Exelon Generation®

Technical Specification 6.9.1.e

RA-16-038

April 29, 2016

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Oyster Creek Nuclear Generating Station
Renewed Facility Operating License No. DPR-16
NRC Docket No. 50-219

Subject: Annual Radiological Environmental Operating Report – 2015

Enclosed is a copy of the Annual Radiological Environmental Operating Report for calendar year 2015 for Oyster Creek Nuclear Generating Station. This submittal is made in accordance with Oyster Creek Nuclear Generating Station Technical Specification 6.9.1.e, "Annual Radiological Environmental Operating Report."

If any further information or assistance is needed, please contact John Renda at 609-971-2572.

Sincerely,

Garey L. Stathes
Site Vice President
Oyster Creek Nuclear Generating Station

Enclosure: 2015 Annual Radiological Environmental Operating Report

cc: Administrator, USNRC Region I
USNRC Senior Project Manager, Oyster Creek
USNRC Senior Resident Inspector, Oyster Creek
Craig Stewart, American Nuclear Insurers

IE25
NRR

Docket No: 50-219

OYSTER CREEK GENERATING STATION
UNIT 1

Annual Radiological
Environmental Operating Report

1 January Through 31 December 2015

Prepared By
Teledyne Brown Engineering
Environmental Services

ExelonGeneration.

Oyster Creek Generating Station
Forked River, NJ 08731

April 2016

Table of Contents

I. Summary and Conclusions 1

II. Introduction 3
- A. Objectives of the REMP 3
- B. Implementation of the Objectives 4
- C. Discussion 4

III. Program Description 7
- A. Sample Collection 7
- B. Sample Analysis 9
- C. Data Interpretation 10
- D. Program Exceptions 11
- E. Program Changes 13

IV. Results and Discussion 13
- A. Aquatic Environment 14
- B. Atmospheric Environment 18
- C. Ambient Gamma Radiation 22
- D. Land Use Survey 23
- E. Summary of Results – Inter-laboratory Comparison Program 24

V. References 28

VI. Errata 29

Appendices

Appendix A Radiological Environmental Monitoring Report Summary

Tables

Table A-1 Radiological Environmental Monitoring Program Annual Summary for the Oyster Creek Generating Station, 2015

Appendix B Location Designation, Distance & Direction, and Sample Collection & Analytical Methods

Tables

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

Table B-2 Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Oyster Creek Generating Station, 2015

Table B-3 Radiological Environmental Monitoring Program - Summary of Sample Collection and Analytical Methods, Oyster Creek Generating Station, 2015

Figures

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

Tables

Table C-I.1 Concentrations of Tritium in Surface Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-I.2 Concentrations of Gamma Emitters in Surface Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-II.1 Concentrations of Tritium in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-II.2 Concentrations of Gross Beta in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-II.3 Concentrations of I-131 in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-II.4 Concentrations of Gamma Emitters in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-III.1 Concentrations of Tritium in Groundwater Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-III.2 Concentrations of Gamma Emitters in Groundwater Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-IV.1 Concentrations of Gamma Emitters in Predator and Bottom Feeder (Fish) Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-IV.2 Concentrations of Gamma Emitters in Clam and Crab Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-V.1 Concentrations of Gamma Emitters in Sediment Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-VI.1 Concentrations of Gross Beta in Air Particulate Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

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, 2015.

Table C-VI.3 Concentrations of Strontium in Air Particulate Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-VI.4 Concentrations of Gamma Emitters in Air Particulate Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-VII.1 Concentrations of I-131 in Air Iodine Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-VIII.1 Concentrations of Strontium and Gamma Emitters in Vegetation Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table C-IX.1 Quarterly OSLD Results for Oyster Creek Generating Station, 2015.

Table C-IX.2 Mean Quarterly OSLD Results for the Site Boundary, Intermediate, Special Interest, and Control Locations for Oyster Creek Generating Station, 2015.

Table C-IX.3 Summary of the Ambient Dosimetry Program for Oyster Creek Generating Station, 2015.

Figures

Figure C-1 Mean Cobalt-60 Concentration in Clams Oyster Creek Generating Station, 1983 - 2015.

Figure C-2 Mean Cobalt-60 Concentration in Aquatic Sediment Oyster Creek Generating Station, 1984 - 2015.

Figure C-3 Mean Cesium-137 Concentration in Aquatic Sediment Oyster Creek Generating Station, 1984 - 2015.

Figure C-4 Mean Weekly Gross Beta Concentrations in Air Particulates Oyster Creek Generating Station, 2008 - 2015.

Figure C-5 Mean Monthly Gross Beta Concentrations in Air Particulates Oyster Creek Generating Station, 1984 - 2015.

Figure C-6 Mean Quarterly OSLD Gamma Dose Oyster Creek Generating Station, 2015.

Figure C-7 Mean Quarterly TLD/OSLD Gamma Dose Oyster Creek Generating Station, 1990 - 2015.

Appendix D Data Tables - QC Laboratory

Tables

Table D-I.1 Concentrations of Tritium in Surface Water Samples Collected in the Vicinity Of Oyster Creek Generating Station, 2015.

Table D-I.2 Concentrations of Gamma Emitters in Surface Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-II.1 Concentrations of Tritium in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-II.2 Concentrations of I-131 in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-II.3 Concentrations of Gamma Emitters in Drinking Water Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-III.1 Concentrations of Tritium in Groundwater Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-III.2 Concentrations of Gamma Emitters in Groundwater Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-IV.1 Concentrations of Gamma Emitters in Clam Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-V.1 Concentrations of Gamma Emitters in Sediment Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Table D-VI.1 Concentrations of Strontium and Gamma Emitters in Vegetation Samples Collected in the Vicinity of Oyster Creek Generating Station, 2015.

Appendix E Inter-Laboratory Comparison Program

Tables

Table E-1 Analytics Environmental Radioactivity Cross Check Program Teledyne Brown Engineering, 2015

Table E-2 ERA Environmental Radioactivity Cross Check Program Teledyne Brown Engineering, 2015

Table E-3 DOE's Mixed Analyte Performance Evaluation Program (MAPEP) Teledyne Brown Engineering, 2015

Table E-4 ERA (a) Statistical Summary Proficiency Testing Program Environmental, Inc., 2015

Table E-5 DOE's Mixed Analyte Performance Evaluation Program (MAPEP) Environmental, Inc., 2015

Appendix F Errata Data

Appendix G Annual Radiological Groundwater Protection Program Report (ARGPPR)

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 2015 through 31 December 2015. During that time period, 1624 analyses were performed on 1238 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 2015.

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 or 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. No fission or activation products were detected. 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 the 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 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 2015 through 31 December 2015.

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, 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 2015 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 277 days in 2015. The nearly continuous releases occurred from January 1, 2015 through January 30, 2015 and from April 27, 2015 through December 31, 2015 with a total of 2.78E+07 gallons of groundwater pumped resulting in 2.08E-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 9.86E-07 mrem.

Utilizing gaseous effluent data, the maximum hypothetical dose to any individual during 2015 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 calculated organ dose (Bone) from iodines, tritium, carbon-14 (C-14), and particulates to any individual due to gaseous effluents was 5.53E-01 mrem, which was approximately 3.69E+00 percent of the annual limit of 15 mrem. The maximum calculated gamma air dose in the UNRESTRICTED AREA due to noble gas effluents was 4.86E-03 mrad, which was 4.86E-02 percent of the annual 10 CFR 50 Appendix I, As Low As Reasonably Acheivable (ALARA) limit of 10mrad. The majority of organ dose from gaseous effluents was due to C-14. The maximum hypothetical calculated whole body dose to any individual due to noble gas effluents was 1.18E-03 mrem (0.00118 mrem) which was 2.36E-02 percent of the annual limit of 5 mrem.

The total maximum organ dose (Bone) due to all radiological effluents of 5.58E-01 mrem (0.558 mrem) received by any individual from gaseous effluents from the Oyster Creek

Generating Station for the reporting period is more than 538 times lower than the dose the average individual in the Oyster Creek area 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 2015, 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 9.01 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 2015. 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.

<u>Aquatic Environment</u>

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 (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:

An inner 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 outer 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 2015. 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 2015 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 2015 the OCGS REMP had a sample recovery rate in excess of 98%. Exceptions are listed below:

Drinking Water

1. Station 39 - Was offline for 2015. Station 39 was removed as a background drinking water sample with revision 7 of CY-OC-170-301, Offside Dose Calculation Manual for Oyster Creek Generating Station.

2. Station 1S - Was not in service January 2015 through May 2015 and August 2015 through December 2015. Station 1S is a backup to station 1N.

3. Station 114 - Month of January was a composite for 3 of the 4 weeks. Well was out of service for the week of 01/18/15 – 01/24/15.

4. Station 1N - Month of June was a composite for 2 of the 4 weeks. Well was out of service for the weeks of 06/14/15 – 06/20/15 and 06/21/15 – 06/27/15.

5. Station 1S – Month of June was a composite for 3 of the 4 weeks. Well was out of service for the week of 06/07/15 – 06/13/15.

6. Station 1N - Month of July was a composite for 3 of the 5 weeks. Well was out of service for the weeks of 06/28/15 – 07/04/15 and 07/19/15 – 07/25/15.

7. Station 1S - Month of July was a composite for 2 of the 5 weeks. Well was out of service for the weeks of 07/05/15 – 07/11/15 and 07/12/15 – 07/18/15 and 07/26/15 – 08/01/15.

Dosimetry

1. Week 16 (04/19/15 – 04/25/15) – The dosimeters at Station 55 were facing the wrong direction. It appears they may have been repositioned when they were cutting the grass or doing maintenance on the pole.

2. Week 29 (07/19/15 – 07/25/15) - One of the dosimeters from Station 100 was missing.

Air

1. Week 10 (03/04/15 – 03/11/15) - The pump at Station 72 was not running. Changed the vanes inside of the pump and restarted. Since the pump was inoperable but the timer was running normally, the samples were considered invalid and were not sent to the lab for analysis.

2. Week 27 (07/01/15 – 07/08/15) - The vacuum pump at Station 72 was not running. The GFI breaker had tripped. Breaker could not be reset. The pump only ran for about 2 hours. A valid sample for the week was not collected. The GFI breaker and pump were replaced.

3. Week 36 (09/02/15 – 09/10/15) - The pump at Station 73 was not

running. Replaced the pump. Since the pump was inoperable but the timer was running normally, the samples were considered invalid and were not sent to the lab for analysis.

4. Week 50 (12/09/15 – 12/16/15) - The pump at Station 71 was not running. Changed the vanes inside of the pump and restarted. Since the pump was inoperable but the timer was running normally, the samples were considered invalid and were not sent to the lab for analysis.

5. Week 51 (12/16/15 – 12/22/15) - No sample this week from Station 3. Could not access the island due to the bridge being closed due to an accident.

6. Week 52 (12/22/15 – 12/29/15) – Station 3 was collected and analyzed as a 2 week sample due to the island being inaccessible due to bridge closure.

Vegetation

1. Station 66 – The kale crop was not viable in 2015 and no kale samples were collected during the growing season.

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

1. Station 39 - Station 39 was removed as a background drinking water sample with revision 7 of CY-OC-170-301, Offside Dose Calculation Manual for Oyster Creek Generating Station.

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

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 2015 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.

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

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.

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 43 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. 2015 results are all less than the current MDC of 2E+2 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 43 of 50 samples, and is expected due to natural sources and fallout residual from previous bomb testing. The values ranged from 1.5 to 18.7 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 in 2012. 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 (American eel, black drum, summer flounder and tautog) and predator (Sea bass, striped bass, bluefish 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 2,002 to 6,078 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 1,196 to 2,245 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 naturally occurring 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 1,924 to 1,941 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). Naturally occurring Potassium-40 was found at all stations and ranged from 2,087 to 17,860 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 2015 and figure C–2, Appendix C graphs Co-60 concentrations in sediment from 1984 through 2015.

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 2015 aquatic monitoring results for surface water, drinking water, groundwater, fish, clams, crabs, and sediment 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 2015 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 5 to 31 E–3 pCi/m^3 with a mean of 13 E–3 pCi/m^3. The results from the Intermediate Distance locations (Group II) ranged from 6 to 33 E–3 pCi/m^3 with a mean of 14 E–3 pCi/m^3. The results from the Distant locations (Group III) ranged from 5 to 33 E–3 pCi/m^3 with a mean of 14 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 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. 2014 gross beta activity values ranged from <6E-3 to 39E-3 pCi/m3. The 2015 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 30 of 32 samples. The values ranged from 35 to 95 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 50 samples. The values ranged from 2.8 to 9.7 pCi/kg wet, which is consistent with historical data.

The following information on Strontium 90 is available on the NRC web page under "Backgrounder Radiation Protection and the "Tooth Fairy" Issue" published in December of 2004.

The largest source of Sr-90 in the environment (~99%) is from weapons testing fallout. Approximately 16.8 million curies of strontium-90 were produced and globally dispersed in atmospheric nuclear weapons testing until 1980. As a result of the Chernobyl accident, approximately 216,000 curies of Sr-90 were released into the atmosphere. With a 28 year half-life, Sr-90 still remains in the environment at nominal levels.

