	< 86	< 5	< 5	< 9	< 4	< 10	< 5	< 9	< 10	< 4	< 5	< 28	< 9
W-5	04/17/12		< 36	< 62	< 4	< 4	< 9	< 4	< 9	< 4	< 8	< 7	< 4	< 4	< 20	< 5
W-5C	04/16/12		< 38	< 84	< 4	< 5	< 9	< 5	< 8	< 5	< 8	< 8	< 4	< 4	< 24	< 8
W-5K	04/16/12		< 39	< 77	< 4	< 4	< 8	< 3	< 8	< 5	< 8	< 9	< 4	< 4	< 22	< 6
W-6	04/17/12		< 47	< 102	< 6	< 5	< 9	< 6	< 10	< 6	< 10	< 11	< 5	< 5	< 29	< 10
W-7	04/18/12		< 49	< 86	< 5	< 4	< 10	< 4	< 9	< 5	< 9	< 9	< 5	< 6	< 26	< 6
W-9	04/17/12		< 46	< 59	< 6	< 5	< 11	< 6	< 9	< 5	< 9	< 9	< 4	< 5	< 24	< 8

TABLE B-I.3 **CONCENTRATIONS OF "HARD-TO-DETECTS" IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		Am-241	Cm-242	Cm-243/244	Pu-238	Pu-239/240	U-234	U-235	U-238	Fe-55	Ni-63
MW-15K-1A	04/18/12		< 0.09	< 0.05	< 0.19	< 0.14	< 0.08	0.59 ± 0.27	< 0.09	1.01 ± 0.37	< 86	< 4.9
MW-50	04/18/12		< 0.17	< 0.11	< 0.09	< 0.02	< 0.09	< 0.14	< 0.03	< 0.03	< 125	< 4.1
MW-54	04/18/12		< 0.16	< 0.06	< 0.03	< 0.12	< 0.12	0.78 ± 0.39	< 0.07	0.81 ± 0.39	< 87	< 4.9
MW-55	04/18/12		< 0.19	< 0.07	< 0.07	< 0.19	< 0.10	< 0.08	< 0.16	< 0.08	< 162	< 4.1
MW-56I	04/18/12		< 0.19	< 0.16	< 0.17	< 0.11	< 0.10	< 0.08	< 0.04	< 0.06	< 123	< 4.0
MW-56I	04/18/12		< 0.06	< 0.06	< 0.13	< 0.09	< 0.10	< 0.02	< 0.05	< 0.02	< 106	< 4.0
MW-56I	04/18/12	EIML	< 0.09		< 0.07	< 0.08	< 1.03	0.13 ± 0.10		0.32 ± 0.14	< 887	< 103
MW-57I	04/18/12		< 0.17	< 0.09	< 0.03	< 0.17	< 0.13	< 0.10	< 0.12	< 0.19	< 142	< 4.1
MW-59I	04/18/12		< 0.05	< 0.07	< 0.03	< 0.06	< 0.10	< 0.18	< 0.04	< 0.16	< 162	< 4.1
MW-61I	04/17/12		< 0.09	< 0.04	< 0.06	< 0.09	< 0.09	< 0.12	< 0.07	< 0.09	< 162	< 3.7
MW-64	04/18/12		< 0.07	< 0.13	< 0.13	< 0.18	< 0.12	0.34 ± 0.14	< 0.02	0.32 ± 0.14	< 108	< 4.7
MW-67	04/18/12		< 0.04	< 0.15	< 0.17	< 0.16	< 0.09	< 0.12	< 0.08	< 0.07	< 112	< 4.1
MW-67	04/18/12		< 0.05	< 0.17	< 0.14	< 0.18	< 0.11	< 0.16	< 0.10	< 0.08	< 152	< 4.1
MW-67	04/18/12	EIML	< 0.06		< 0.10	< 0.10	< 0.10	< 0.08		< 0.11	< 866	< 109

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	01/01/12	< 171
MCD	01/02/12	< 171
MCD	01/03/12	< 188
MCD	01/04/12	< 187
MCD	01/05/12	< 189
MCD	01/06/12	< 188
MCD	01/07/12	< 190
MCD	01/08/12	< 190
MCD	01/09/12	< 186
MCD	01/10/12	< 190
MCD	01/11/12	< 187
MCD	01/12/12	< 191
MCD	01/13/12	< 187
MCD	01/14/12	< 191
MCD	01/15/12	< 187
MCD	01/16/12	< 188
MCD	01/17/12	< 191
MCD	01/18/12	< 188
MCD	01/19/12	< 175
MCD	01/20/12	< 173
MCD	01/21/12	< 173
MCD	01/22/12	< 174
MCD	01/23/12	< 174
MCD	01/24/12	< 175
MCD	01/25/12	< 175
MCD	01/26/12	< 175
MCD	01/27/12	< 173
MCD	01/28/12	< 175
MCD	01/29/12	< 173
MCD	01/30/12	< 176
MCD	01/31/12	< 175
MCD	02/01/12	< 177
MCD	02/02/12	< 174
MCD	02/03/12	< 179
MCD	02/04/12	< 174
MCD	02/05/12	< 172
MCD	02/06/12	< 174
MCD	02/07/12	< 171
MCD	02/08/12	< 176
MCD	02/09/12	< 175
MCD	02/10/12	< 173
MCD	02/14/12	< 173
MCD	02/15/12	< 178
MCD	02/16/12	< 177
MCD	02/17/12	< 178
MCD	02/18/12	< 176
MCD	02/19/12	< 177
MCD	02/20/12	< 177
MCD	02/21/12	< 177
MCD	02/22/12	< 177
MCD	02/23/12	< 177
MCD	02/24/12	< 175
MCD	02/25/12	< 178

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	02/26/12	< 176
MCD	02/27/12	< 177
MCD	02/28/12	< 178
MCD	02/29/12	< 174
MCD	03/01/12	< 181
MCD	03/02/12	< 176
MCD	03/03/12	< 181
MCD	03/04/12	< 177
MCD	03/05/12	< 179
MCD	03/06/12	< 179
MCD	03/07/12	< 179
MCD	03/08/12	< 177
MCD	03/09/12	< 196
MCD	03/10/12	< 175
MCD	03/11/12	< 179
MCD	03/12/12	< 179
MCD	03/13/12	< 177
MCD	03/14/12	< 176
MCD	03/15/12	< 179
MCD	03/16/12	< 177
MCD	03/17/12	< 179
MCD	03/18/12	< 180
MCD	03/19/12	< 177
MCD	03/20/12	< 179
MCD	03/21/12	< 177
MCD	03/22/12	< 179
MCD	03/23/12	< 177
MCD	03/24/12	< 177
MCD	03/25/12	< 176
MCD	03/26/12	< 177
MCD	03/27/12	< 177
MCD	03/28/12	< 175
MCD	03/29/12	< 175
MCD	03/30/12	< 177
MCD	03/31/12	< 177
MCD	04/01/12	< 174
MCD	04/02/12	< 173
MCD	04/03/12	< 170
MCD	04/04/12	< 174
MCD	04/05/12	< 173
MCD	04/06/12	< 173
MCD	04/07/12	< 175
MCD	04/08/12	< 175
MCD	04/09/12	< 174
MCD	04/10/12	< 171
MCD	04/11/12	< 172
MCD	04/12/12	< 169
MCD	04/13/12	< 169
MCD	04/14/12	< 171
MCD	04/15/12	< 171
MCD	04/16/12	< 170
MCD	04/17/12	< 159
MCD	04/18/12	< 155