The total annual release of strontium-90 into the atmosphere from all 103 commercial nuclear power plants operating in the United States is typically 1/1000th of a curie. (NUREG/CR-2907 Vol.12). At an individual nuclear power plant, the amount of Sr-90 is so low that it is usually at or below the minimum detectable activity of sensitive detection equipment.

Oyster Creek did not report any Sr-90 released in the Annual Radioactive Effluent Release Report as all analyses for Sr-90 performed were less than the minimum detectable activity.

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 2,159 to 5,505 pCi/kg wet. Naturally occurring Be-7 was detected in 11 of 50 samples and ranged from 123 to 559 pCi/kg wet. 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 were non-detectable. Vegetation samples exhibited Cs-137 concentrations from non-detectable to 0.130 pCi/g, with a mean concentration of 0.078 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."

There was no Cs-137 identified in REMP soil and vegetation samples in 2015, but it is not unusual for Cs-137 to be identified 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 2015 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 5.1 to 19.9 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 37.0 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.

The preoperational environmental monitoring program utilized film badges, the results of which are not comparable with the doses measured using thermoluminescent dosimeters or optically stimulated dosimeters during the operational REMP. In conclusion, the 2015 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 2015 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	6,434
2	NNE	3,240	3,541
3	NE	3,245	5,115

4	ENE	5,704	6,615
5	E	6,549	1,758
6	ESE	3,189	2,081
7	SE	3,073	2,321
8	SSE	4,666	5,248
9	S	7,971	8,328
10	SSW	8,344	8,690
11	SW	9,285	9,776
12	WSW	10,713	14,802
13	W	22,191	None
14	WNW	None	None
15	NW	27,985	None
16	NNW	7,506	12,159

*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, 129 out of 139 analyses performed met the specified acceptance criteria. Ten analyses (AP - Cr-51, U-234/233, Gr A, Sr-90; Soil Sr-90; Water - Ni-3, Sr-89/90, and U natural; Vegetation Sr-90 samples) did not meet the specified acceptance criteria for the following reasons:

Note: The Department of Energy (DOE) Mixed Analyte Performance Evaluation Program (MAPEP) samples are created to mimic conditions found at DOE sites which do not resemble typical environmental samples obtained at commercial nuclear power facilities.

1. Teledyne Brown Engineering's Analytics' June 2015 air particulate Cr-51 result of 323 ± 45.5 pCi was higher than the known value of 233 pCi with a ratio of 1.39. The upper ratio of 1.30 (acceptable with warning) was exceeded. The air particulate sample is counted at a distance above the surface of the detector to avoid detector summing which could alter the results. Chromium-51 has the shortest half-life (27.7 days) and the lowest gamma energy (320.08 keV) of this mixed nuclide sample. Additionally, Cr-51 has only one gamma energy and also has a low intensity (9.38 gamma photons produced per 100 disintegrations). This geometry produces a larger error for the Cr-51 and other gamma emitters as any distance from the detector decreases the counting rate and the probability of accurately detecting the nuclide energy. Taking into consideration the uncertainty, the activity of Cr-51 overlaps with the known value at a ratio of 1.19, which would statistically be considered acceptable. NCR 15-18

2. Teledyne Brown Engineering's MAPEP March 2015 soil Sr-90 result of 286 Total Bq/kg was lower than the known value of 653 Bq/kg, exceeding the lower acceptance range of 487 Bq/kg. The failure was due to incomplete digestion of the sample. Incomplete

digestion of samples causes some of the sample to be left behind and is not present in the digested sample utilized for analysis. The procedure has been updated to include a more robust digestion using stirring during the heating phase. The MAPEP September 2014 soil Sr-90 series prior to this study was evaluated as acceptable with a result of 694 and an acceptance range of 601 – 1115 Bq/kg. The MAPEP September 2015 series soil Sr-90 after this study was evaluated as acceptable with a result of 429 and an acceptance range of 298 – 553 Bq/kg. We feel the issue is specific to the March 2015 MAPEP sample. NCR 15-13

3. Teledyne Brown Engineering's MAPEP March 2015 air particulate U-234/233 result of 0.0211 ± 0.0120 Bq/sample was higher than the known value of 0.0155 Bq/sample, exceeding the upper acceptance range of 0.0202 Bq/sample. Although evaluated as a failure, taking into consideration the uncertainty, TBE's result would overlap with the known value, which is statistically considered acceptable. MAPEP spiked the sample with significantly more U-238 activity (a found to known ratio of 0.96) than the normal U-234/233. Due to the extremely low activity, it was difficult to quantify the U-234/233. NCR 15-13

4. Teledyne Brown Engineering's MAPEP March 2015 air particulate gross alpha result of 0.448 Bq/sample was lower than the known value of 1.77 Bq/sample, exceeding the lower acceptance range of 0.53 Bq/sample. The instrument efficiency used for gross alpha is determined using a non-attenuated alpha standard. The MAPEP filter has the alphas embedded in the filter, requiring an attenuated efficiency. When samples contain alpha particles that are embedded in the sample media, due to the size of the alpha particle, some of the alpha particles are absorbed by the media and cannot escape to be counted. When the sample media absorbs the alpha particles this is known as self-absorption or attenuation. The calibration must include a similar configuration/media to correct for the attenuation. In order to correct the low bias, TBE will create an attenuated efficiency for MAPEP air particulate filters. The MAPEP September series air particulate gross alpha result of 0.47 Bq/sample was evaluated as acceptable with a range of 0.24 – 1.53 Bq/sample. Unlike the MAPEP samples, air particulate Gross alpha analyses for power plants are not evaluated as a direct count sample. Power plant air particulate filters for gross alpha go through an acid digestion process prior to counting and the digested material is analyzed. NCR 15-13

5. Teledyne Brown Engineering's MAPEP September water Ni-63 result of 11.8 ± 10.8 Bq/L was higher than the known value of 8.55 Bq/L, exceeding the upper acceptance range of 11.12 Bq/L. The Ni-63 half-life is approximately 100 years. Nickel-63 is considered to be a "soft" or low energy beta emitter, which means that the beta energy is very low. The maximum beta energy for Ni-63 is approximately 65 keV, much lower than other more common nuclides such as Co-60 (maximum beta energy of 1549 keV). The original sample was run with a 10 mL aliquot which was not sufficient for the low level of Ni-63 in the sample. The rerun aliquot of 30 mL produced an acceptable result of 8.81 Bq/L. NCR 15-21

6. Teledyne Brown Engineering's MAPEP September air particulate Sr-90 result of 1.48 Bq/sample was lower than the known value of 2.18 Bq/sample, exceeding the lower acceptance range of 1.53 Bq/sample. In the past, MAPEP has added substances (unusual compounds found in DOE complexes) to various matrices that have resulted in incomplete removal of the isotope of interest for the laboratories analyzing the cross checks. TBE suspects that this may be the cause of this error. Many compounds, if not properly accounted for or removed in the sample matrix, can cause interferences to either indicate lower activity or higher activity. TBE will no longer analyze the air particulate Sr-90 through MAPEP but will participate in the Analytics cross check program to perform both Sr-89 and Sr-90 in the air particulate matrix. NCR 15-21

7. Teledyne Brown Engineering's MAPEP September vegetation Sr-90 result of 0.386 Bq/sample was lower than the known value of 1.30 Bq/sample, exceeding the lower acceptance range of 0.91 Bq/sample. In the past, MAPEP has added substances (unusual compounds found in DOE complexes) to various matrices that have resulted in incomplete removal of the isotope of interest for the laboratories analyzing the cross checks. TBE suspects that this maybe the cause of this error. Many compounds, if not properly accounted for or removed in the sample matrix, can cause interferences to either indicate lower activity or higher activity. Results from previous performance evaluations were reviewed and shown to be acceptable. NCR 15-21

8. & 9. Teledyne Brown Engineering's ERA May water Sr-89/90 results of 45.2 and 28.0 pCi/L, respectively were lower than the known values of 63.2 and 41.9 pCi/L, respectively, exceeding the lower acceptance limits of 51.1 and 30.8 pCi/L, respectively. The yields were on the high side of the TBE acceptance range, which

indicates the present of excess calcium contributed to the yield, resulting in low results. NCR 15-09

10. Teledyne Brown Engineering's ERA November water Uranium natural result of 146.9 pCi/L was higher than the known value of 56.2 pCi/L, exceeding the upper acceptance limit of 62.4 pCi/L. The technician failed to dilute the original sample, but used the entire 12 mL sample. When the results were recalculated without the dilution and using the 12 mL aliquot, the result of 57.16 agreed with the assigned value of 56.2. NCR 15-19

For the EIML laboratory, 90 of 94 analyses met the specified acceptance criteria. Four analyses (Water – Co-57, Fe-55; AP – Co-57; Soil – Sr-90) did not meet the specified acceptance criteria for the following reasons:

1. Environmental Inc., Midwest Laboratory's MAPEP February 2015 water Co-57 result of 10.2 Bq/L was lower than the known value of 29.9 Bq/L, exceeding the lower control limit of 20.9 Bq/L. The reported value should have been 27.84, which would have been evaluated as acceptable. A data entry error resulted in a non-acceptable result..
2. Environmental Inc., Midwest Laboratory's MAPEP February 2015 AP Co-57 result of 0.04 Bq/sample was lower than the known value of 1.51 Bq/ sample, exceeding the lower control limit of 1.06 Bq/sample. The reported value should have been 1.58 Bq/sample, which would have been evaluated as acceptable. A data entry error resulted in a non-acceptable result.
3. Environmental Inc., Midwest Laboratory's MAPEP August 2015 soil Sr-90 result of 231 Bq/kg was lower than the known value of 425 Bq/kg, exceeding the lower control limit of 298 Bq/kg. The incomplete separation of calcium from strontium caused a failed low result. The reanalysis result of 352 Bq/kg fell within acceptance criteria.
4. Environmental Inc., Midwest Laboratory's MAPEP August 2015 water Fe-55 result of 4.2 Bq/L was lower than the known value of 13.1 Bq/L, exceeding the lower control limit of 9.2 Bq/L. The known activity was below the routine laboratory detection limits for the available aliquot fraction.

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

There was no errata data for 2015.

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: 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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	ZR-95		30	<LLD	<LLD	-		0
	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	50	NA	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	GR-B	50	4	7 (34/38) (2/19)	2 (9/12) (1/4)	13 (12/12) (9/19)	1N INDICATOR ON-SITE DOMESTIC WELL AT OCGS 0.2 MILES N OF SITE	0
	I-131	50	1	<LLD	<LLD	-		0
	GAMMA	50						
	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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DRINKING WATER (PCI/LITER)	NB-95		15	<LLD	<LLD	-		0
	ZR-95		30	<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
GROUNDWATER (PCI/LITER)	H-3	8	200	<LLD	NA	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUNDWATER (PCI/LITER)	GAMMA	8						
	MN-54		15	<LLD	NA	-		0
	FE-59		30	<LLD	NA	-		0
	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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
GROUNDWATER (PCI/LITER)	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0
	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
BOTTOM FEEDER (PCI/KG WET)	GAMMA	6						
	K-40		NA	3449 (3/3) (2263/4452)	46893 (3/3) (4100/5324)	4689 (3/3) (4100/5324)	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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
BOTTOM FEEDER (PCI/KG WET)	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
PREDATOR (PCI/KG WET)	GAMMA K-40	14	NA	4151 (9/9) (2002/6078)	3968 (5/5) (2937/5151)	5088 (3/3) (4068/6078)	33 INDICATOR EAST OF RT 9 BRIDGE IN OCGS DISCHARGE 0.4 MILES ESE OF SITE	0
	MN-54		130	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
PREDATOR (PCI/KG WET)	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
	CS-137		150	<LLD	<LLD	-		0
CLAMS (PCI/KG WET)	GAMMA K-40	6	NA	1599 (3/4) (1196/2089)	1909 (2/2) (1572/2245)	2089 (1/2)	24 INDICATOR BARNEGAT BAY 2.1 MILES E OF SITE	0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
CLAMS (PCI/KG WET)	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
	CS-137		100	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
CRABS (PCI/KG WET)	GAMMA	2						
	K-40		NA	1933 (2/2) (1924/1941)	NA	1941 (1/1)	93 INDICATOR OCGS DISCHARGE CANAL 0.1 MILES WSW 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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: 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	<LLD	<LLD	-		0
	K-40		NA	5350 (6/6) (2087/9615)	17440 (2/2) (17020/17860)	17440 (2/2) (17020/17860)	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

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: 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	411	10	14 (292/308) (5/33)	14 (94/103) (5/33)	15 (51/52) (6/33)	C CONTROL JCP&L OFFICE - COOKSTOWN NJ 24.7 MILES NW OF SITE	0
	SR-89	32	10	<LLD	<LLD	-		0
	SR-90	32	10	<LLD	<LLD	-		0
	GAMMA	32						
	BE-7		NA	61 (23/24) (35/80)	62 (7/8) (35/95)	71 (3/4) (57/95)	C CONTROL JCP&L OFFICE - COOKSTOWN NJ 24.7 MILES NW OF SITE	0
	MN-54		NA	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIR PARTICULATE (E-3 PCI/CU.METER)	CO-58		NA	<LLD	<LLD	-		0
	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	411	70	<LLD	<LLD	-		0
VEGETATION (PCI/KG WET)	SR-89	50	25	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: OYSTER CREEK GENERATING STATION **DOCKET NUMBER:** 50-219 2015
LOCATION OF FACILITY: OCEAN COUNTY, NJ

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION (PCI/KG WET)	SR-90	50	5	5.3 (11/35) (2.8/9.4)	6.4 (6/15) (4/9.7)	6.8 (3/7) (6/7.7)	66 INDICATOR EAST OF RT 9 AND SOUTH OF OCGS DISCHG 0.4 MILES SE OF SITE	0
	GAMMA	50						
	BE-7		NA	294 (9/35) (123/559)	318 (2/15) (171/465)	330 (4/14) (168/559)	115 INDICATOR EAST OF SITE 0.3 MILES E OF SITE	0
	K-40		NA	3735 (35/35) (2234/5430)	4111 (15/15) (2159/5505)	4111 (15/15) (2159/5505)	36 CONTROL U-PICK FARM - NEW EGYPT NJ 23.1 MILES NW OF SITE	0
	I-131		60	<LLD	<LLD	-		0
	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE OYSTER CREEK GENERATING STATION, 2015

NAME OF FACILITY: **OYSTER CREEK GENERATING STATION** **DOCKET NUMBER:** **50-219 2015**
LOCATION OF FACILITY: **OCEAN COUNTY, NJ**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS, MEAN (M) (F) RANGE	CONTROL LOCATION, MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN: STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
VEGETATION (PCI/KG WET)	LA-140		NA	<LLD	<LLD	-		0
DIRECT RADIATION (MILLIREM/STD.MO.)	OSLD-QUARTERLY	244	NA	9.3 (236/236) (5.1/19.9)	9.8 (8/8) (8.3/11.8)	19.1 (4/4) (17.3/19.9)	55 INDICATOR SOUTHERN AREA STORES SECURITY FENCE 0.3 MILES W	0

(M) THE MEAN VALUES ARE CALCULATED USING THE POSITIVE VALUES
(F) FRACTION OF DETECTABLE MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES

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 GW = Ground Water
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, 2015

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	WSW of site, west of 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, 2015

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, 2015

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, 2015

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	WNW of site, Garden State Parkway North beside mile marker 72.2, Lacey Township, NJ
OSLD	107	1.3	301	WNW 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, 2015

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, 2015

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
Drinking Water	Gross Beta	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-2008 Gross Alpha and/or gross beta activity in various matrices Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue) Env. Inc., W(SS)-02 Determination of gross alpha and/or gross beta in water (suspended solids)
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)
Groundwater	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
Groundwater	Tritium	Grab Sample	ER-OCGS-06, Collection of water samples for radiological analysis	1 gallon	TBE, TBE-2007 Gamma emitting radioisotopes analysis
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

TABLE B-3: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Oyster Creek Generating Station, 2015

Sample Medium	Analysis	Sampling Method	Collection Procedure Number	Sample Size	Analytical Procedure Number
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
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/Exchange of Field Dosimeters for Radiological Analysis	2 dosimeters	Landauer Incorporated

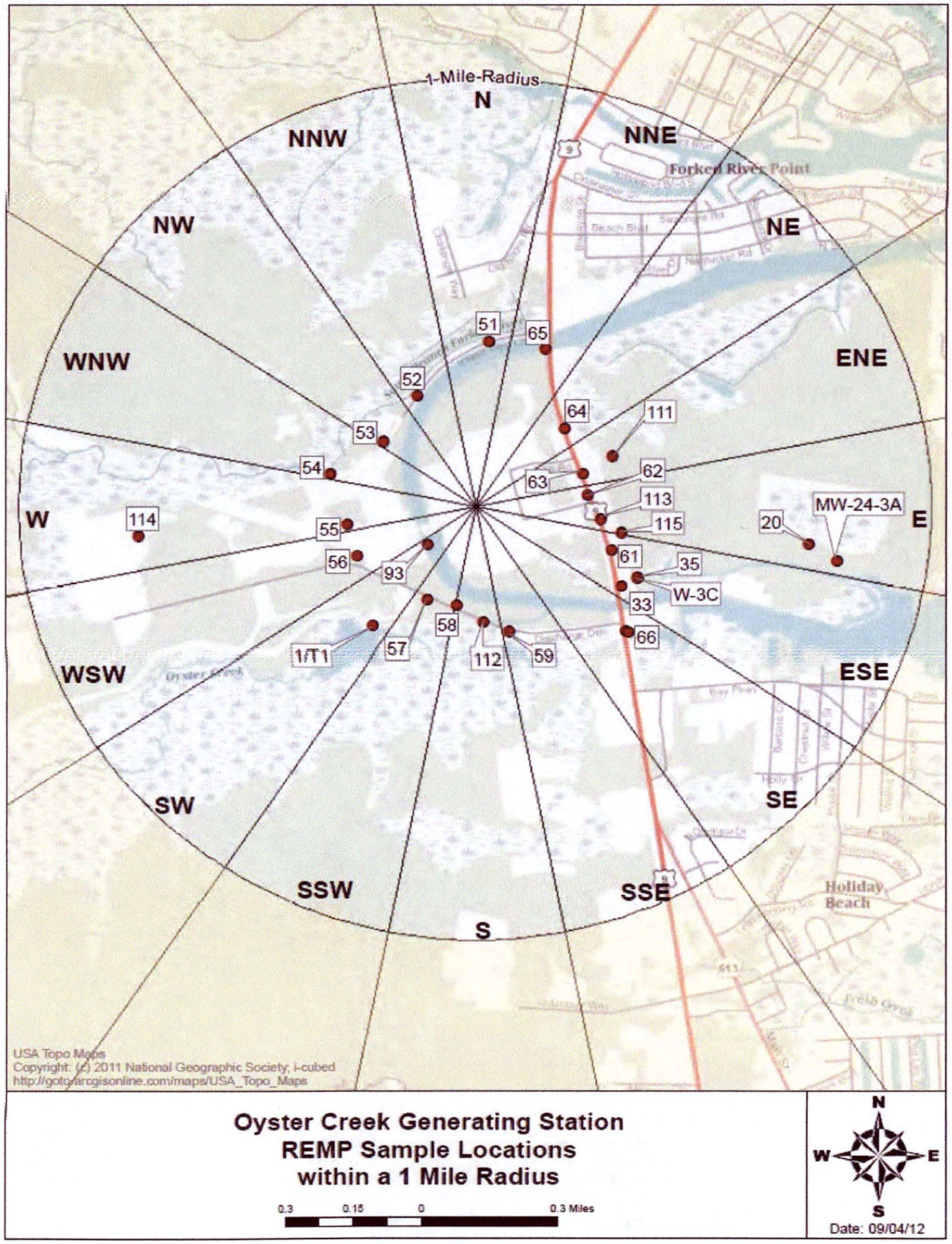


Figure B-1
Locations of REMP Stations within a 1-mile radius
of the Oyster Creek Generating Station

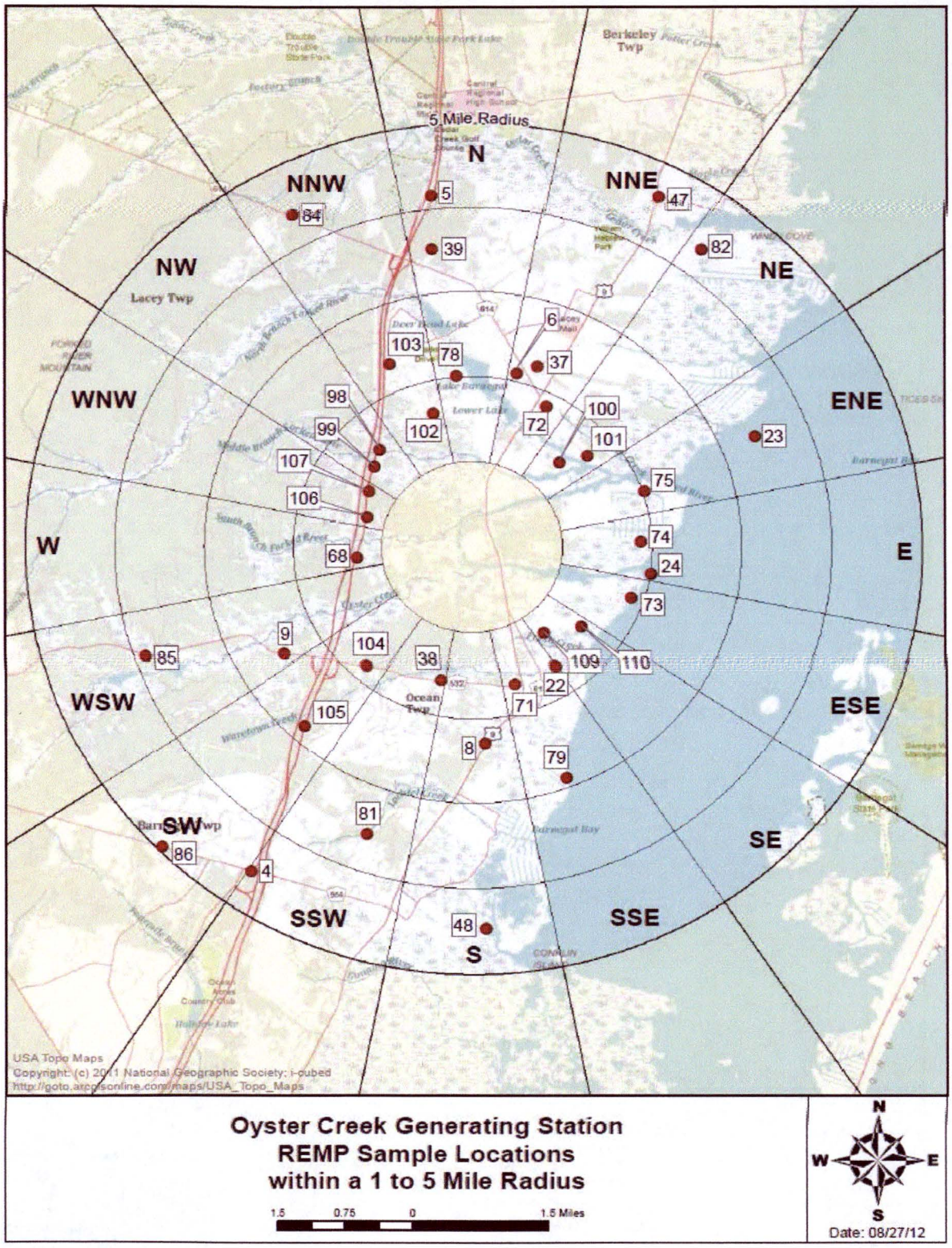


Figure B-2
Locations of REMP Stations within a 1 to 5-mile radius
of the Oyster Creek Generating Station

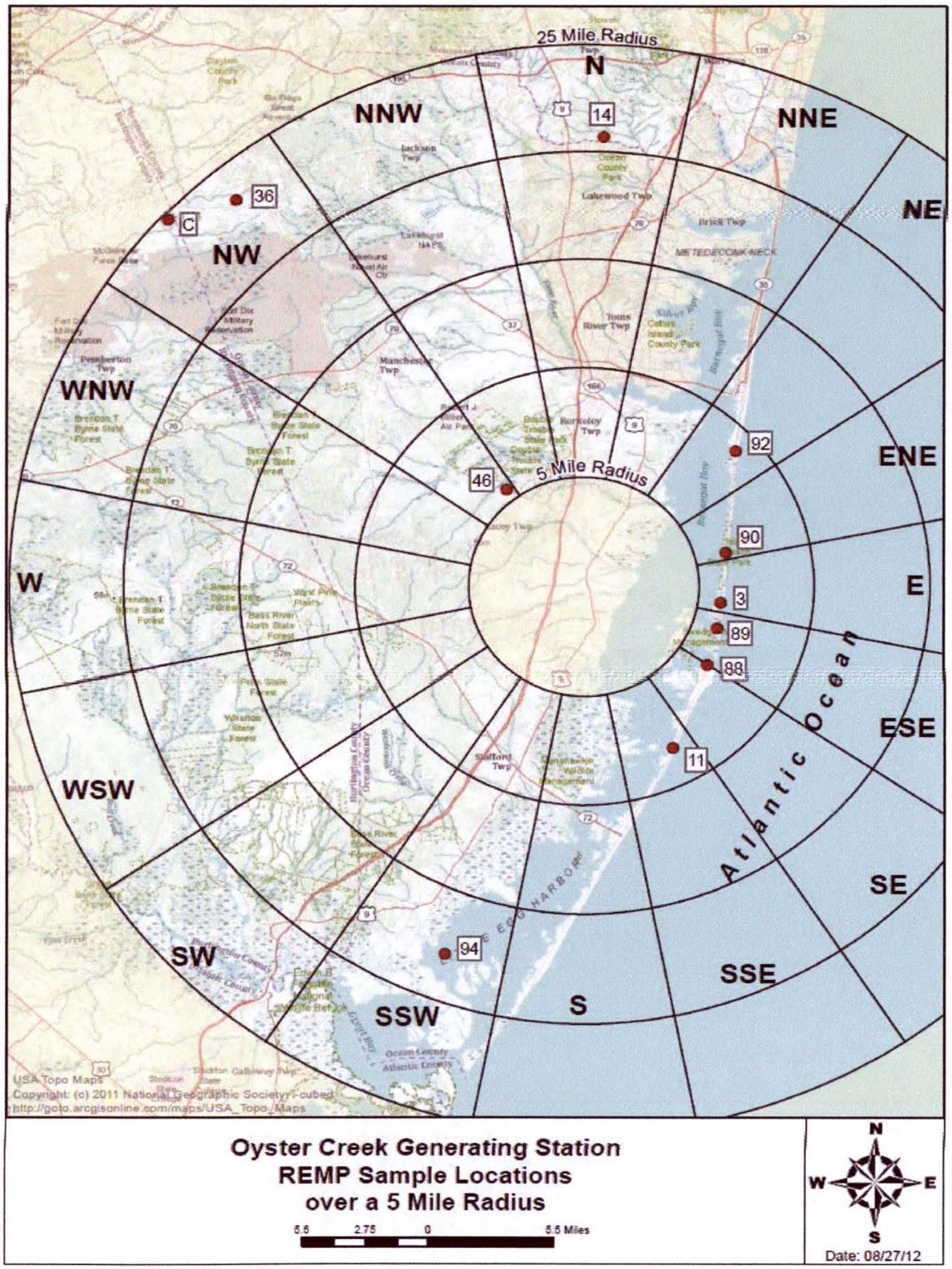


Figure B-3
Locations of REMP Stations greater than 5 miles
from the Oyster Creek Generating Station