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	04/19/12	< 178
MCD	04/20/12	< 175
MCD	04/21/12	< 194
MCD	04/22/12	< 190
MCD	04/23/12	< 188
MCD	04/24/12	< 189
MCD	04/25/12	< 191
MCD	04/26/12	< 193
MCD	04/27/12	< 190
MCD	04/28/12	< 190
MCD	04/29/12	< 191
MCD	04/30/12	< 191
MCD	05/01/12	< 190
MCD	05/02/12	< 191
MCD	05/03/12	< 193
MCD	05/04/12	< 189
MCD	05/05/12	< 193
MCD	05/06/12	< 192
MCD	05/07/12	< 191
MCD	05/08/12	< 187
MCD	05/09/12	< 189
MCD	05/10/12	< 189
MCD	05/11/12	< 182
MCD	05/12/12	< 181
MCD	05/13/12	< 182
MCD	05/14/12	< 183
MCD	05/15/12	< 180
MCD	06/21/12	< 181
MCD	06/22/12	< 193
MCD	06/23/12	< 190
MCD	06/24/12	< 189
MCD	06/25/12	< 188
MCD	06/26/12	< 188
MCD	06/27/12	< 188
MCD	06/28/12	< 187
MCD	06/29/12	< 191
MCD	06/30/12	< 186
MCD	07/01/12	< 185
MCD	07/02/12	< 188
MCD	07/03/12	< 191
MCD	07/04/12	< 177
MCD	07/05/12	< 175
MCD	07/06/12	< 167
MCD	07/07/12	< 170
MCD	07/07/12	< 179
MCD	07/08/12	< 173
MCD	07/08/12	< 196
MCD	07/09/12	< 172
MCD	07/10/12	< 172
MCD	07/11/12	< 170
MCD	07/12/12	< 199
MCD	07/13/12	< 200
MCD	07/14/12	< 174

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	07/14/12	< 177
MCD	07/15/12	< 169
MCD	07/16/12	< 197
MCD	07/17/12	< 170
MCD	07/18/12	< 168
MCD	07/19/12	< 200
MCD	07/20/12	< 172
MCD	07/21/12	< 197
MCD	07/22/12	< 199
MCD	07/23/12	< 198
MCD	07/24/12	< 198
MCD	07/25/12	< 198
MCD	07/26/12	< 171
MCD	07/27/12	< 197
MCD	07/28/12	< 172
MCD	07/29/12	< 170
MCD	07/30/12	< 195
MCD	07/31/12	< 169
MCD	08/01/12	< 194
MCD	08/16/12	< 194
MCD	08/17/12	< 167
MCD	08/18/12	< 198
MCD	08/19/12	< 177
MCD	08/20/12	< 178
MCD	08/21/12	< 176
MCD	08/22/12	< 176
MCD	08/23/12	< 180
MCD	08/24/12	< 176
MCD	08/25/12	< 175
MCD	08/26/12	< 179
MCD	08/27/12	< 178
MCD	08/28/12	< 194
MCD	08/29/12	< 176
MCD	08/30/12	< 189
MCD	08/31/12	< 188
MCD	09/01/12	< 189
MCD	09/02/12	< 182
MCD	09/03/12	< 184
MCD	09/04/12	< 190
MCD	09/05/12	< 188
MCD	09/06/12	< 187
MCD	09/07/12	< 171
MCD	09/08/12	< 186
MCD	09/09/12	< 187
MCD	09/10/12	< 187
MCD	09/11/12	< 189
MCD	09/12/12	< 187
MCD	09/13/12	< 172
MCD	09/14/12	< 185
MCD	09/15/12	< 191
MCD	09/16/12	< 190
MCD	09/17/12	< 191
MCD	09/18/12	< 191

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	09/19/12	< 192
MCD	09/20/12	< 192
MCD	09/21/12	< 193
MCD	09/22/12	< 191
MCD	09/23/12	< 191
MCD	09/24/12	< 191
MCD	09/25/12	< 191
MCD	09/26/12	< 195
MCD	09/27/12	< 195
MCD	09/28/12	< 191
MCD	09/29/12	< 194
MCD	09/30/12	< 191
MCD	10/01/12	< 194
MCD	10/02/12	< 188
MCD	10/03/12	< 187
MCD	10/04/12	< 187
MCD	10/05/12	< 189
MCD	10/06/12	< 185
MCD	10/07/12	< 185
MCD	10/08/12	< 182
MCD	10/09/12	< 185
MCD	10/10/12	< 182
MCD	10/11/12	< 187
MCD	10/12/12	< 186
MCD	10/13/12	< 187
MCD	10/14/12	< 194
MCD	10/15/12	< 191
MCD	10/16/12	< 167
MCD	10/17/12	< 167
MCD	10/18/12	< 193
MCD	10/19/12	< 192
MCD	10/20/12	< 195
MCD	10/21/12	< 198
MCD	10/22/12	< 190
MCD	10/23/12	< 161
MCD	10/24/12	< 194
MCD	10/25/12	< 192
MCD	10/26/12	< 191
MCD	10/27/12	< 193
MCD	10/28/12	< 192
MCD	12/20/12	< 180
MCD	12/21/12	< 170
MCD	12/22/12	< 169
MCD	12/23/12	< 170
MCD	12/24/12	< 169
MCD	12/25/12	< 173
MCD	12/26/12	< 176
MCD	12/27/12	< 166
MCD	12/28/12	< 170
MCD	12/29/12	< 167
MCD	12/30/12	< 166
MCD	12/31/12	< 169
SW-1	01/04/12	< 186

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
SW-1	01/11/12	< 187
SW-1	01/18/12	< 189
SW-1	01/25/12	< 175
SW-1	02/01/12	< 173
SW-1	02/08/12	< 170
SW-1	02/15/12	< 177
SW-1	02/22/12	< 182
SW-1	02/29/12	< 181
SW-1	03/07/12	< 176
SW-1	03/14/12	< 178
SW-1	03/21/12	< 160
SW-1	03/28/12	< 161
SW-1	04/04/12	< 156
SW-1	04/11/12	< 157
SW-1	04/18/12	< 156
SW-1	04/25/12	< 187
SW-1	05/02/12	< 184
SW-1	05/09/12	< 181
SW-1	06/21/12	< 182
SW-1	06/27/12	< 192
SW-1	07/04/12	< 195
SW-1	07/11/12	< 169
SW-1	07/18/12	< 172
SW-1	07/25/12	< 170
SW-1	08/01/12	< 171
SW-1	08/16/12	< 192
SW-1	08/22/12	< 190
SW-1	08/29/12	< 190
SW-1	09/05/12	< 190
SW-1	09/12/12	< 192
SW-1	09/19/12	< 194
SW-1	09/26/12	< 193
SW-1	10/03/12	< 193
SW-1	10/10/12	< 188
SW-1	10/17/12	< 184
SW-1	10/24/12	< 183
SW-1	12/21/12	< 167
SW-1	12/26/12	< 166
SW-2	01/01/12	< 167
SW-2	01/02/12	< 167
SW-2	01/03/12	< 168
SW-2	01/04/12	< 170
SW-2	01/05/12	< 169
SW-2	01/06/12	< 168
SW-2	01/07/12	< 168
SW-2	01/08/12	< 174
SW-2	01/09/12	< 174
SW-2	01/10/12	< 178
SW-2	01/11/12	< 179
SW-2	01/12/12	< 178
SW-2	01/13/12	< 177
SW-2	01/14/12	< 158
SW-2	01/15/12	< 177

TABLE B-II.1 CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
SW-2	01/16/12	< 172
SW-2	01/17/12	< 178
SW-2	01/18/12	< 174
SW-2	01/19/12	< 174
SW-2	01/20/12	< 174
SW-2	01/21/12	< 177
SW-2	01/22/12	< 174
SW-2	01/23/12	< 175
SW-2	01/24/12	< 172
SW-2	01/25/12	< 173
SW-2	01/26/12	< 173
SW-2	01/27/12	< 172
SW-2	01/28/12	< 172
SW-2	01/29/12	< 168
SW-2	01/30/12	< 169
SW-2	01/31/12	< 172
SW-2	06/19/12	< 167
SW-2	07/03/12	< 185
SW-2	10/03/12	< 187
SW-3	01/16/12	< 160
SW-3	04/17/12	< 180
SW-3	07/03/12	< 182
SW-3	10/01/12	< 195

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	01/01/12	< 22	292 ± 86	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< **21**	< 2	< 2	< 33	< 10
MCD	01/02/12	< 25	288 ± 74	< 3	< 3	< 7	< 2	< 5	< 3	< 5	< 15	< 2	< 3	< 27	< 7
MCD	01/03/12	< 27	290 ± 79	< 3	< 3	< 7	< 2	< 5	< 3	< 5	< 14	< 2	< 2	< 25	< 7
MCD	01/04/12	< 23	246 ± 70	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 14	< 2	< 2	< 25	< 7
MCD	01/05/12	< 30	362 ± 81	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 13	< 3	< 3	< 29	< 8
MCD	01/06/12	< 26	241 ± 71	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 3	< 3	< 26	< 7
MCD	01/07/12	< 28	280 ± 86	< 3	< 3	< 6	< 2	< 6	< 3	< 6	< 11	< 2	< 3	< 22	< 7
MCD	01/08/12	< 21	246 ± 65	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 8	< 2	< 2	< 17	< 5
MCD	01/09/12	< 25	247 ± 80	< 2	< 3	< 6	< 3	< 6	< 3	< 5	< 10	< 3	< 3	< 20	< 6
MCD	01/10/12	< 26	162 ± 69	< 3	< 3	< 5	< 3	< 5	< 3	< 6	< 9	< 2	< 3	< 21	< 6
MCD	01/11/12	< 27	257 ± 67	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 9	< 3	< 3	< 21	< 6
MCD	01/12/12	< 23	264 ± 56	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 7	< 2	< 2	< 15	< 5
MCD	01/13/12	< 14	198 ± 43	< 2	< 2	< 3	< 1	< 3	< 2	< 3	< 5	< 1	< 2	< 11	< 3
MCD	01/14/12	< 22	239 ± 65	< 2	< 2	< 4	< 2	< 4	< 3	< 4	< 6	< 2	< 2	< 15	< 4
MCD	01/15/12	< 30	242 ± 85	< 3	< 4	< 8	< 4	< 7	< 4	< 6	< 9	< 3	< 4	< 21	< 7
MCD	01/16/12	< 26	248 ± 51	< 3	< 3	< 7	< 4	< 6	< 3	< 6	< 7	< 3	< 3	< 18	< 6
MCD	01/17/12	< 33	235 ± 68	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 8	< 3	< 4	< 21	< 7
MCD	01/18/12	< 26	259 ± 53	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 6	< 3	< 3	< 16	< 5
MCD	01/19/12	< 54	296 ± 68	< 5	< 6	< 13	< 4	< 10	< 6	< 10	< **80**	< 4	< 4	< **98**	< **29**
MCD	01/20/12	< 50	255 ± 77	< 4	< 5	< 13	< 4	< 10	< 6	< 10	< **72**	< 4	< 4	< **85**	< **26**
MCD	01/21/12	< 43	280 ± 65	< 4	< 5	< 11	< 5	< 9	< 5	< 9	< **57**	< 4	< 4	< **74**	< **22**
MCD	01/22/12	< 53	330 ± 74	< 4	< 6	< 14	< 5	< 10	< 6	< 10	< **63**	< 4	< 5	< **79**	< **26**
MCD	01/23/12	< 41	327 ± 56	< 4	< 4	< 10	< 4	< 7	< 5	< 8	< **48**	< 3	< 4	< 59	< **18**
MCD	01/24/12	< 38	286 ± 85	< 3	< 4	< 10	< 4	< 7	< 5	< 7	< **40**	< 3	< 4	< 55	< **18**
MCD	01/25/12	< 35	437 ± 80	< 3	< 3	< 8	< 3	< 7	< 4	< 7	< **34**	< 3	< 3	< 47	< 15
MCD	01/26/12	< 44	409 ± 63	< 4	< 5	< 11	< 4	< 8	< 5	< 8	< **39**	< 4	< 4	< 58	< **18**
MCD	01/27/12	< 46	308 ± 70	< 4	< 5	< 12	< 4	< 9	< 5	< 9	< **38**	< 4	< 4	< 58	< **17**
MCD	01/28/12	< 42	262 ± 61	< 4	< 4	< 11	< 4	< 9	< 5	< 9	< **34**	< 4	< 4	< 52	< **17**
MCD	01/29/12	< 33	366 ± 81	< 3	< 3	< 7	< 3	< 6	< 4	< 5	< **25**	< 3	< 3	< 41	< 12
MCD	01/30/12	< 29	224 ± 76	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< **21**	< 3	< 3	< 35	< 11
MCD	01/31/12	< 25	280 ± 74	< 3	< 3	< 6	< 3	< 5	< 3	< 4	< **16**	< 2	< 3	< 27	< 9
MCD	02/01/12	< 32	374 ± 82	< 3	< 3	< 8	< 3	< 7	< 3	< 6	< **19**	< 3	< 3	< 32	< 11
MCD	02/02/12	< 22	316 ± 63	< 2	< 2	< 6	< 2	< 4	< 3	< 4	< 13	< 2	< 2	< 24	< 6
MCD	02/03/12	< 34	441 ± 89	< 4	< 4	< 9	< 3	< 7	< 4	< 7	< **19**	< 3	< 3	< 35	< 9
MCD	02/04/12	< 26	436 ± 70	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 13	< 2	< 3	< 24	< 8
MCD	02/05/12	< 27	310 ± 68	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 12	< 3	< 3	< 25	< 6
MCD	02/06/12	< 15	260 ± 43	< 2	< 1	< 4	< 2	< 3	< 2	< 3	< 7	< 1	< 2	< 15	< 5
MCD	02/07/12	< 17	298 ± 44	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 10	< 2	< 2	< 18	< 5

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	02/08/12	< 21	264 ± 62	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 18	< 6
MCD	02/09/12	< 19	208 ± 65	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 8	< 2	< 2	< 16	< 5
MCD	02/10/12	< 17	274 ± 55	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 2	< 2	< 14	< 4
MCD	02/14/12	< 21	295 ± 66	< 2	< 2	< 5	< 3	< 5	< 3	< 5	< 5	< 2	< 2	< 13	< 5
MCD	02/15/12	< 17	244 ± 41	< 2	< 2	< 4	< 1	< 3	< 2	< 3	**< 19**	< 2	< 2	< 26	< 8
MCD	02/16/12	< 21	244 ± 61	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 22**	< 2	< 2	< 32	< 10
MCD	02/17/12	< 22	249 ± 58	< 2	< 3	< 6	< 2	< 4	< 3	< 4	**< 22**	< 2	< 2	< 31	< 8
MCD	02/18/12	< 25	284 ± 63	< 2	< 3	< 6	< 2	< 5	< 3	< 4	**< 21**	< 2	< 3	< 32	< 7
MCD	02/19/12	< 20	224 ± 55	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 17**	< 2	< 2	< 26	< 7
MCD	02/20/12	< 19	250 ± 72	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 8
MCD	02/21/12	< 30	287 ± 69	< 3	< 3	< 7	< 3	< 5	< 3	< 5	**< 21**	< 3	< 3	< 34	< 10
MCD	02/22/12	< 22	248 ± 57	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 14	< 2	< 2	< 23	< 7
MCD	02/23/12	< 23	329 ± 64	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 6
MCD	02/24/12	< 20	246 ± 56	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 19	< 6
MCD	02/25/12	< 19	320 ± 48	< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 13	< 2	< 2	< 24	< 6
MCD	02/26/12	< 29	328 ± 74	< 3	< 3	< 7	< 2	< 5	< 3	< 5	**< 17**	< 2	< 3	< 30	< 7
MCD	02/27/12	< 24	343 ± 69	< 2	< 3	< 7	< 3	< 5	< 2	< 5	< 13	< 2	< 3	< 26	< 8
MCD	02/28/12	< 27	319 ± 65	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 12	< 2	< 3	< 22	< 7
MCD	02/29/12	< 27	314 ± 77	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 13	< 2	< 3	< 27	< 7
MCD	03/01/12	< 24	264 ± 60	< 2	< 3	< 5	< 2	< 4	< 2	< 5	< 11	< 2	< 2	< 19	< 6
MCD	03/02/12	< 23	266 ± 86	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 9	< 2	< 2	< 19	< 6
MCD	03/03/12	< 27	319 ± 78	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 12	< 3	< 3	< 24	< 7
MCD	03/04/12	< 25	340 ± 71	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 9	< 2	< 3	< 19	< 6
MCD	03/05/12	< 25	290 ± 72	< 2	< 3	< 5	< 3	< 5	< 3	< 5	< 9	< 2	< 3	< 19	< 4
MCD	03/06/12	< 20	262 ± 68	< 2	< 3	< 5	< 3	< 5	< 2	< 4	< 6	< 2	< 2	< 17	< 6
MCD	03/07/12	< 30	352 ± 50	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 10	< 3	< 3	< 23	< 7
MCD	03/08/12	< 42	334 ± 76	< 5	< 5	< 10	< 5	< 10	< 5	< 8	< 13	< 4	< 5	< 29	< 9
MCD	03/09/12	< 42	367 ± 70	< 4	< 4	< 9	< 4	< 9	< 5	< 8	< 12	< 4	< 4	< 28	< 8
MCD	03/10/12	< 33	278 ± 63	< 4	< 4	< 8	< 5	< 8	< 4	< 6	< 9	< 4	< 4	< 22	< 6
MCD	03/11/12	< 43	306 ± 82	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 10	< 5	< 6	< 28	< 9
MCD	03/12/12	< 35	265 ± 57	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 8	< 4	< 4	< 21	< 7
MCD	03/13/12	< 32	304 ± 87	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 6	< 4	< 4	< 18	< 6
MCD	03/14/12	< 45	410 ± 83	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 8	< 5	< 5	< 24	< 7
MCD	03/15/12	< 27	236 ± 56	< 2	< 3	< 7	< 2	< 4	< 3	< 5	**< 76**	< 2	< 2	**< 69**	**< 18**
MCD	03/16/12	< 31	227 ± 60	< 2	< 3	< 8	< 2	< 5	< 3	< 6	**< 88**	< 2	< 2	**< 78**	**< 22**
MCD	03/17/12	< 30	393 ± 61	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 76**	< 2	< 2	**< 72**	**< 18**
MCD	03/18/12	< 33	264 ± 67	< 3	< 3	< 8	< 3	< 5	< 4	< 5	**< 79**	< 2	< 2	**< 72**	**< 21**
MCD	03/19/12	< 68	269 ± 40	< 2	< 2	< 6	< 2	< 4	< 2	< 4	**< 51**	< 2	< 2	< 51	< 14