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, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	23	24	33	94
01/09/15 - 01/29/15			< 162	< 171
02/04/15 - 02/25/15			< 162	< 161
03/04/15 - 03/25/15			< 176	< 177
04/01/15 - 04/30/15			< 184	< 188
05/05/15 - 05/27/15	< 191	< 194	< 184	< 185
06/05/15 - 06/24/15			< 170	< 170
07/01/15 - 07/29/15			< 186	< 188
08/05/15 - 08/25/15			< 191	< 189
09/02/15 - 09/30/15			< 183	< 181
10/09/15 - 10/28/15	< 188	< 189	< 192	< 191
11/04/15 - 12/02/15			< 198	< 183
12/09/15 - 12/29/15			< 193	< 193
MEAN	-	-	-	-

Table C-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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	05/05/15 - 05/05/15	< 3	< 3	< 6	< 3	< 7	< 4	< 5	< 8	< 3	< 4	< 18	< 6
	10/19/15 - 10/19/15	< 7	< 6	< 18	< 9	< 12	< 7	< 11	< 12	< 7	< 8	< 32	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
24	05/07/15 - 05/07/15	< 8	< 7	< 13	< 8	< 18	< 8	< 14	< 15	< 9	< 8	< 35	< 12
	10/19/15 - 10/19/15	< 5	< 5	< 11	< 6	< 13	< 6	< 11	< 9	< 6	< 5	< 28	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
33	01/09/15 - 01/29/15	< 5	< 6	< 11	< 5	< 12	< 5	< 9	< 13	< 5	< 6	< 33	< 11
	02/04/15 - 02/25/15	< 7	< 8	< 12	< 6	< 13	< 7	< 11	< 15	< 5	< 6	< 34	< 8
	03/04/15 - 03/25/15	< 2	< 2	< 5	< 1	< 3	< 2	< 3	< 13	< 1	< 2	< 20	< 7
	04/01/15 - 04/30/15	< 4	< 4	< 9	< 5	< 9	< 5	< 8	< 13	< 4	< 4	< 31	< 10
	05/05/15 - 05/27/15	< 5	< 6	< 17	< 6	< 13	< 6	< 10	< 14	< 5	< 6	< 32	< 12
	06/05/15 - 06/24/15	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 13	< 2	< 3	< 23	< 7
	07/01/15 - 07/29/15	< 6	< 6	< 12	< 5	< 13	< 5	< 12	< 13	< 6	< 7	< 32	< 12
	08/05/15 - 08/25/15	< 4	< 4	< 11	< 5	< 7	< 5	< 7	< 8	< 4	< 5	< 19	< 5
	09/02/15 - 09/30/15	< 5	< 5	< 11	< 5	< 10	< 6	< 10	< 11	< 5	< 6	< 30	< 9
	10/09/15 - 10/28/15	< 8	< 7	< 17	< 6	< 17	< 7	< 12	< 13	< 9	< 10	< 39	< 9
	11/04/15 - 12/02/15	< 6	< 5	< 10	< 6	< 12	< 5	< 9	< 10	< 5	< 5	< 22	< 7
	12/09/15 - 12/29/15	< 5	< 6	< 11	< 5	< 11	< 6	< 10	< 14	< 5	< 7	< 33	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
94	01/09/15 - 01/29/15	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 11	< 4	< 4	< 26	< 7
	02/06/15 - 02/25/15	< 7	< 8	< 16	< 8	< 15	< 9	< 14	< 12	< 8	< 8	< 27	< 12
	03/04/15 - 03/25/15	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 15	< 2	< 2	< 22	< 7
	04/01/15 - 04/30/15	< 4	< 3	< 8	< 3	< 6	< 4	< 7	< 12	< 3	< 4	< 26	< 8
	05/06/15 - 05/27/15	< 4	< 4	< 8	< 5	< 7	< 5	< 8	< 10	< 4	< 4	< 29	< 9
	06/05/15 - 06/24/15	< 3	< 3	< 8	< 3	< 6	< 4	< 6	< 14	< 3	< 3	< 27	< 9
	07/01/15 - 07/29/15	< 6	< 6	< 12	< 6	< 13	< 7	< 12	< 13	< 6	< 7	< 33	< 15
	08/07/15 - 08/25/15	< 9	< 9	< 14	< 9	< 18	< 9	< 15	< 15	< 8	< 10	< 38	< 12
	09/02/15 - 09/30/15	< 7	< 9	< 15	< 8	< 19	< 8	< 15	< 15	< 7	< 9	< 49	< 14
	10/09/15 - 10/28/15	< 8	< 8	< 13	< 8	< 13	< 7	< 16	< 13	< 7	< 8	< 42	< 6
	11/06/15 - 12/02/15	< 6	< 5	< 13	< 9	< 8	< 6	< 8	< 13	< 7	< 7	< 25	< 9
	12/11/15 - 12/29/15	< 7	< 9	< 16	< 7	< 22	< 10	< 15	< 14	< 9	< 9	< 43	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-II.1 **CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	1N	1S	37	38	39
01/07/15 - 01/29/15	< 171 (1)	< 163	(1)	< 166	< 172	(1)
02/03/15 - 02/26/15	< 164	< 164	(1)	< 162	< 163	(1)
03/03/15 - 03/26/15	< 177	< 177	(1)	< 176	< 173	(1)
03/31/15 - 05/01/15	< 188	< 186	(1)	< 187	< 188	(1)
05/05/15 - 05/28/15	< 181	< 187	(1)	< 185	< 187	(1)
06/02/15 - 06/25/15	< 163	< 163	(1) < 162 (1)	< 162	< 161	(1)
06/30/15 - 07/30/15	< 188	< 188	(1) < 187 (1)	< 187	< 191	(1)
08/04/15 - 08/26/15	< 192	< 191	(1)	< 191	< 192	(1)
09/01/15 - 10/01/15	< 192	< 187	(1)	< 186	< 187	(1)
10/06/15 - 10/28/15	< 186	< 190	(1)	< 188	< 193	(1)
11/03/15 - 12/03/15	< 200	< 185	(1)	< 183	< 182	(2)
12/08/15 - 12/29/15	< 193	< 190	(1)	< 193	< 189	(2)
MEAN	-	-	-	-	-	-

Table C-II.2 **CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	1N	1S	37	38	39
01/07/15 - 01/29/15	3.5 ± 1.2 (1)	9.1 ± 1.8	(1)	2.2 ± 1.0	2.8 ± 1.1	(1)
02/03/15 - 02/26/15	4.8 ± 1.3	11.8 ± 1.8	(1)	1.6 ± 1.0	2.0 ± 1.0	(1)
03/03/15 - 03/26/15	3.4 ± 1.3	10.5 ± 1.8	(1)	1.6 ± 1.1	< 1.5	(1)
03/31/15 - 05/01/15	3.9 ± 1.3	12.0 ± 1.8	(1)	1.5 ± 1.0	2.1 ± 1.0	(1)
05/05/15 - 05/28/15	4.6 ± 1.3	18.7 ± 2.1	(1)	2.3 ± 1.0	3.2 ± 1.1	(1)
06/02/15 - 06/25/15	3.8 ± 1.2	13.5 ± 1.9 (1)	3.4 ± 1.3 (1)	2.3 ± 1.1	2.5 ± 1.1	(1)
06/30/15 - 07/30/15	4.1 ± 1.3	10.6 ± 1.7 (1)	1.7 ± 1.0 (1)	3.7 ± 1.9	3.1 ± 1.1	(1)
08/04/15 - 08/26/15	2.4 ± 1.2	11.3 ± 1.8	(1)	< 1.7	2.9 ± 1.1	(1)
09/01/15 - 10/01/15	< 2.0	13.3 ± 2.0	(1)	2.4 ± 1.4	< 1.9	(1)
10/06/15 - 10/28/15	2.8 ± 1.3	13.1 ± 1.9	(1)	< 1.6	3.3 ± 1.3	(1)
11/03/15 - 12/03/15	3.7 ± 1.3	13.8 ± 1.9	(1)	< 1.4	< 1.5	(2)
12/08/15 - 12/29/15	3.5 ± 1.2	16.1 ± 2.0	(1)	2.4 ± 1.0	2.2 ± 1.0	(2)
MEAN	3.7 ± 1.4	12.8 ± 5.2	2.5 ± 2.5	2.2 ± 1.3	2.7 ± 1.0	

Table C-II.3 **CONCENTRATIONS OF I-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	114	1N	1S	37	38	39
01/07/15 - 01/29/15	< 0.4 (1)	< 0.7	(1)	< 0.4	< 0.4	(1)
02/03/15 - 02/26/15	< 0.4	< 0.4	(1)	< 0.4	< 0.4	(1)
03/03/15 - 03/26/15	< 0.5	< 0.6	(1)	< 0.4	< 0.4	(1)
03/31/15 - 05/01/15	< 0.8	< 0.6	(1)	< 0.8	< 0.9	(1)
05/05/15 - 05/28/15	< 0.5	< 0.6	(1)	< 0.6	< 0.7	(1)
06/02/15 - 06/25/15	< 0.5	< 1.1 (1)	< 0.6 (1)	< 0.4	< 0.7	(1)
06/30/15 - 07/30/15	< 0.8	< 0.3 (1)	< 0.7 (1)	< 0.3	< 0.3	(1)
08/04/15 - 08/26/15	< 0.6	< 0.7	(1)	< 0.6	< 0.6	(1)
09/01/15 - 10/01/15	< 0.5	< 0.8	(1)	< 0.7	< 0.5	(1)
10/06/15 - 10/28/15	< 0.7	< 0.8	(1)	< 0.8	< 0.6	(1)
11/03/15 - 12/03/15	< 0.5	< 0.4	(1)	< 0.4	< 0.4	(2)
12/08/15 - 12/29/15	< 0.4	< 0.5	(1)	< 0.5	< 0.4	(2)
MEAN	-	-	-	-	-	-