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	03/20/12	< 31	314 ± 61	< 3	< 3	< 7	< 3	< 5	< 3	< 6	**< 69**	< 2	< 3	**< 75**	**< 16**
MCD	03/21/12	< 29	241 ± 69	< 2	< 3	< 7	< 3	< 4	< 3	< 6	**< 59**	< 2	< 2	< 60	**< 17**
MCD	03/22/12	< 27	269 ± 55	< 2	< 3	< 6	< 2	< 5	< 3	< 5	**< 54**	< 2	< 2	< 51	< 12
MCD	03/23/12	< 25	217 ± 79	< 2	< 3	< 7	< 2	< 4	< 3	< 5	**< 41**	< 2	< 2	< 49	< 15
MCD	03/24/12	< 25	263 ± 63	< 2	< 2	< 6	< 2	< 4	< 2	< 4	**< 38**	< 2	< 2	< 41	< 15
MCD	03/25/12	< 35	299 ± 71	< 3	< 4	< 9	< 3	< 6	< 4	< 6	**< 52**	< 3	< 3	**< 61**	**< 20**
MCD	03/26/12	< 32	233 ± 63	< 2	< 3	< 8	< 2	< 5	< 3	< 6	**< 44**	< 2	< 3	< 50	< 14
MCD	03/27/12	< 30	444 ± 67	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 37**	< 2	< 3	< 50	< 15
MCD	03/28/12	< 35	295 ± 74	< 3	< 3	< 9	< 3	< 6	< 4	< 6	**< 41**	< 3	< 3	< 52	**< 17**
MCD	03/29/12	< 21	259 ± 55	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 26**	< 2	< 2	< 35	< 10
MCD	03/30/12	< 27	286 ± 56	< 2	< 2	< 6	< 2	< 4	< 3	< 5	**< 29**	< 2	< 2	< 38	< 11
MCD	03/31/12	< 25	304 ± 83	< 3	< 3	< 7	< 2	< 5	< 3	< 6	**< 25**	< 2	< 2	< 39	< 13
MCD	04/01/12	< 20	364 ± 72	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 15	< 2	< 2	< 23	< 6
MCD	04/02/12	< 22	280 ± 81	< 2	< 2	< 5	< 2	< 5	< 2	< 5	< 13	< 2	< 2	< 23	< 9
MCD	04/03/12	< 23	263 ± 64	< 2	< 3	< 5	< 2	< 4	< 3	< 5	< 14	< 2	< 2	< 26	< 8
MCD	04/04/12	< 23	259 ± 65	< 2	< 3	< 5	< 3	< 4	< 3	< 4	< 13	< 2	< 3	< 22	< 8
MCD	04/05/12	< 20	257 ± 54	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
MCD	04/06/12	< 27	271 ± 72	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 3	< 3	< 26	< 8
MCD	04/07/12	< 25	290 ± 62	< 2	< 3	< 5	< 3	< 5	< 3	< 5	< 12	< 2	< 2	< 20	< 7
MCD	04/08/12	< 24	257 ± 79	< 3	< 2	< 5	< 2	< 5	< 3	< 4	< 11	< 2	< 3	< 21	< 6
MCD	04/09/12	< 21	318 ± 62	< 2	< 2	< 5	< 3	< 4	< 2	< 4	< 8	< 2	< 2	< 18	< 5
MCD	04/10/12	< 35	336 ± 50	< 3	< 4	< 8	< 4	< 7	< 4	< 7	< 15	< 3	< 3	< 27	< 8
MCD	04/11/12	< 34	256 ± 77	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 12	< 3	< 4	< 27	< 9
MCD	04/12/12	< 34	252 ± 64	< 3	< 4	< 8	< 4	< 8	< 4	< 6	< 11	< 3	< 4	< 26	< 9
MCD	04/13/12	< 38	235 ± 60	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 12	< 4	< 4	< 27	< 9
MCD	04/14/12	< 40	326 ± 75	< 5	< 5	< 10	< 5	< 9	< 5	< 9	< 11	< 4	< 5	< 29	< 8
MCD	04/15/12	< 33	363 ± 58	< 3	< 4	< 7	< 4	< 7	< 4	< 7	< 10	< 3	< 4	< 24	< 7
MCD	04/16/12	< 36	273 ± 64	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 10	< 4	< 4	< 24	< 7
MCD	04/17/12	< 20	313 ± 74	< 2	< 2	< 5	< 3	< 5	< 3	< 4	< 4	< 3	< 3	< 13	< 3
MCD	04/18/12	< 23	318 ± 70	< 3	< 2	< 5	< 3	< 5	< 3	< 5	< 4	< 3	< 2	< 12	< 4
MCD	04/19/12	< 17	316 ± 54	< 1	< 2	< 4	< 1	< 3	< 2	< 3	**< 21**	< 1	< 2	< 27	< 8
MCD	04/20/12	< 25	357 ± 66	< 2	< 2	< 6	< 2	< 5	< 3	< 5	**< 30**	< 2	< 2	< 41	< 11
MCD	04/21/12	< 25	340 ± 71	< 2	< 2	< 4	< 2	< 5	< 3	< 4	**< 23**	< 2	< 2	< 28	< 7
MCD	04/22/12	< 24	242 ± 76	< 2	< 2	< 6	< 2	< 4	< 3	< 4	**< 25**	< 2	< 2	< 35	< 8
MCD	04/23/12	< 22	294 ± 84	< 2	< 2	< 5	< 2	< 4	< 3	< 4	**< 21**	< 2	< 2	< 33	< 10
MCD	04/24/12	< 18	261 ± 64	< 2	< 2	< 5	< 2	< 3	< 2	< 4	< 15	< 2	< 2	< 22	< 6
MCD	04/25/12	< 17	309 ± 97	< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 13	< 1	< 2	< 20	< 7
MCD	04/26/12	< 22	286 ± 69	< 2	< 3	< 7	< 2	< 4	< 3	< 4	**< 17**	< 2	< 2	< 26	< 8