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

Table C-II.4 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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
114	01/09/15 - 01/29/15	< 4	(1) < 4	< 9	< 4	< 8	< 4	< 7	< 4	< 4	< 27	< 8
	02/06/15 - 02/26/15	< 7	< 6	< 13	< 6	< 16	< 7	< 12	< 8	< 7	< 33	< 8
	03/04/15 - 03/25/15	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 2	< 2	< 25	< 8
	04/01/15 - 05/01/15	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 4	< 4	< 31	< 9
	05/07/15 - 05/28/15	< 5	< 5	< 11	< 6	< 13	< 6	< 10	< 5	< 5	< 33	< 11
	06/05/15 - 06/25/15	< 2	< 3	< 5	< 2	< 5	< 3	< 4	< 2	< 2	< 19	< 6
	07/01/15 - 07/30/15	< 5	< 5	< 13	< 5	< 8	< 5	< 9	< 5	< 6	< 26	< 9
	08/07/15 - 08/26/15	< 7	< 8	< 12	< 6	< 17	< 9	< 12	< 8	< 6	< 37	< 9
	09/02/15 - 10/01/15	< 7	< 7	< 14	< 8	< 18	< 7	< 13	< 9	< 9	< 38	< 9
	10/09/15 - 10/28/15	< 8	< 9	< 18	< 10	< 17	< 8	< 15	< 9	< 9	< 47	< 9
	11/06/15 - 12/03/15	< 8	< 6	< 17	< 8	< 11	< 6	< 12	< 7	< 8	< 36	< 14
	12/11/15 - 12/29/15	< 6	< 5	< 10	< 6	< 11	< 6	< 10	< 5	< 5	< 28	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-
1N	01/13/15 - 01/29/15	< 5	< 6	< 12	< 4	< 11	< 6	< 11	< 5	< 6	< 35	< 9
	02/03/15 - 02/24/15	< 6	< 6	< 12	< 5	< 14	< 7	< 10	< 6	< 7	< 34	< 10
	03/03/15 - 03/24/15	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 1	< 2	< 20	< 7
	03/31/15 - 04/28/15	< 4	< 4	< 9	< 3	< 7	< 4	< 7	< 4	< 4	< 28	< 8
	05/05/15 - 05/26/15	< 4	< 5	< 10	< 6	< 11	< 6	< 8	< 5	< 5	< 33	< 10
	06/02/15 - 06/09/15	< 1	(1) < 1	< 3	< 1	< 2	< 1	< 2	< 1	< 1	< 19	< 5
	07/07/15 - 07/28/15	< 5	(1) < 4	< 10	< 5	< 9	< 5	< 9	< 5	< 5	< 29	< 10
	08/04/15 - 08/25/15	< 6	< 5	< 13	< 7	< 12	< 6	< 12	< 7	< 7	< 32	< 10
	09/01/15 - 09/29/15	< 6	< 5	< 16	< 6	< 13	< 5	< 6	< 5	< 7	< 30	< 9
	10/06/15 - 10/27/15	< 6	< 6	< 10	< 5	< 12	< 7	< 6	< 6	< 7	< 24	< 9
	11/03/15 - 12/01/15	< 8	< 6	< 12	< 5	< 13	< 7	< 9	< 7	< 7	< 35	< 8
	12/08/15 - 12/29/15	< 5	< 5	< 9	< 5	< 11	< 6	< 8	< 6	< 7	< 34	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-II.4 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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
1S	01/07/15 - 01/29/15	- (1)	-	-	-	-	-	-	-	-	-	-
	02/06/15 - 02/25/15	- (1)	-	-	-	-	-	-	-	-	-	-
	03/04/15 - 03/26/15	- (1)	-	-	-	-	-	-	-	-	-	-
	04/01/15 - 04/30/15	- (1)	-	-	-	-	-	-	-	-	-	-
	05/07/15 - 05/28/15	- (1)	-	-	-	-	-	-	-	-	-	-
	06/05/15 - 06/23/15	< 2 (1)	< 3	< 6	< 2	< 4	< 2	< 5	< 2	< 3	< 20	< 6
	06/30/15 - 07/21/15	< 2 (1)	< 3	< 6	< 3	< 5	< 3	< 5	< 2	< 3	< 21	< 6
	08/05/15 - 08/26/15	- (1)	-	-	-	-	-	-	-	-	-	-
	09/02/15 - 10/01/15	- (1)	-	-	-	-	-	-	-	-	-	-
	10/07/15 - 10/28/15	- (1)	-	-	-	-	-	-	-	-	-	-
	11/06/15 - 12/03/15	- (1)	-	-	-	-	-	-	-	-	-	-
	12/11/15 - 12/29/15	- (1)	-	-	-	-	-	-	-	-	-	-
	MEAN	-	-	-	-	-	-	-	-	-	-	-
37	01/07/15 - 01/29/15	< 4	< 5	< 11	< 5	< 10	< 5	< 9	< 5	< 5	< 26	< 10
	02/06/15 - 02/25/15	< 5	< 5	< 14	< 5	< 12	< 6	< 12	< 6	< 6	< 32	< 7
	03/04/15 - 03/26/15	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 1	< 1	< 16	< 6
	04/01/15 - 04/30/15	< 3	< 4	< 9	< 4	< 7	< 4	< 7	< 4	< 3	< 24	< 10
	05/07/15 - 05/28/15	< 5	< 5	< 11	< 4	< 8	< 6	< 8	< 4	< 5	< 22	< 12
	06/05/15 - 06/25/15	< 3	< 4	< 7	< 3	< 6	< 4	< 6	< 3	< 3	< 28	< 8
	07/01/15 - 07/30/15	< 4	< 5	< 10	< 4	< 11	< 4	< 8	< 5	< 5	< 23	< 5
	08/05/15 - 08/26/15	< 7	< 6	< 6	< 6	< 9	< 6	< 10	< 6	< 6	< 21	< 7
	09/02/15 - 10/01/15	< 9	< 9	< 15	< 9	< 15	< 9	< 13	< 8	< 8	< 40	< 11
	10/07/15 - 10/28/15	< 8	< 8	< 17	< 10	< 17	< 9	< 16	< 8	< 9	< 43	< 14
	11/06/15 - 12/03/15	< 7	< 8	< 14	< 7	< 14	< 7	< 14	< 7	< 8	< 33	< 14
	12/11/15 - 12/29/15	< 5	< 6	< 10	< 4	< 10	< 5	< 8	< 5	< 6	< 29	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-II.4 **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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
38	01/09/15 - 01/29/15	< 5	< 6	< 12	< 5	< 11	< 5	< 9	< 5	< 5	< 31	< 10
	02/04/15 - 02/26/15	< 5	< 6	< 11	< 6	< 15	< 6	< 9	< 6	< 6	< 29	< 9
	03/04/15 - 03/26/15	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 2	< 2	< 17	< 6
	04/01/15 - 05/01/15	< 4	< 4	< 8	< 3	< 5	< 3	< 8	< 4	< 4	< 25	< 7
	05/07/15 - 05/27/15	< 4	< 4	< 7	< 3	< 8	< 4	< 7	< 4	< 4	< 22	< 8
	06/05/15 - 06/24/15	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 3	< 4	< 29	< 11
	07/01/15 - 07/29/15	< 5	< 5	< 13	< 6	< 11	< 7	< 9	< 6	< 5	< 33	< 9
	08/07/15 - 08/26/15	< 11	< 11	< 22	< 5	< 19	< 10	< 16	< 9	< 12	< 46	< 11
	09/02/15 - 09/30/15	< 8	< 8	< 17	< 8	< 13	< 9	< 13	< 7	< 9	< 37	< 11
	10/07/15 - 10/28/15	< 8	< 6	< 13	< 8	< 13	< 6	< 10	< 5	< 7	< 21	< 12
	11/06/15 - 12/03/15	< 8	< 7	< 15	< 8	< 11	< 9	< 14	< 6	< 7	< 37	< 11
	12/11/15 - 12/29/15	< 7	< 7	< 15	< 4	< 11	< 6	< 12	< 5	< 7	< 37	< 14
	MEAN	-	-	-	-	-	-	-	-	-	-	-
39	01/09/15 - 01/29/15	- (1)	-	-	-	-	-	-	-	-	-	-
	02/04/15 - 02/26/15	- (1)	-	-	-	-	-	-	-	-	-	-
	03/04/15 - 03/26/15	- (1)	-	-	-	-	-	-	-	-	-	-
	04/01/15 - 05/01/15	- (1)	-	-	-	-	-	-	-	-	-	-
	05/07/15 - 05/27/15	- (1)	-	-	-	-	-	-	-	-	-	-
	06/05/15 - 06/24/15	- (1)	-	-	-	-	-	-	-	-	-	-
	07/01/15 - 07/29/15	- (1)	-	-	-	-	-	-	-	-	-	-
	08/07/15 - 08/26/15	- (1)	-	-	-	-	-	-	-	-	-	-
	09/02/15 - 09/30/15	- (1)	-	-	-	-	-	-	-	-	-	-
	10/07/15 - 10/28/15	- (1)	-	-	-	-	-	-	-	-	-	-
	11/06/15 - 12/03/15	- (2)	-	-	-	-	-	-	-	-	-	-
	12/11/15 - 12/29/15	- (2)	-	-	-	-	-	-	-	-	-	-
	MEAN	-	-	-	-	-	-	-	-	-	-	-

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

Table C-III.1 **CONCENTRATIONS OF TRITIUM IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	MW-24-3A	W-3C
01/12/15 - 01/12/15	< 197	< 191
04/18/15 - 04/18/15	< 169	< 173
07/21/15 - 07/21/15	< 193	< 190
10/15/15 - 10/15/15	< 184	< 185
MEAN	-	-

Table C-III.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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	01/12/15 - 01/12/15	< 7	< 7	< 13	< 7	< 13	< 7	< 13	< 14	< 7	< 7	< 33	< 12
	04/18/15 - 04/18/15	< 5	< 5	< 11	< 4	< 10	< 6	< 8	< 14	< 5	< 4	< 33	< 11
	07/21/15 - 07/21/15	< 5	< 5	< 10	< 4	< 11	< 4	< 9	< 9	< 4	< 5	< 24	< 8
	10/15/15 - 10/15/15	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 5	< 2	< 2	< 11	< 4
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
W-3C	01/12/15 - 01/12/15	< 7	< 7	< 15	< 8	< 12	< 7	< 14	< 12	< 6	< 6	< 36	< 11
	04/18/15 - 04/18/15	< 5	< 5	< 10	< 6	< 8	< 5	< 9	< 14	< 4	< 5	< 32	< 10
	07/21/15 - 07/21/15	< 5	< 5	< 11	< 5	< 11	< 5	< 11	< 10	< 6	< 5	< 28	< 9
	10/15/15 - 10/15/15	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 12	< 4
	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, 2015**

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								
	05/07/15	6078 ± 1488	< 66	< 84	< 187	< 90	< 134	< 79	< 88
	05/27/15	4068 ± 747	< 47	< 39	< 99	< 45	< 105	< 41	< 49
	10/19/15	5119 ± 1209	< 47	< 50	< 111	< 74	< 154	< 66	< 55
	MEAN	5088 ± 2011	-	-	-	-	-	-	-
33	BOTTOM FEEDER								
	05/27/15	4452 ± 948	< 50	< 50	< 108	< 69	< 125	< 52	< 64
	10/19/15	2263 ± 1196	< 73	< 81	< 144	< 99	< 115	< 82	< 63
	MEAN	3358 ± 3096	-	-	-	-	-	-	-
93	PREDATOR								
	03/11/15	3587 ± 1058	< 70	< 89	< 160	< 80	< 163	< 79	< 79
	03/11/15	4142 ± 952	< 49	< 48	< 110	< 50	< 117	< 49	< 50
	05/05/15	3689 ± 1060	< 66	< 56	< 133	< 54	< 95	< 75	< 77
	05/05/15	4786 ± 1320	< 67	< 85	< 142	< 70	< 153	< 66	< 63
	10/20/15	2002 ± 1028	< 69	< 68	< 162	< 64	< 154	< 69	< 80
	10/20/15	3884 ± 957	< 61	< 77	< 106	< 44	< 181	< 65	< 62
	MEAN	3682 ± 1855	-	-	-	-	-	-	-
93	BOTTOM FEEDER								
	10/21/15	3633 ± 1431	< 31	< 76	< 173	< 101	< 133	< 59	< 97
	MEAN	3633 ± 0	-	-	-	-	-	-	-
94	PREDATOR								
	05/06/15	5151 ± 835	< 47	< 48	< 107	< 50	< 95	< 45	< 55
	05/06/15	4219 ± 1250	< 78	< 74	< 178	< 75	< 150	< 67	< 85
	05/06/15	3894 ± 1191	< 84	< 71	< 110	< 39	< 159	< 57	< 85
	05/06/15	3641 ± 914	< 54	< 78	< 130	< 67	< 118	< 73	< 74
	10/20/15	2937 ± 1180	< 94	< 81	< 162	< 111	< 230	< 85	< 83
	MEAN	3968 ± 1624	-	-	-	-	-	-	-
94	BOTTOM FEEDER								
	05/06/15	5324 ± 1279	< 69	< 84	< 169	< 72	< 131	< 68	< 71
	10/20/15	4100 ± 1057	< 42	< 49	< 104	< 48	< 93	< 43	< 74
	10/20/15	4644 ± 1137	< 87	< 71	< 143	< 81	< 155	< 71	< 73
	MEAN	4689 ± 1227	-	-	-	-	-	-	-

Table C-IV.2 **CONCENTRATIONS OF GAMMA EMITTERS IN CLAM AND CRAB SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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	05/05/15	1512 ± 630	< 67	< 63	< 115	< 49	< 96	< 61	< 60
CLAMS	10/19/15	1196 ± 719	< 44	< 42	< 92	< 47	< 76	< 52	< 49
	MEAN	1354 ± 447	-	-	-	-	-	-	-
24									
CLAMS	05/05/15	2089 ± 698	< 49	< 65	< 150	< 40	< 83	< 54	< 44
CLAMS	10/19/15	< 787	< 89	< 92	< 179	< 81	< 225	< 89	< 87
	MEAN	2089 ± 0	-	-	-	-	-	-	-
33									
CRABS	10/19/15	1924 ± 745	< 73	< 68	< 154	< 79	< 135	< 56	< 70
	MEAN	1924 ± 0	-	-	-	-	-	-	-
93									
CRABS	10/20/15	1941 ± 648	< 37	< 46	< 94	< 41	< 111	< 43	< 44
	MEAN	1941 ± 0	-	-	-	-	-	-	-
94									
CLAMS	05/06/15	1572 ± 1059	< 72	< 92	< 178	< 63	< 129	< 66	< 71
CLAMS	10/20/15	2245 ± 1247	< 70	< 87	< 194	< 65	< 213	< 77	< 82
	MEAN	1909 ± 952	-	-	-	-	-	-	-

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

Table C-V.1 **CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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	05/05/15	< 446	5195 ± 771	< 40	< 49	< 36	< 41	< 44
	10/19/15	< 483	2087 ± 861	< 58	< 68	< 51	< 61	< 76
	MEAN	-	3641 ± 4395	-	-	-	-	-
24	05/05/15	< 606	3165 ± 722	< 51	< 59	< 50	< 47	< 53
	10/19/15	< 1050	9615 ± 2086	< 124	< 135	< 139	< 122	< 139
	MEAN	-	6390 ± 9122	-	-	-	-	-
33	05/05/15	< 943	7422 ± 1454	< 73	< 74	< 61	< 73	< 82
	10/20/15	< 608	4618 ± 958	< 67	< 54	< 68	< 53	< 68
	MEAN	-	6020 ± 3965	-	-	-	-	-
94	05/06/15	< 1075	17860 ± 1867	< 92	< 102	< 87	< 99	< 121
	10/20/15	< 635	17020 ± 2011	< 97	< 86	< 90	< 76	< 93
	MEAN	-	17440 ± 1188	-	-	-	-	-

Table C-VI.1 **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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
12/30/14 - 01/07/15	18 ± 4	18 ± 4	13 ± 4	20 ± 4	17 ± 4	19 ± 4	17 ± 4	20 ± 4
01/07/15 - 01/15/15	17 ± 4	12 ± 4	12 ± 4	12 ± 4	15 ± 4	15 ± 4	14 ± 4	20 ± 4
01/15/15 - 01/22/15	15 ± 5	14 ± 5	17 ± 5	13 ± 5	13 ± 5	15 ± 5	17 ± 5	21 ± 5
01/22/15 - 01/29/15	13 ± 5	9 ± 5	10 ± 5	< 7	11 ± 5	17 ± 5	9 ± 4	13 ± 5
01/29/15 - 02/04/15	9 ± 6	< 8	< 8	12 ± 6	10 ± 5	11 ± 6	11 ± 5	14 ± 5
02/04/15 - 02/11/15	24 ± 5	20 ± 5	20 ± 5	16 ± 5	18 ± 4	17 ± 5	18 ± 4	24 ± 5
02/11/15 - 02/19/15	10 ± 4	18 ± 5	20 ± 5	15 ± 4	17 ± 4	18 ± 5	17 ± 4	16 ± 4
02/19/15 - 02/25/15	26 ± 6	23 ± 6	26 ± 6	23 ± 6	21 ± 6	27 ± 6	15 ± 5	22 ± 6
02/25/15 - 03/04/15	18 ± 5	15 ± 5	15 ± 4	15 ± 5	15 ± 5	22 ± 5	16 ± 5	19 ± 5
03/04/15 - 03/11/15	17 ± 4	13 ± 4	14 ± 4	13 ± 4	(1)	20 ± 5	10 ± 4	12 ± 4
03/11/15 - 03/18/15	7 ± 4	< 6	7 ± 4	7 ± 4	8 ± 4	7 ± 4	9 ± 4	9 ± 4
03/18/15 - 03/25/15	12 ± 4	11 ± 5	8 ± 4	8 ± 4	11 ± 4	11 ± 5	12 ± 5	13 ± 5
03/25/15 - 04/01/15	11 ± 4	11 ± 4	7 ± 4	12 ± 4	12 ± 5	9 ± 4	12 ± 5	14 ± 5
04/01/15 - 04/08/15	11 ± 4	12 ± 4	11 ± 4	11 ± 4	15 ± 4	12 ± 4	12 ± 4	14 ± 4
04/08/15 - 04/16/15	6 ± 3	12 ± 4	12 ± 4	10 ± 4	13 ± 4	12 ± 4	12 ± 4	9 ± 4
04/16/15 - 04/22/15	9 ± 5	11 ± 5	10 ± 5	14 ± 5	< 7	8 ± 5	< 7	8 ± 5
04/22/15 - 04/30/15	7 ± 3	6 ± 3	5 ± 3	8 ± 3	7 ± 3	7 ± 3	5 ± 3	7 ± 3
04/30/15 - 05/07/15	7 ± 4	6 ± 4	< 6	< 6	7 ± 4	< 6	< 6	6 ± 4
05/07/15 - 05/13/15	19 ± 5	22 ± 5	16 ± 5	22 ± 5	15 ± 5	17 ± 5	18 ± 5	19 ± 5
05/13/15 - 05/20/15	15 ± 5	14 ± 5	14 ± 5	10 ± 4	14 ± 5	14 ± 5	9 ± 4	18 ± 5
05/20/15 - 05/27/15	9 ± 4	11 ± 5	13 ± 4	18 ± 5	13 ± 5	13 ± 5	12 ± 5	10 ± 4
05/27/15 - 06/03/15	7 ± 4	8 ± 4	8 ± 4	7 ± 4	7 ± 4	7 ± 4	15 ± 4	6 ± 4
06/03/15 - 06/10/15	6 ± 4	8 ± 4	6 ± 4	7 ± 4	10 ± 4	11 ± 4	< 6	9 ± 4
06/10/15 - 06/17/15	10 ± 4	6 ± 4	11 ± 4	11 ± 4	11 ± 4	14 ± 4	10 ± 4	15 ± 4
06/17/15 - 06/24/15	10 ± 4	10 ± 4	12 ± 4	12 ± 4	11 ± 4	10 ± 4	< 6	11 ± 4
06/24/15 - 07/01/15	7 ± 4	7 ± 4	8 ± 4	11 ± 5	< 6	< 6	6 ± 4	7 ± 4
07/01/15 - 07/08/15	15 ± 4	19 ± 5	14 ± 4	18 ± 5	(1)	13 ± 5	13 ± 4	15 ± 5
07/08/15 - 07/16/15	9 ± 4	10 ± 4	6 ± 4	10 ± 4	< 7	6 ± 4	< 5	6 ± 4
07/16/15 - 07/22/15	15 ± 6	13 ± 6	11 ± 5	14 ± 6	19 ± 6	16 ± 6	12 ± 6	10 ± 5
07/22/15 - 07/29/15	11 ± 4	12 ± 4	11 ± 4	12 ± 4	12 ± 4	9 ± 4	7 ± 4	9 ± 4
07/29/15 - 08/05/15	14 ± 4	11 ± 4	13 ± 4	14 ± 5	15 ± 5	16 ± 5	11 ± 4	13 ± 4
08/05/15 - 08/12/15	9 ± 4	10 ± 4	8 ± 4	7 ± 4	9 ± 4	7 ± 4	< 6	< 6
08/12/15 - 08/19/15	17 ± 5	17 ± 5	16 ± 5	19 ± 5	17 ± 5	15 ± 5	15 ± 5	19 ± 5
08/19/15 - 08/25/15	16 ± 5	14 ± 5	11 ± 4	19 ± 5	13 ± 5	12 ± 5	6 ± 4	17 ± 5
08/25/15 - 09/02/15	20 ± 5	23 ± 5	24 ± 5	24 ± 5	24 ± 5	19 ± 4	25 ± 5	25 ± 5
09/02/15 - 09/10/15	19 ± 4	25 ± 5	23 ± 4	22 ± 5	19 ± 4	(1)	16 ± 4	25 ± 5
09/10/15 - 09/17/15	15 ± 4	13 ± 4	18 ± 4	18 ± 4	16 ± 4	15 ± 4	18 ± 4	19 ± 5
09/17/15 - 09/23/15	10 ± 5	14 ± 5	17 ± 5	8 ± 5	11 ± 5	15 ± 5	14 ± 5	14 ± 5
09/23/15 - 09/30/15	9 ± 4	8 ± 4	8 ± 4	11 ± 4	8 ± 4	8 ± 4	7 ± 4	13 ± 4
09/30/15 - 10/07/15	7 ± 4	< 6	< 6	< 6	7 ± 4	< 6	< 6	10 ± 4
10/07/15 - 10/14/15	16 ± 5	21 ± 5	15 ± 4	24 ± 5	23 ± 5	15 ± 5	13 ± 4	15 ± 4
10/14/15 - 10/22/15	14 ± 4	11 ± 4	14 ± 4	12 ± 4	11 ± 4	11 ± 4	15 ± 4	18 ± 4
10/22/15 - 10/29/15	10 ± 4	8 ± 4	10 ± 4	10 ± 4	10 ± 4	11 ± 4	8 ± 4	11 ± 4
10/29/15 - 11/04/15	20 ± 5	20 ± 5	19 ± 5	20 ± 5	21 ± 5	20 ± 5	18 ± 5	24 ± 6
11/04/15 - 11/11/15	10 ± 4	9 ± 4	13 ± 4	13 ± 4	12 ± 4	9 ± 4	17 ± 5	11 ± 4
11/11/15 - 11/18/15	17 ± 5	18 ± 5	16 ± 5	19 ± 5	16 ± 5	21 ± 5	19 ± 5	18 ± 5
11/18/15 - 11/24/15	11 ± 5	9 ± 5	9 ± 4	12 ± 5	7 ± 4	< 6	10 ± 5	10 ± 5
11/24/15 - 12/02/15	9 ± 4	12 ± 4	8 ± 4	11 ± 4	10 ± 4	12 ± 4	< 5	14 ± 4
12/02/15 - 12/09/15	20 ± 5	23 ± 5	23 ± 5	26 ± 5	24 ± 5	25 ± 5	24 ± 5	28 ± 5
12/09/15 - 12/16/15	29 ± 5	30 ± 6	31 ± 5	(1)	33 ± 6	31 ± 6	16 ± 5	33 ± 6
12/16/15 - 12/22/15	7 ± 5	18 ± 5	13 ± 5	17 ± 5	14 ± 5	16 ± 5	(1)	13 ± 5
12/22/15 - 12/29/15	11 ± 4	8 ± 4	8 ± 4	10 ± 4	11 ± 4	7 ± 4	10 ± 3 (1)	7 ± 4
MEAN	13 ± 11	14 ± 11	13 ± 11	14 ± 10	14 ± 11	14 ± 11	13 ± 9	15 ± 12

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, 2015

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

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

Table C-VI.3 **CONCENTRATIONS OF STRONTIUM IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2**

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

SITE	COLLECTION PERIOD	SR-89	SR-90	SITE	COLLECTION PERIOD	SR-89	SR-90
3	12/30/14 - 04/01/15	< 5	< 4	72	12/30/14 - 04/01/15	< 8	< 4
	04/01/15 - 07/01/15	< 6	< 5		04/01/15 - 07/01/15	< 8	< 8
	07/01/15 - 09/30/15	< 6	< 8		07/01/15 - 09/30/15	< 7	< 8
	09/30/15 - 12/29/15	< 6	< 5		09/30/15 - 12/29/15	< 6	< 5
	MEAN	-	-		MEAN	-	-
20	12/30/14 - 04/01/15	< 4	< 7	73	12/30/14 - 04/01/15	< 6	< 4
	04/01/15 - 07/01/15	< 8	< 5		04/01/15 - 07/01/15	< 8	< 5
	07/01/15 - 09/30/15	< 7	< 9		07/01/15 - 09/30/15	< 7	< 9
	09/30/15 - 12/29/15	< 6	< 5		09/30/15 - 12/29/15	< 6	< 4
	MEAN	-	-		MEAN	-	-
66	12/30/14 - 04/01/15	< 6	< 4	111	12/30/14 - 04/01/15	< 7	< 5
	04/01/15 - 07/01/15	< 8	< 7		04/01/15 - 07/01/15	< 9	< 9
	07/01/15 - 09/30/15	< 7	< 10		07/01/15 - 09/30/15	< 7	< 9
	09/30/15 - 12/29/15	< 6	< 4		09/30/15 - 12/29/15	< 6	< 4
	MEAN	-	-		MEAN	-	-
71	12/30/14 - 04/01/15	< 8	< 4	C	12/30/14 - 04/01/15	< 3	< 4
	04/01/15 - 07/01/15	< 6	< 3		04/01/15 - 07/01/15	< 7	< 5
	07/01/15 - 09/30/15	< 6	< 6		07/01/15 - 09/30/15	< 6	< 9
	09/30/15 - 12/29/15	< 6	< 4		09/30/15 - 12/29/15	< 6	< 4
	MEAN	-	-		MEAN	-	-