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	04/27/12	< 16	238 ± 70	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 14	< 2	< 2	< 18	< 5
MCD	04/28/12	< 15	267 ± 54	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 12	< 1	< 1	< 18	< 5
MCD	04/29/12	< 19	291 ± 77	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 13	< 2	< 2	< 22	< 8
MCD	04/30/12	< 18	277 ± 67	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 11	< 2	< 2	< 20	< 6
MCD	05/01/12	< 17	301 ± 65	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 1	< 2	< 17	< 5
MCD	05/02/12	< 17	331 ± 80	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 1	< 2	< 16	< 6
MCD	05/03/12	< 22	333 ± 78	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 20	< 5
MCD	05/04/12	< 16	311 ± 66	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 14	< 5
MCD	05/05/12	< 17	233 ± 72	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 17	< 5
MCD	05/06/12	< 25	289 ± 48	< 3	< 3	< 5	< 2	< 5	< 3	< 5	< 11	< 2	< 3	< 22	< 7
MCD	05/07/12	< 22	365 ± 77	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 9	< 2	< 2	< 18	< 6
MCD	05/08/12	< 17	274 ± 63	< 2	< 2	< 3	< 2	< 3	< 2	< 3	< 6	< 2	< 2	< 14	< 4
MCD	05/09/12	< 14	271 ± 62	< 2	< 2	< 3	< 2	< 4	< 2	< 3	< 5	< 1	< 2	< 10	< 4
MCD	05/10/12	< 18	326 ± 78	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 5	< 2	< 2	< 12	< 4
MCD	05/11/12	< 14	303 ± 58	< 2	< 1	< 3	< 2	< 3	< 1	< 3	< 4	< 2	< 1	< 10	< 3
MCD	05/12/12	< 14	248 ± 82	< 2	< 2	< 3	< 2	< 3	< 2	< 3	< 3	< 1	< 1	< 9	< 3
MCD	05/13/12	< 14	337 ± 72	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 12	< 4
MCD	05/14/12	< 15	336 ± 68	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 3	< 2	< 2	< 9	< 3
MCD	05/15/12	< 17	288 ± 70	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 4	< 2	< 2	< 10	< 2
MCD	06/21/12	< 36	237 ± 67	< 4	< 4	< 8	< 5	< 8	< 4	< 7	< 8	< 4	< 4	< 20	< 6
MCD	06/22/12	< 27	274 ± 77	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 10	< 3	< 3	< 24	< 7
MCD	06/23/12	< 37	167 ± 64	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 13	< 3	< 4	< 31	< 10
MCD	06/24/12	< 31	250 ± 52	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 13	< 3	< 3	< 24	< 8
MCD	06/25/12	< 40	267 ± 78	< 4	< 5	< 10	< 5	< 9	< 5	< 8	< 14	< 4	< 4	< 33	< 11
MCD	06/26/12	< 39	240 ± 68	< 4	< 4	< 10	< 4	< 9	< 5	< 8	< 13	< 4	< 4	< 30	< 9
MCD	06/27/12	< 34	302 ± 64	< 4	< 4	< 9	< 5	< 8	< 4	< 7	< 11	< 4	< 4	< 26	< 9
MCD	06/28/12	< 44	393 ± 78	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 13	< 5	< 5	< 32	< 9
MCD	06/29/12	< 35	213 ± 59	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 9	< 4	< 4	< 24	< 7
MCD	06/30/12	< 37	291 ± 92	< 4	< 4	< 10	< 5	< 9	< 5	< 8	< 9	< 4	< 4	< 24	< 7
MCD	07/01/12	< 43	405 ± 76	< 5	< 4	< 9	< 5	< 8	< 5	< 8	< 10	< 4	< 5	< 25	< 7
MCD	07/02/12	< 34	379 ± 67	< 4	< 4	< 8	< 4	< 9	< 4	< 7	< 8	< 4	< 4	< 21	< 6
MCD	07/03/12	< 31	268 ± 64	< 3	< 3	< 6	< 3	< 7	< 3	< 6	< 6	< 3	< 4	< 16	< 5
MCD	07/04/12	< 54	311 ± 62	< 3	< 4	< 16	< 3	< 5	< 5	< 10	**< 3355**	< 2	< 2	**< 804**	**< 195**
MCD	07/05/12	< 41	248 ± 43	< 3	< 4	< 11	< 3	< 7	< 5	< 8	**< 121**	< 3	< 3	**< 108**	**< 31**
MCD	07/06/12	< 57	307 ± 62	< 4	< 6	< 14	< 4	< 9	< 6	< 11	**< 151**	< 4	< 4	**< 137**	**< 44**
MCD	07/07/12	< 56	257 ± 72	< 5	< 6	< 14	< 5	< 10	< 6	< 10	**< 143**	< 4	< 4	**< 132**	**< 38**
MCD	07/07/12	< 56	235 ± 89	< 3	< 5	< 15	< 3	< 6	< 5	< 10	**< 2482**	< 2	< 2	**< 683**	**< 230**
MCD	07/08/12	< 49	238 ± 64	< 4	< 5	< 13	< 4	< 8	< 5	< 9	**< 113**	< 4	< 4	**< 108**	**< 32**

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	07/08/12	< 97	409 ± 84	< 5	< 8	< 24	< 4	< 11	< 9	< 15	**< 4488**	< 5	< 4	**< 1140**	**< 312**
MCD	07/09/12	< 60	243 ± 76	< 5	< 6	< 15	< 4	< 10	< 6	< 12	**< 128**	< 4	< 5	**< 126**	**< 37**
MCD	07/10/12	< 47	222 ± 59	< 4	< 5	< 12	< 4	< 8	< 5	< 9	**< 94**	< 4	< 4	**< 94**	**< 29**
MCD	07/11/12	< 45	243 ± 78	< 4	< 5	< 13	< 4	< 9	< 5	< 9	**< 81**	< 4	< 4	**< 92**	**< 31**
MCD	07/12/12	< 59	276 ± 80	< 5	< 5	< 13	< 4	< 10	< 6	< 11	**< 99**	< 5	< 5	**< 114**	**< 28**
MCD	07/13/12	< 45	241 ± 60	< 4	< 4	< 10	< 3	< 8	< 5	< 8	**< 74**	< 4	< 4	**< 78**	**< 22**
MCD	07/14/12	< 55	261 ± 73	< 4	< 6	< 14	< 5	< 9	< 6	< 10	**< 83**	< 4	< 5	**< 97**	**< 26**
MCD	07/14/12	< 57	372 ± 68	< 3	< 5	< 16	< 3	< 6	< 6	< 11	**< 1748**	< 3	< 3	**< 524**	**< 118**
MCD	07/15/12	< 40	191 ± 62	< 4	< 4	< 11	< 3	< 8	< 5	< 8	**< 53**	< 3	< 4	**< 68**	**< 25**
MCD	07/16/12	< 39	254 ± 50	< 3	< 4	< 10	< 3	< 7	< 4	< 7	**< 55**	< 3	< 3	**< 65**	**< 22**
MCD	07/17/12	< 43	288 ± 68	< 4	< 5	< 11	< 4	< 8	< 5	< 9	**< 55**	< 3	< 4	**< 68**	**< 22**
MCD	07/18/12	< 45	255 ± 59	< 4	< 5	< 11	< 4	< 8	< 5	< 8	**< 52**	< 4	< 4	**< 71**	**< 21**
MCD	07/19/12	< 42	278 ± 79	< 4	< 5	< 12	< 4	< 8	< 5	< 9	**< 44**	< 4	< 4	**< 62**	**< 21**
MCD	07/20/12	< 41	251 ± 63	< 4	< 4	< 10	< 4	< 8	< 5	< 8	**< 39**	< 3	< 4	< 54	**< 19**
MCD	07/21/12	< 42	196 ± 63	< 4	< 4	< 10	< 4	< 7	< 5	< 8	**< 42**	< 4	< 4	< 57	< 15
MCD	07/22/12	< 23	263 ± 54	< 2	< 2	< 5	< 2	< 5	< 3	< 5	**< 25**	< 2	< 2	< 34	< 10
MCD	07/23/12	< 35	248 ± 78	< 3	< 3	< 8	< 3	< 6	< 4	< 6	**< 32**	< 3	< 3	< 45	< 13
MCD	07/24/12	< 32	250 ± 74	< 3	< 3	< 7	< 3	< 5	< 4	< 6	**< 30**	< 3	< 3	< 39	< 11
MCD	07/25/12	< 26	279 ± 65	< 2	< 3	< 7	< 3	< 5	< 3	< 5	**< 18**	< 2	< 3	< 30	< 10
MCD	07/26/12	< 30	229 ± 83	< 3	< 3	< 8	< 3	< 7	< 3	< 6	**< 24**	< 3	< 3	< 34	< 10
MCD	07/27/12	< 17	210 ± 59	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 1	< 2	< 20	< 3
MCD	07/28/12	< 24	243 ± 95	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 27	< 10
MCD	07/29/12	< 23	322 ± 76	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 22	< 6
MCD	07/30/12	< 25	219 ± 66	< 2	< 2	< 5	< 2	< 4	< 3	< 5	< 13	< 2	< 3	< 24	< 7
MCD	07/31/12	< 27	282 ± 66	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 26	< 6
MCD	08/01/12	< 20	256 ± 58	< 2	< 2	< 6	< 2	< 4	< 3	< 4	< 10	< 2	< 2	< 19	< 7
MCD	08/16/12	< 42	262 ± 71	< 3	< 4	< 9	< 3	< 5	< 4	< 7	**< 103**	< 3	< 3	**< 94**	**< 26**
MCD	08/17/12	< 35	269 ± 67	< 3	< 3	< 8	< 2	< 5	< 3	< 6	**< 79**	< 2	< 3	**< 80**	**< 25**
MCD	08/18/12	< 32	294 ± 65	< 2	< 3	< 8	< 2	< 5	< 4	< 6	**< 78**	< 2	< 2	**< 77**	**< 21**
MCD	08/19/12	< 31	307 ± 69	< 2	< 3	< 8	< 3	< 5	< 3	< 6	**< 68**	< 2	< 2	**< 69**	**< 20**
MCD	08/20/12	< 28	260 ± 63	< 2	< 3	< 6	< 3	< 4	< 3	< 5	**< 59**	< 2	< 2	< 55	**< 20**
MCD	08/21/12	< 26	253 ± 58	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 49**	< 2	< 2	< 53	**< 16**
MCD	08/22/12	< 29	223 ± 89	< 2	< 3	< 8	< 3	< 5	< 3	< 6	**< 51**	< 2	< 2	< 60	**< 18**
MCD	08/23/12	< 33	396 ± 75	< 3	< 3	< 9	< 3	< 6	< 4	< 6	**< 56**	< 2	< 3	< 55	**< 21**
MCD	08/24/12	< 29	286 ± 62	< 2	< 3	< 7	< 3	< 5	< 3	< 5	**< 44**	< 2	< 2	< 51	< 14
MCD	08/25/12	< 31	197 ± 65	< 2	< 3	< 7	< 3	< 5	< 3	< 5	**< 43**	< 2	< 2	< 48	< 17
MCD	08/26/12	< 21	229 ± 55	< 2	< 2	< 6	< 2	< 4	< 2	< 4	**< 30**	< 2	< 2	< 37	< 11
MCD	08/27/12	< 17	251 ± 39	< 2	< 2	< 4	< 1	< 3	< 2	< 3	**< 24**	< 1	< 1	< 29	< 8

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	08/28/12	< 29	250 ± 61	< 2	< 3	< 6	< 2	< 4	< 3	< 5	< **32**	< 2	< 2	< 45	< 12
MCD	08/29/12	< 27	244 ± 65	< 2	< 3	< 6	< 2	< 4	< 3	< 5	< **30**	< 2	< 2	< 38	< **12**
MCD	08/30/12	< 21	289 ± 59	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< **23**	< 2	< 2	< 29	< 9
MCD	08/31/12	< 22	234 ± 47	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< **20**	< 2	< 2	< 28	< 8
MCD	09/01/12	< 14	277 ± 79	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 1	< 1	< 20	< 5
MCD	09/02/12	< 20	272 ± 51	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< **17**	< 2	< 2	< 25	< 8
MCD	09/03/12	< 26	260 ± 59	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< **20**	< 2	< 2	< 31	< 8
MCD	09/04/12	< 25	248 ± 59	< 2	< 2	< 6	< 2	< 5	< 3	< 5	< **17**	< 2	< 2	< 29	< 9
MCD	09/05/12	< 29	277 ± 68	< 3	< 3	< 7	< 2	< 5	< 3	< 5	< **19**	< 2	< 3	< 33	< 8
MCD	09/06/12	< 33	211 ± 53	< 3	< 4	< 8	< 3	< 6	< 4	< 6	< **22**	< 3	< 3	< 37	< 11
MCD	09/07/12	< 22	251 ± 53	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< **16**	< 2	< 2	< 26	< 8
MCD	09/08/12	< 29	327 ± 72	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< **19**	< 2	< 3	< 33	< 9
MCD	09/09/12	< 28	286 ± 63	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< **18**	< 3	< 2	< 27	< 7
MCD	09/10/12	< 22	292 ± 62	< 2	< 2	< 6	< 3	< 5	< 3	< 4	< 13	< 2	< 2	< 25	< 7
MCD	09/11/12	< 21	240 ± 82	< 2	< 3	< 5	< 2	< 4	< 3	< 5	< 11	< 2	< 2	< 22	< 8
MCD	09/12/12	< 29	373 ± 77	< 3	< 3	< 7	< 3	< 5	< 3	< 6	< 14	< 3	< 3	< 24	< 7
MCD	09/13/12	< 26	246 ± 60	< 3	< 3	< 5	< 2	< 4	< 3	< 5	< 12	< 2	< 3	< 22	< 7
MCD	09/14/12	< 27	199 ± 79	< 3	< 2	< 6	< 3	< 5	< 3	< 5	< 11	< 2	< 3	< 23	< 7
MCD	09/15/12	< 25	279 ± 68	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 7	< 2	< 3	< 17	< 5
MCD	09/16/12	< 24	269 ± 75	< 2	< 3	< 5	< 3	< 5	< 3	< 4	< 6	< 2	< 3	< 14	< 5
MCD	09/17/12	< 19	343 ± 66	< 2	< 2	< 4	< 3	< 5	< 2	< 4	< 4	< 2	< 2	< 12	< 4
MCD	09/18/12	< 23	256 ± 64	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 5	< 2	< 2	< 12	< 4
MCD	09/19/12	< 26	452 ± 75	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 5	< 3	< 3	< 15	< 4
MCD	09/20/12	< 31	286 ± 54	< 3	< 4	< 8	< 3	< 7	< 4	< 6	< 15	< 3	< 3	< 29	< 10
MCD	09/21/12	< 31	274 ± 61	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 14	< 3	< 3	< 29	< 7
MCD	09/22/12	< 32	278 ± 61	< 3	< 3	< 8	< 4	< 7	< 4	< 6	< 13	< 3	< 4	< 26	< 9
MCD	09/23/12	< 36	304 ± 68	< 4	< 4	< 9	< 4	< 7	< 4	< 7	< 15	< 4	< 4	< 29	< 9
MCD	09/24/12	< 46	336 ± 78	< 4	< 5	< 10	< 5	< 10	< 5	< 8	< 14	< 4	< 4	< 31	< 10
MCD	09/25/12	< 37	258 ± 73	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 13	< 4	< 4	< 26	< 8
MCD	09/26/12	< 42	265 ± 72	< 4	< 4	< 10	< 5	< 8	< 5	< 8	< 12	< 4	< 5	< 30	< 10
MCD	09/27/12	< 48	399 ± 86	< 5	< 6	< 12	< 6	< 12	< 6	< 10	< 14	< 5	< 6	< 33	< 9
MCD	09/28/12	< 30	239 ± 46	< 3	< 3	< 8	< 4	< 8	< 4	< 6	< 9	< 3	< 4	< 20	< 8
MCD	09/29/12	< 34	319 ± 65	< 3	< 4	< 8	< 4	< 7	< 4	< 6	< 9	< 4	< 4	< 21	< 6
MCD	09/30/12	< 32	281 ± 87	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 8	< 4	< 4	< 21	< 7
MCD	10/01/12	< 29	301 ± 71	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 7	< 3	< 4	< 18	< 5
MCD	10/02/12	< 52	223 ± 66	< 5	< 5	< 8	< 4	< 8	< 5	< 9	< 12	< 6	< 5	< 29	< 6
MCD	10/03/12	< 47	392 ± 89	< 3	< 5	< 11	< 3	< 7	< 5	< 8	< **350**	< 3	< 3	< **198**	< **79**
MCD	10/04/12	< 35	284 ± 53	< 2	< 3	< 8	< 2	< 4	< 3	< 6	< **229**	< 2	< 2	< **136**	< **37**