Table C-VI.4 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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	12/30/14 - 04/01/15	90 ± 29	< 3	< 4	< 3	< 3	< 3
	04/01/15 - 07/01/15	35 ± 19	< 3	< 3	< 3	< 4	< 3
	07/01/15 - 09/30/15	49 ± 28	< 5	< 5	< 4	< 4	< 4
	09/30/15 - 12/29/15	47 ± 26	< 4	< 4	< 3	< 4	< 4
	MEAN	55 ± 48	-	-	-	-	-
20	12/30/14 - 04/01/15	62 ± 28	< 3	< 4	< 3	< 2	< 3
	04/01/15 - 07/01/15	< 44	< 4	< 4	< 5	< 4	< 4
	07/01/15 - 09/30/15	39 ± 18	< 2	< 3	< 2	< 2	< 2
	09/30/15 - 12/29/15	50 ± 19	< 2	< 3	< 2	< 2	< 3
	MEAN	50 ± 23	-	-	-	-	-
66	12/30/14 - 04/01/15	70 ± 29	< 3	< 4	< 3	< 4	< 3
	04/01/15 - 07/01/15	48 ± 31	< 3	< 3	< 3	< 3	< 2
	07/01/15 - 09/30/15	61 ± 30	< 3	< 4	< 3	< 3	< 2
	09/30/15 - 12/29/15	35 ± 19	< 3	< 3	< 3	< 3	< 3
	MEAN	54 ± 31	-	-	-	-	-
71	12/30/14 - 04/01/15	64 ± 27	< 3	< 2	< 2	< 3	< 3
	04/01/15 - 07/01/15	79 ± 26	< 3	< 3	< 2	< 2	< 2
	07/01/15 - 09/30/15	67 ± 18	< 2	< 3	< 2	< 2	< 2
	09/30/15 - 12/29/15	48 ± 20	< 1	< 2	< 2	< 2	< 2
	MEAN	64 ± 25	-	-	-	-	-
72	12/30/14 - 04/01/15	58 ± 36	< 5	< 5	< 6	< 5	< 4
	04/01/15 - 07/01/15	77 ± 23	< 3	< 4	< 3	< 3	< 3
	07/08/15 - 09/30/15	71 ± 27	< 3	< 3	< 2	< 3	< 2
	09/30/15 - 12/29/15	38 ± 22	< 2	< 2	< 3	< 2	< 2
	MEAN	61 ± 35	-	-	-	-	-
73	12/30/14 - 04/01/15	71 ± 32	< 5	< 6	< 4	< 4	< 5
	04/01/15 - 07/01/15	56 ± 27	< 4	< 3	< 4	< 4	< 5
	07/01/15 - 09/30/15	75 ± 22	< 3	< 3	< 3	< 2	< 2
	09/30/15 - 12/29/15	42 ± 18	< 2	< 3	< 3	< 3	< 2
	MEAN	61 ± 30	-	-	-	-	-
111	12/30/14 - 04/01/15	73 ± 23	< 3	< 2	< 2	< 3	< 2
	04/01/15 - 07/01/15	68 ± 26	< 3	< 5	< 5	< 3	< 3
	07/01/15 - 09/30/15	80 ± 25	< 2	< 3	< 2	< 2	< 2
	09/30/15 - 12/29/15	60 ± 28	< 4	< 4	< 5	< 4	< 4
	MEAN	70 ± 16	-	-	-	-	-
C	12/30/14 - 04/01/15	57 ± 24	< 3	< 4	< 3	< 3	< 2
	04/01/15 - 07/01/15	< 49	< 4	< 5	< 4	< 4	< 4
	07/01/15 - 09/30/15	95 ± 25	< 2	< 3	< 2	< 3	< 2
	09/30/15 - 12/29/15	62 ± 17	< 2	< 2	< 2	< 3	< 2
	MEAN	71 ± 41	-	-	-	-	-

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, 2015**

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
12/30/14 - 01/07/15	< 38	< 38	< 38	< 38	< 35	< 37	< 35	< 35
01/07/15 - 01/15/15	< 61	< 28	< 63	< 63	< 47	< 62	< 47	< 45
~~01/15/15 - 01/22/15~~	~~< 58~~	~~< 46~~	~~< 46~~	~~< 45~~	~~< 54~~	~~< 45~~	~~< 56~~	~~< 56~~
01/22/15 - 01/29/15	< 56	< 55	< 55	< 54	< 52	< 53	< 52	< 52
01/29/15 - 02/04/15	< 70	< 66	< 66	< 65	< 61	< 64	< 62	< 62
02/04/15 - 02/11/15	< 32	< 65	< 60	< 65	< 54	< 64	< 54	< 54
02/11/15 - 02/19/15	< 44	< 29	< 29	< 29	< 41	< 28	< 42	< 41
02/19/15 - 02/25/15	< 68	< 70	< 70	< 69	< 44	< 30	< 45	< 45
02/25/15 - 03/04/15	< 36	< 37	< 36	< 37	< 38	< 37	< 38	< 38
03/04/15 - 03/11/15	< 62	< 65	< 62	< 27	(1)	< 65	< 35	< 63
03/11/15 - 03/18/15	< 47	< 36	< 47	< 35	< 49	< 36	< 21	< 49
03/18/15 - 03/25/15	< 42	< 55	< 42	< 55	< 43	< 55	< 48	< 20
03/25/15 - 04/01/15	< 43	< 48	< 43	< 47	< 45	< 48	< 53	< 51
04/01/15 - 04/08/15	< 39	< 53	< 51	< 53	< 41	< 53	< 41	< 41
04/08/15 - 04/16/15	< 68	< 69	< 67	< 69	< 69	< 70	< 68	< 66
04/16/15 - 04/22/15	< 55	< 65	< 62	< 65	< 58	< 66	< 60	< 60
04/22/15 - 04/30/15	< 48	< 51	< 48	< 51	< 49	< 51	< 50	< 30
04/30/15 - 05/07/15	< 27	< 35	< 27	< 35	< 28	< 35	< 33	< 33
05/07/15 - 05/13/15	< 64	< 65	< 63	< 65	< 65	< 66	< 66	< 66
05/13/15 - 05/20/15	< 50	< 51	< 49	< 50	< 52	< 51	< 53	< 54
05/20/15 - 05/27/15	< 38	< 34	< 32	< 34	< 39	< 34	< 40	< 30
05/27/15 - 06/03/15	< 47	< 57	< 55	< 56	< 49	< 57	< 49	< 49
06/03/15 - 06/10/15	< 43	< 44	< 42	< 43	< 44	< 44	< 45	< 45
06/10/15 - 06/17/15	< 32	< 33	< 12	< 33	< 44	< 33	< 45	< 44
~~06/17/15 - 06/24/15~~	~~< 53~~	~~< 55~~	~~< 21~~	~~< 54~~	~~< 25~~	~~< 55~~	~~< 61~~	~~< 61~~
06/24/15 - 07/01/15	< 57	< 59	< 23	< 58	< 50	< 59	< 21	< 50
07/01/15 - 07/08/15	< 39	< 41	< 15	< 41	(1)	< 42	< 43	< 43
07/08/15 - 07/16/15	< 36	< 32	< 31	< 32	< 50	< 32	< 38	< 37
07/16/15 - 07/22/15	< 22	< 50	< 20	< 50	< 50	< 51	< 58	< 56
07/22/15 - 07/29/15	< 59	< 51	< 49	< 50	< 61	< 51	< 63	< 64
07/29/15 - 08/05/15	< 55	< 58	< 21	< 59	< 44	< 58	< 43	< 44
08/05/15 - 08/12/15	< 43	< 35	< 43	< 34	< 44	< 36	< 46	< 44
08/12/15 - 08/19/15	< 61	< 66	< 24	< 65	< 58	< 66	< 59	< 50
08/19/15 - 08/25/15	< 64	< 65	< 62	< 64	< 67	< 65	< 68	< 67
08/25/15 - 09/02/15	< 43	< 51	< 20	< 50	< 42	< 51	< 42	< 14
09/02/15 - 09/10/15	< 20	< 64	< 26	< 63	< 54	(1)	< 56	< 66
09/10/15 - 09/17/15	< 38	< 39	< 14	< 38	< 49	< 39	< 50	< 50
09/17/15 - 09/23/15	< 54	< 56	< 23	< 55	< 47	< 56	< 47	< 47
09/23/15 - 09/30/15	< 57	< 55	< 57	< 55	< 59	< 55	< 62	< 61
09/30/15 - 10/07/15	< 55	< 57	< 21	< 56	< 57	< 57	< 57	< 56
10/07/15 - 10/14/15	< 66	< 57	< 26	< 56	< 64	< 57	< 65	< 65
10/14/15 - 10/22/15	< 63	< 21	< 63	< 21	< 66	< 22	< 64	< 54
10/22/15 - 10/29/15	< 42	< 33	< 41	< 32	< 42	< 33	< 44	< 32
10/29/15 - 11/04/15	< 56	< 49	< 47	< 49	< 58	< 49	< 59	< 60
11/04/15 - 11/11/15	< 60	< 56	< 53	< 56	< 61	< 56	< 63	< 62
11/11/15 - 11/18/15	< 60	< 66	< 63	< 65	< 62	< 66	< 63	< 63
11/18/15 - 11/24/15	< 36	< 37	< 35	< 36	< 38	< 37	< 38	< 36
11/24/15 - 12/02/15	< 23	< 55	< 21	< 55	< 57	< 56	< 58	< 57
12/02/15 - 12/09/15	< 52	< 55	< 52	< 21	< 45	< 55	< 46	< 46
12/09/15 - 12/16/15	< 61	< 66	< 61	(1)	< 63	< 25	< 25	< 62
12/16/15 - 12/22/15	< 26	< 27	< 10	< 27	< 30	< 27	(1)	< 30
12/22/15 - 12/29/15	< 26	< 23	< 22	< 23	< 26	< 23	< 15 (1)	< 27
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, 2015**

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	06/30/15	Cabbage	< 14	< 3.6	380 ± 185	3936 ± 402	< 56	< 17	< 21	< 137	< 28
	06/30/15	Collards	< 18	4.7 ± 1.7	559 ± 375	4399 ± 467	< 43	< 17	< 17	< 119	< 20
	06/30/15	Kale	< 16	< 2.4	168 ± 156	4910 ± 434	< 51	< 17	< 21	< 122	< 26
	07/28/15	Cabbage	< 9	4.1 ± 1.7	< 136	2902 ± 284	< 58	< 13	< 14	< 122	< 34
	07/28/15	Collards	< 15	4.5 ± 2.0	< 127	3498 ± 298	< 50	< 13	< 18	< 114	< 31
	07/28/15	Kale	< 13	< 3.6	< 150	4415 ± 353	< 58	< 13	< 18	< 119	< 31
	08/27/15	Cabbage	< 13	< 3.4	< 163	3113 ± 378	< 53	< 15	< 16	< 109	< 35
	08/27/15	Collards	< 11	< 2.7	< 193	3363 ± 345	< 52	< 18	< 19	< 110	< 32
	08/27/15	Kale	< 21	< 4.3	214 ± 177	4137 ± 442	< 54	< 15	< 22	< 111	< 32
	09/22/15	Cabbage	< 14	< 3.9	< 295	2440 ± 723	< 51	< 34	< 42	< 135	< 47
	09/22/15	Collards	< 17	4.3 ± 1.2	< 317	3657 ± 646	< 41	< 26	< 37	< 125	< 44
	09/22/15	Kale	< 16	< 4.5	< 322	4448 ± 746	< 45	< 32	< 38	< 145	< 23
	10/27/15	Collards	< 23	< 4.2	< 260	3131 ± 473	< 60	< 27	< 27	< 132	< 31
	10/27/15	Kale	< 16	< 4.9	< 254	4661 ± 549	< 52	< 26	< 29	< 131	< 36
	MEAN		-	4.4 ± 0.5	330 ± 356	3786 ± 1482	-	-	-	-	-
35	06/30/15	Cabbage	< 10	< 2.3	< 232	3890 ± 463	< 57	< 21	< 23	< 123	< 35
	06/30/15	Collards	< 13	2.8 ± 1.4	< 185	3068 ± 423	< 58	< 21	< 22	< 156	< 47
	06/30/15	Kale	< 16	4.9 ± 2.3	< 202	3759 ± 420	< 57	< 18	< 20	< 125	< 42
	07/28/15	Cabbage	< 8	< 2.0	< 114	2234 ± 242	< 48	< 11	< 12	< 97	< 27
	07/28/15	Collards	< 9	< 2.3	< 184	2644 ± 318	< 54	< 16	< 16	< 126	< 44
	07/28/15	Kale	< 18	9.4 ± 2.8	128 ± 77	4496 ± 221	< 49	< 8	< 9	< 98	< 28
	08/27/15	Cabbage	< 9	3.2 ± 1.9	< 190	2469 ± 387	< 58	< 20	< 16	< 133	< 31
	08/27/15	Collards	< 17	< 4.5	< 152	4071 ± 421	< 48	< 14	< 15	< 107	< 27
	08/27/15	Kale	< 17	< 3.6	< 216	4713 ± 529	< 58	< 20	< 24	< 153	< 38
	09/22/15	Cabbage	< 11	< 2.7	< 287	2692 ± 625	< 49	< 40	< 34	< 144	< 57
	09/22/15	Collards	< 17	< 4.7	< 359	3009 ± 649	< 55	< 28	< 34	< 148	< 38
	09/22/15	Kale	< 16	< 4.0	< 319	4251 ± 554	< 49	< 29	< 25	< 118	< 30
	10/27/15	Collards	< 13	< 3.5	< 283	2958 ± 562	< 58	< 24	< 24	< 148	< 32
	10/27/15	Kale	< 22	< 3.3	384 ± 234	4770 ± 687	< 60	< 28	< 35	< 179	< 33
	MEAN		-	5.1 ± 6.1	256 ± 362	3502 ± 1750	-	-	-	-	-