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MCD	10/05/12	< 34	293 ± 80	< 2	< 4	< 9	< 2	< 5	< 4	< 6	**< 195**	< 2	< 2	**< 130**	**< 42**
MCD	10/06/12	< 45	360 ± 81	< 3	< 4	< 12	< 2	< 6	< 4	< 8	**< 266**	< 3	< 3	**< 167**	**< 46**
MCD	10/07/12	< 39	384 ± 65	< 3	< 4	< 10	< 3	< 5	< 4	< 7	**< 206**	< 2	< 3	**< 134**	**< 40**
MCD	10/08/12	< 29	271 ± 50	< 2	< 3	< 8	< 2	< 4	< 3	< 5	**< 158**	< 2	< 2	**< 116**	**< 35**
MCD	10/09/12	< 34	294 ± 62	< 2	< 3	< 10	< 2	< 5	< 3	< 7	**< 156**	< 2	< 3	**< 121**	**< 36**
MCD	10/10/12	< 44	354 ± 78	< 3	< 4	< 11	< 3	< 5	< 5	< 8	**< 200**	< 3	< 3	**< 160**	**< 37**
MCD	10/11/12	< 38	234 ± 74	< 3	< 3	< 9	< 3	< 6	< 4	< 7	**< 185**	< 2	< 3	**< 124**	**< 39**
MCD	10/12/12	< 35	318 ± 63	< 3	< 4	< 10	< 3	< 5	< 3	< 6	**< 135**	< 2	< 2	**< 102**	**< 31**
MCD	10/13/12	< 36	227 ± 67	< 3	< 3	< 10	< 3	< 5	< 4	< 7	**< 142**	< 2	< 3	**< 106**	**< 32**
MCD	10/14/12	< 47	316 ± 76	< 3	< 4	< 12	< 3	< 7	< 5	< 8	**< 166**	< 3	< 3	**< 130**	**< 33**
MCD	10/15/12	< 35	203 ± 60	< 2	< 3	< 8	< 2	< 5	< 4	< 7	**< 114**	< 2	< 3	**< 93**	**< 26**
MCD	10/16/12	< 39	245 ± 59	< 2	< 3	< 9	< 3	< 6	< 4	< 7	**< 119**	< 3	< 3	**< 90**	**< 27**
MCD	10/17/12	< 32	275 ± 65	< 2	< 3	< 8	< 2	< 5	< 3	< 6	**< 88**	< 2	< 2	**< 76**	**< 25**
MCD	10/18/12	< 22	262 ± 47	< 2	< 2	< 5	< 2	< 4	< 3	< 4	**< 48**	< 2	< 2	< 50	< 14
MCD	10/19/12	< 30	313 ± 64	< 2	< 3	< 7	< 3	< 5	< 3	< 5	**< 59**	< 2	< 2	**< 67**	**< 19**
MCD	10/20/12	< 31	274 ± 67	< 3	< 3	< 8	< 3	< 5	< 3	< 6	**< 59**	< 2	< 3	**< 66**	**< 19**
MCD	10/21/12	< 27	326 ± 65	< 2	< 3	< 6	< 3	< 4	< 3	< 5	**< 47**	< 2	< 2	< 53	< 15
MCD	10/22/12	< 33	335 ± 73	< 3	< 3	< 9	< 3	< 6	< 4	< 6	**< 56**	< 2	< 3	**< 65**	**< 21**
MCD	10/23/12	< 26	278 ± 53	< 2	< 3	< 6	< 2	< 4	< 3	< 4	**< 41**	< 2	< 2	< 45	< 13
MCD	10/24/12	< 25	198 ± 89	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 36**	< 2	< 2	< 47	< 15
MCD	10/25/12	< 33	332 ± 70	< 3	< 3	< 7	< 3	< 6	< 3	< 6	**< 46**	< 2	< 2	< 48	< 15
MCD	10/26/12	< 28	313 ± 66	< 2	< 3	< 6	< 2	< 5	< 3	< 5	**< 35**	< 2	< 3	< 43	< 13
MCD	10/27/12	< 34	228 ± 70	< 3	< 3	< 8	< 2	< 6	< 3	< 6	**< 34**	< 2	< 3	< 47	< 13
MCD	10/28/12	< 25	226 ± 56	< 2	< 3	< 6	< 2	< 4	< 3	< 5	**< 25**	< 2	< 2	< 34	< 12
MCD	12/20/12	< 31	245 ± 77	< 3	< 3	< 8	< 3	< 6	< 3	< 6	**< 46**	< 3	< 3	< 49	< 14
MCD	12/21/12	< 25	293 ± 62	< 2	< 3	< 6	< 3	< 5	< 3	< 4	**< 33**	< 2	< 2	< 41	< 13
MCD	12/22/12	< 28	352 ± 84	< 3	< 2	< 6	< 2	< 5	< 3	< 5	**< 32**	< 2	< 3	< 40	< 13
MCD	12/23/12	< 31	323 ± 71	< 2	< 3	< 7	< 3	< 5	< 3	< 6	**< 34**	< 3	< 3	< 49	< 13
MCD	12/24/12	< 30	292 ± 64	< 3	< 3	< 7	< 2	< 5	< 3	< 6	**< 32**	< 2	< 3	< 39	< 13
MCD	12/25/12	< 24	202 ± 55	< 2	< 3	< 6	< 2	< 4	< 3	< 4	**< 23**	< 2	< 2	< 35	< 9
MCD	12/26/12	< 32	280 ± 46	< 3	< 3	< 8	< 3	< 6	< 4	< 6	**< 30**	< 3	< 3	< 43	< 14
MCD	12/27/12	< 29	290 ± 64	< 3	< 3	< 8	< 3	< 6	< 3	< 6	**< 27**	< 2	< 3	< 39	< 11
MCD	12/28/12	< 30	292 ± 76	< 2	< 3	< 6	< 3	< 6	< 3	< 5	**< 24**	< 3	< 3	< 35	< 9
MCD	12/29/12	< 41	319 ± 62	< 4	< 4	< 11	< 4	< 8	< 5	< 8	**< 32**	< 4	< 4	< 50	< 15
MCD	12/30/12	< 29	350 ± 83	< 3	< 3	< 8	< 3	< 6	< 3	< 6	**< 23**	< 3	< 3	< 38	< 12
MCD	12/31/12	< 40	213 ± 62	< 4	< 4	< 9	< 4	< 8	< 5	< 8	**< 26**	< 3	< 4	< 42	< 13
SW-1	01/04/12	< 25	387 ± 87	< 2	< 2	< 5	< 2	< 5	< 3	< 5	< 15	< 2	< 2	< 27	< 5
SW-1	01/11/12	< 16	210 ± 71	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 6	< 1	< 2	< 13	< 5

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	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-1	01/18/12	< 16	264 ± 57	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 4	< 2	< 2	< 10	< 3
SW-1	01/25/12	< 23	251 ± 51	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< **25**	< 2	< 2	< 33	< 10
SW-1	02/01/12	< 20	235 ± 79	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 24	< 6
SW-1	02/08/12	< 19	268 ± 61	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 19	< 4
SW-1	02/15/12	< 32	282 ± 69	< 3	< 3	< 8	< 3	< 5	< 3	< 6	< **47**	< 2	< 3	< 55	< 15
SW-1	02/22/12	< 34	298 ± 79	< 3	< 3	< 8	< 2	< 6	< 3	< 6	< **29**	< 3	< 3	< 40	< 10
SW-1	02/29/12	< 25	264 ± 71	< 2	< 2	< 6	< 3	< 5	< 3	< 4	< 12	< 2	< 3	< 21	< 7
SW-1	03/07/12	< 36	295 ± 57	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 12	< 4	< 4	< 27	< 9
SW-1	03/14/12	< 30	334 ± 86	< 4	< 3	< 8	< 4	< 8	< 4	< 7	< 6	< 3	< 4	< 18	< 6
SW-1	03/21/12	< 17	310 ± 53	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< **25**	< 1	< 2	< 28	< 9
SW-1	03/28/12	< 34	388 ± 79	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< **29**	< 3	< 3	< 42	< 14
SW-1	04/04/12	< 27	276 ± 67	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 25	< 7
SW-1	04/11/12	< 29	328 ± 81	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 9	< 3	< 3	< 21	< 6
SW-1	04/18/12	< 20	282 ± 81	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 3	< 2	< 2	< 10	< 4
SW-1	04/25/12	< 17	278 ± 58	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 15	< 1	< 1	< 23	< 7
SW-1	05/02/12	< 14	262 ± 51	< 1	< 2	< 4	< 1	< 2	< 2	< 3	< 9	< 1	< 1	< 15	< 4
SW-1	05/09/12	< 14	306 ± 79	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 5	< 1	< 2	< 13	< 4
SW-1	06/21/12	< 37	336 ± 74	< 5	< 5	< 10	< 4	< 10	< 5	< 8	< 8	< 4	< 5	< 22	< 7
SW-1	06/27/12	< 36	252 ± 60	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 10	< 4	< 4	< 25	< 8
SW-1	07/04/12	< 60	353 ± 64	< 3	< 5	< 16	< 3	< 6	< 6	< 10	< **3538**	< 3	< 3	< **838**	< **213**
SW-1	07/11/12	< 21	259 ± 56	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< **52**	< 2	< 2	< 53	< 15
SW-1	07/18/12	< 31	221 ± 64	< 3	< 3	< 7	< 2	< 5	< 3	< 6	< **42**	< 2	< 3	< 52	< 14
SW-1	07/25/12	< 27	284 ± 94	< 2	< 3	< 8	< 2	< 5	< 3	< 5	< **22**	< 2	< 2	< 37	< 11
SW-1	08/01/12	< 26	210 ± 67	< 2	< 3	< 5	< 2	< 5	< 3	< 5	< 14	< 2	< 3	< 24	< 7
SW-1	08/16/12	< 37	225 ± 71	< 3	< 3	< 9	< 3	< 6	< 4	< 6	< **94**	< 3	< 3	< **85**	< **24**
SW-1	08/22/12	< 27	247 ± 64	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< **41**	< 2	< 2	< 47	< 13
SW-1	08/29/12	< 23	323 ± 49	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< **22**	< 2	< 2	< 30	< 9
SW-1	09/05/12	< 28	258 ± 75	< 3	< 4	< 7	< 3	< 6	< 3	< 6	< 18	< 3	< 3	< 32	< 8
SW-1	09/12/12	< 26	217 ± 71	< 3	< 3	< 5	< 3	< 6	< 3	< 4	< 9	< 2	< 2	< 18	< 5
SW-1	09/19/12	< 21	356 ± 69	< 2	< 2	< 5	< 3	< 4	< 2	< 4	< 5	< 2	< 3	< 12	< 4
SW-1	09/26/12	< 47	364 ± 78	< 5	< 5	< 11	< 5	< 10	< 6	< 9	< 15	< 5	< 5	< 34	< 10
SW-1	10/03/12	< 33	281 ± 55	< 2	< 3	< 8	< 2	< 4	< 3	< 6	< **221**	< 2	< 2	< **143**	< **43**
SW-1	10/10/12	< 43	372 ± 75	< 3	< 4	< 11	< 2	< 6	< 4	< 7	< **187**	< 3	< 3	< **142**	< **45**
SW-1	10/17/12	< 34	282 ± 69	< 3	< 3	< 7	< 2	< 5	< 3	< 6	< **97**	< 2	< 3	< **81**	< **23**
SW-1	10/24/12	< 28	286 ± 67	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< **42**	< 2	< 2	< 52	< **16**
SW-1	12/21/12	< 23	203 ± 58	< 2	< 3	< 6	< 2	< 4	< 2	< 4	< **36**	< 2	< 2	< 39	< 12
SW-1	12/26/12	< 39	279 ± 54	< 3	< 4	< 8	< 3	< 6	< 4	< 7	< **41**	< 3	< 3	< 54	< 13
SW-2	01/01/12	< 20	202 ± 88	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 14	< 2	< 2	< 25	< 7

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	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-2	01/02/12	< 22	247 ± 59	< 2	< 2	< 5	< 2	< 4	< 2	< 5	< 13	< 2	< 2	< 21	< 6
SW-2	01/03/12	< 18	230 ± 51	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 6
SW-2	01/04/12	< 24	353 ± 68	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 25	< 8
SW-2	01/05/12	< 23	271 ± 63	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 22	< 6
SW-2	01/06/12	202 ± 38	277 ± 74	< 2	< 3	< 6	< 3	< 6	< 3	< 5	< 12	< 3	< 3	< 24	< 7
SW-2	01/07/12	< 22	302 ± 76	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 11	< 2	< 2	< 20	< 7
SW-2	01/08/12	< 32	304 ± 49	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 14	< 3	< 3	< 29	< 10
SW-2	01/09/12	< 22	323 ± 72	< 2	< 2	< 6	< 3	< 4	< 3	< 5	< 10	< 2	< 3	< 19	< 6
SW-2	01/10/12	< 36	288 ± 58	< 3	< 4	< 8	< 4	< 8	< 4	< 7	< 14	< 3	< 4	< 29	< 9
SW-2	01/11/12	< 22	229 ± 94	< 2	< 3	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 17	< 4
SW-2	01/12/12	< 28	329 ± 81	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 9	< 3	< 3	< 21	< 5
SW-2	01/13/12	< 23	328 ± 70	< 2	< 2	< 5	< 3	< 5	< 3	< 4	< 7	< 2	< 3	< 18	< 5
SW-2	01/14/12	< 24	243 ± 72	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 8	< 2	< 3	< 17	< 4
SW-2	01/15/12	< 25	333 ± 76	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 8	< 3	< 3	< 19	< 6
SW-2	01/16/12	< 20	235 ± 58	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 13	< 4
SW-2	01/17/12	< 32	210 ± 61	< 4	< 3	< 8	< 4	< 8	< 4	< 6	< 8	< 4	< 4	< 21	< 7
SW-2	01/18/12	< 25	260 ± 54	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 6	< 3	< 3	< 16	< 6
SW-2	01/19/12	< 24	268 ± 53	< 2	< 3	< 6	< 2	< 4	< 3	< 5	**< 41**	< 2	< 2	< 48	< 14
SW-2	01/20/12	< 28	236 ± 55	< 2	< 3	< 6	< 2	< 4	< 3	< 5	**< 48**	< 2	< 2	< 51	< 13
SW-2	01/21/12	< 23	220 ± 58	< 2	< 2	< 6	< 2	< 4	< 3	< 4	**< 33**	< 2	< 2	< 39	< 11
SW-2	01/22/12	< 36	286 ± 70	< 3	< 4	< 8	< 3	< 6	< 4	< 6	**< 62**	< 3	< 3	**< 66**	< 16
SW-2	01/23/12	< 28	209 ± 66	< 2	< 3	< 6	< 2	< 5	< 3	< 5	**< 43**	< 2	< 3	< 46	< 14
SW-2	01/24/12	< 30	177 ± 77	< 3	< 3	< 7	< 2	< 6	< 4	< 6	**< 30**	< 3	< 3	< 41	< 13
SW-2	01/25/12	< 30	298 ± 84	< 3	< 3	< 7	< 3	< 5	< 3	< 6	**< 28**	< 2	< 3	< 42	< 8
SW-2	01/26/12	< 26	313 ± 62	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 18	< 2	< 3	< 33	< 11
SW-2	01/27/12	< 29	365 ± 82	< 3	< 3	< 7	< 3	< 6	< 3	< 6	**< 22**	< 3	< 3	< 36	< 13
SW-2	01/28/12	< 34	430 ± 75	< 3	< 3	< 7	< 3	< 6	< 4	< 7	**< 24**	< 3	< 3	< 38	< 13
SW-2	01/29/12	< 29	374 ± 70	< 3	< 3	< 7	< 3	< 6	< 3	< 6	**< 21**	< 3	< 3	< 35	< 9
SW-2	01/30/12	< 30	159 ± 78	< 3	< 3	< 7	< 2	< 5	< 3	< 6	**< 19**	< 3	< 3	< 32	< 8
SW-2	01/31/12	< 27	222 ± 67	< 3	< 3	< 6	< 2	< 4	< 3	< 5	< 14	< 2	< 3	< 22	< 8
SW-2	06/19/12	< 40	260 ± 68	< 4	< 5	< 10	< 5	< 9	< 5	< 8	< 10	< 5	< 5	< 24	< 8
SW-3	04/17/12	< 35	< 35	< 3	< 4	< 8	< 4	< 8	< 4	< 6	< 7	< 4	< 4	< 18	< 6

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE

TABLE B-II.3 CONCENTRATIONS OF "HARD-TO-DETECTS" IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Am-241	Cm-242	Cm-243/244	Pu-238	Pu-239/240	U-234	U-235	U-238	Fe-55	Ni-63

NONE FOR 2012

TABLE B-III.1 CONCENTRATIONS OF TRITIUM IN PRECIPITATION WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2012

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
2	03/13/12	< 177
2	05/16/12	< 179
2	09/19/12	< 171
2	10/03/12	< 168
3	03/13/12	< 179
3	05/16/12	< 183
3	09/19/12	< 175
3	10/03/12	< 169
4	03/13/12	< 175
4	05/16/12	< 188
4	09/19/12	< 164
4	10/03/12	< 166
6	03/13/12	< 178
6	05/16/12	< 183
6	09/19/12	< 174
6	10/03/12	< 167