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

Table C-VIII.1 **CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015**

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
Control											
36	06/30/15	Cabbage	< 14	< 1.7	< 166	2745 ± 369	< 56	< 20	< 22	< 124	< 44
	06/30/15	Collards	< 17	9.7 ± 2.1	171 ± 117	4927 ± 374	< 40	< 15	< 14	< 98	< 33
	06/30/15	Kale	< 19	5.3 ± 2.1	465 ± 193	3539 ± 469	< 49	< 14	< 19	< 117	< 34
	07/28/15	Cabbage	< 14	< 2.8	< 146	2816 ± 277	< 60	< 12	< 15	< 110	< 28
	07/28/15	Collards	< 10	< 2.1	< 133	5079 ± 315	< 56	< 11	< 12	< 95	< 24
	07/28/15	Kale	< 17	4.0 ± 2.6	< 96	5061 ± 225	< 50	< 8	< 8	< 87	< 23
	08/27/15	Cabbage	< 9	< 2.3	< 157	2159 ± 317	< 45	< 14	< 17	< 112	< 20
	08/27/15	Collards	< 13	< 3.1	< 169	5163 ± 421	< 53	< 16	< 18	< 107	< 23
	08/27/15	Kale	< 12	< 2.9	< 170	4536 ± 346	< 50	< 16	< 17	< 117	< 23
	09/22/15	Cabbage	< 15	7.1 ± 1.0	< 203	2804 ± 450	< 41	< 27	< 27	< 120	< 33
	09/22/15	Collards	< 13	8.0 ± 2.3	< 235	4844 ± 636	< 43	< 28	< 25	< 118	< 34
	09/22/15	Kale	< 14	4.4 ± 2.2	< 269	4357 ± 710	< 48	< 26	< 38	< 122	< 29
	10/27/15	Cabbage	< 16	< 4.1	< 202	2820 ± 515	< 40	< 23	< 19	< 87	< 27
	10/27/15	Collards	< 20	< 3.8	< 281	5505 ± 631	< 56	< 31	< 31	< 154	< 41
	10/27/15	Kale	< 18	< 4.5	< 192	5313 ± 596	< 39	< 20	< 17	< 113	< 25
	MEAN		-	6.4 ± 4.5	318 ± 417	4111 ± 2320	-	-	-	-	-
66	06/30/15	Cabbage	< 14	< 2.1	< 214	3179 ± 416	< 50	< 15	< 19	< 113	< 8
	06/30/15	Collards	< 10	< 1.9	271 ± 142	3211 ± 335	< 46	< 16	< 17	< 103	< 35
	06/30/15	Kale	(1)								
	07/28/15	Cabbage	< 13	7.7 ± 2.0	123 ± 58	3986 ± 179	< 54	< 8	< 8	< 88	< 21
	07/28/15	Collards	< 17	6.8 ± 2.7	< 151	4045 ± 472	< 50	< 12	< 13	< 106	< 33
	07/28/15	Kale	(1)								
	08/27/15	Cabbage	< 11	< 2.9	< 200	3488 ± 419	< 58	< 21	< 24	< 130	< 40
	08/27/15	Collards	< 12	< 4.1	< 179	5349 ± 471	< 58	< 19	< 23	< 140	< 38
	08/27/15	Kale	(1)								
	09/22/15	Collards	< 19	6.0 ± 2.5	416 ± 219	5430 ± 739	< 56	< 36	< 31	< 157	< 38
	09/22/15	Kale	(1)								
	MEAN		-	6.8 ± 1.7	270 ± 292	4098 ± 1890	-	-	-	-	-

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, 2015

RESULTS IN UNITS OF MILLIREM/STD. QUARTER ± 2 STANDARD DEVIATION

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
1	11.5 ± 1.9	10.7 ± 0.1	11.4 ± 0.4	12.8 ± 0.1	10.9 ± 0.6
3	7.5 ± 0.8	7.9 ± 0.3	7.4 ± 2.4	7.6 ± 1.0	6.9 ± 4.0
4	8.5 ± 2.6	9.4 ± 0.4	9.8 ± 2.8	7.9 ± 0.6	7.0 ± 2.3
5	15.0 ± 2.2	15.3 ± 2.3	13.5 ± 1.1	16.2 ± 1.7	15.0 ± 0.6
6	8.9 ± 0.4	9.1 ± 1.0	8.6 ± 3.1	8.9 ± 0.7	8.8 ± 1.0
8	7.8 ± 1.1	8.5 ± 1.2	7.7 ± 0.9	7.7 ± 2.3	7.1 ± 3.9
9	7.0 ± 1.7	8.0 ± 2.7	6.5 ± 1.8	7.4 ± 2.0	6.1 ± 0.3
C	9.0 ± 1.0	9.3 ± 0.4	8.3 ± 1.0	9.4 ± 2.2	8.9 ± 0.9
11	8.4 ± 1.6	9.3 ± 0.6	7.8 ± 1.3	8.7 ± 0.4	7.6 ± 0.1
14	10.7 ± 1.6	10.0 ± 1.0	11.8 ± 3.5	10.2 ± 0.1	10.7 ± 0.0
22	7.5 ± 0.8	7.3 ± 1.1	8.0 ± 2.1	7.7 ± 4.2	7.1 ± 2.8
46	7.2 ± 2.2	7.3 ± 0.4	8.4 ± 2.0	7.2 ± 3.4	5.7 ± 2.4
47	8.9 ± 0.2	8.9 ± 2.0	8.8 ± 1.7	8.9 ± 1.4	9.0 ± 2.4
48	9.0 ± 3.4	11.2 ± 2.1	7.6 ± 0.8	9.5 ± 0.1	7.8 ± 0.4
51	11.0 ± 1.3	11.5 ± 0.8	11.5 ± 0.6	10.3 ± 1.7	10.5 ± 1.0
52	13.3 ± 0.4	13.1 ± 0.4	13.3 ± 0.6	13.3 ± 2.0	13.6 ± 0.1
53	12.7 ± 1.3	12.0 ± 0.6	13.6 ± 1.7	12.6 ± 0.4	12.5 ± 2.5
54	8.6 ± 1.2	8.5 ± 1.0	8.7 ± 1.6	9.4 ± 0.8	7.9 ± 0.1
55	19.1 ± 2.4	17.3 ± 1.0	19.8 ± 1.4 (1)	19.2 ± 3.5	19.9 ± 1.8
56	16.6 ± 2.2	15.0 ± 0.0	16.7 ± 0.6	17.5 ± 0.4	17.1 ± 1.0
57	12.8 ± 1.0	12.3 ± 0.6	13.1 ± 5.7	12.4 ± 0.6	13.3 ± 0.6
58	12.5 ± 2.1	11.3 ± 0.8	12.4 ± 0.7	12.5 ± 0.4	13.9 ± 3.3
59	10.1 ± 0.8	9.8 ± 1.3	10.3 ± 1.4	10.6 ± 1.7	9.8 ± 0.7
61	8.2 ± 1.9	9.4 ± 1.0	7.2 ± 0.3	8.5 ± 1.3	7.7 ± 0.7
62	9.0 ± 1.7	10.1 ± 0.4	8.8 ± 0.3	9.2 ± 2.5	8.0 ± 0.0
63	9.0 ± 1.2	8.7 ± 1.0	9.7 ± 0.7	9.3 ± 2.0	8.3 ± 0.7
64	8.4 ± 1.7	9.6 ± 1.3	7.8 ± 0.7	7.8 ± 0.4	8.3 ± 1.0
65	9.1 ± 1.5	9.0 ± 2.3	8.3 ± 0.6	9.1 ± 2.3	10.1 ± 3.0
66	7.9 ± 1.1	8.0 ± 1.8	7.7 ± 1.7	8.5 ± 2.0	7.2 ± 0.8
68	7.4 ± 1.8	7.7 ± 0.3	6.0 ± 1.3	8.0 ± 0.1	7.7 ± 0.8
71	10.1 ± 1.0	9.6 ± 1.6	9.6 ± 2.4	10.5 ± 1.8	10.5 ± 5.7
72	8.8 ± 2.4	10.1 ± 3.3	8.8 ± 1.7	9.1 ± 3.7	7.2 ± 1.0
73	7.6 ± 1.2	8.0 ± 1.3	7.0 ± 1.8	8.1 ± 1.6	7.1 ± 2.1
74	7.8 ± 0.9	7.8 ± 1.8	7.9 ± 0.0	8.2 ± 0.4	7.1 ± 0.8
75	10.6 ± 1.6	11.2 ± 1.1	10.8 ± 1.1	10.9 ± 0.7	9.4 ± 0.3
78	9.2 ± 1.6	8.6 ± 1.1	9.6 ± 2.3	10.1 ± 1.8	8.5 ± 1.7
79	9.5 ± 0.5	9.2 ± 2.0	9.3 ± 1.5	9.7 ± 3.5	9.6 ± 2.7
81	8.5 ± 1.3	8.1 ± 3.3	8.0 ± 4.8	9.4 ± 2.4	8.4 ± 0.8
82	8.8 ± 1.5	9.2 ± 0.7	9.3 ± 1.0	8.9 ± 2.0	7.7 ± 1.4
84	8.6 ± 1.3	9.1 ± 0.3	9.2 ± 2.8	8.1 ± 0.8	8.0 ± 0.1
85	7.7 ± 1.7	8.2 ± 0.0	7.6 ± 2.7	8.3 ± 0.0	6.5 ± 3.5
86	8.6 ± 1.0	9.3 ± 1.1	8.1 ± 0.3	8.5 ± 1.6	8.5 ± 0.8
88	6.8 ± 1.0	7.2 ± 0.0	6.5 ± 0.6	6.3 ± 3.3	7.3 ± 2.5
89	7.0 ± 1.6	7.7 ± 2.0	5.8 ± 1.4	7.3 ± 0.4	7.0 ± 1.4
90	7.2 ± 1.9	8.2 ± 2.0	7.2 ± 0.1	5.9 ± 3.4	7.6 ± 1.8
92	9.4 ± 1.4	9.1 ± 0.0	10.2 ± 4.9	8.6 ± 3.8	9.5 ± 0.4
98	7.9 ± 1.4	8.7 ± 0.1	7.4 ± 0.8	8.3 ± 0.1	7.3 ± 1.0
99	7.0 ± 2.6	8.8 ± 2.8	6.2 ± 0.6	7.2 ± 3.0	5.9 ± 1.1

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-IX.1 QUARTERLY OSLD RESULTS FOR OYSTER CREEK GENERATING STATION, 2015

RESULTS IN UNITS OF MILLIREM/STD. QUARTER ± 2 STANDARD DEVIATION

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
T1	11.5 ± 1.8	11.5 ± 1.1	10.4 ± 0.4	11.3 ± 1.0	12.6 ± 4.7
100	7.6 ± 1.0	7.7 ± 1.1	6.8 ± 0.0	7.8 ± 1.6 (1)	7.9 ± 0.0
101	8.4 ± 1.3	8.6 ± 0.1	7.9 ± 2.7	9.3 ± 3.0	7.9 ± 0.0
102	9.8 ± 1.4	10.2 ± 0.1	10.0 ± 3.4	10.2 ± 3.5	8.7 ± 1.0
103	8.5 ± 1.5	9.5 ± 2.5	8.2 ± 0.7	8.6 ± 0.3	7.7 ± 3.0
104	8.8 ± 0.6	8.7 ± 1.3	9.3 ± 0.0	8.7 ± 0.8	8.6 ± 1.4
105	6.6 ± 2.1	7.0 ± 1.1	6.6 ± 1.6	7.6 ± 0.4	5.1 ± 1.0
106	7.5 ± 1.3	8.2 ± 2.0	6.8 ± 2.0	7.9 ± 1.3	7.2 ± 1.0
107	8.2 ± 2.0	9.4 ± 2.3	7.8 ± 0.3	8.4 ± 1.0	7.0 ± 2.3
109	8.8 ± 1.5	9.2 ± 0.3	8.4 ± 3.0	9.6 ± 3.1	7.9 ± 0.1
110	8.5 ± 0.8	8.3 ± 0.1	9.0 ± 1.0	8.5 ± 1.4	8.0 ± 2.7
112	13.3 ± 1.6	12.5 ± 0.6	12.9 ± 2.1	13.4 ± 3.8	14.3 ± 0.6
113	9.1 ± 1.5	9.9 ± 1.6	8.5 ± 0.8	9.6 ± 4.4	8.5 ± 0.7

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-IX.2 **MEAN QUARTERLY OSLD RESULTS FOR THE SITE BOUNDARY, INTERMEDIATE, SPECIAL INTEREST AND CONTROL LOCATIONS FOR OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF MILLIREM PER STANDARD QUARTER ± 2 STANDARD DEVIATIONS OF THE STATION DATA

COLLECTION PERIOD	SITE BOUNDARY ± 2 S.D.	INTERMEDIATE	SPECIAL INTEREST	CONTROL
JAN-MAR	11.1 ± 4.7	9.0 ± 3.1	8.6 ± 2.0	9.7 ± 1.0
APR-JUN	11.2 ± 6.6	8.3 ± 3.0	7.9 ± 2.8	10.1 ± 4.9
JUL-SEP	11.4 ± 6.0	8.8 ± 3.3	8.2 ± 3.0	9.8 ± 1.1
OCT-DEC	11.3 ± 7.0	7.8 ± 3.4	8.0 ± 2.5	9.8 ± 2.5

TABLE C-IX.3 **SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF MILLIREM/STD. QUARTER

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
SITE BOUNDARY	76	7.2	19.9	11.2 ± 6.0
INTERMEDIATE	124	5.1	16.2	8.5 ± 3.3
SPECIAL INTEREST	36	5.8	10.5	8.2 ± 2.5
CONTROL	8	8.3	11.8	9.8 ± 2.2

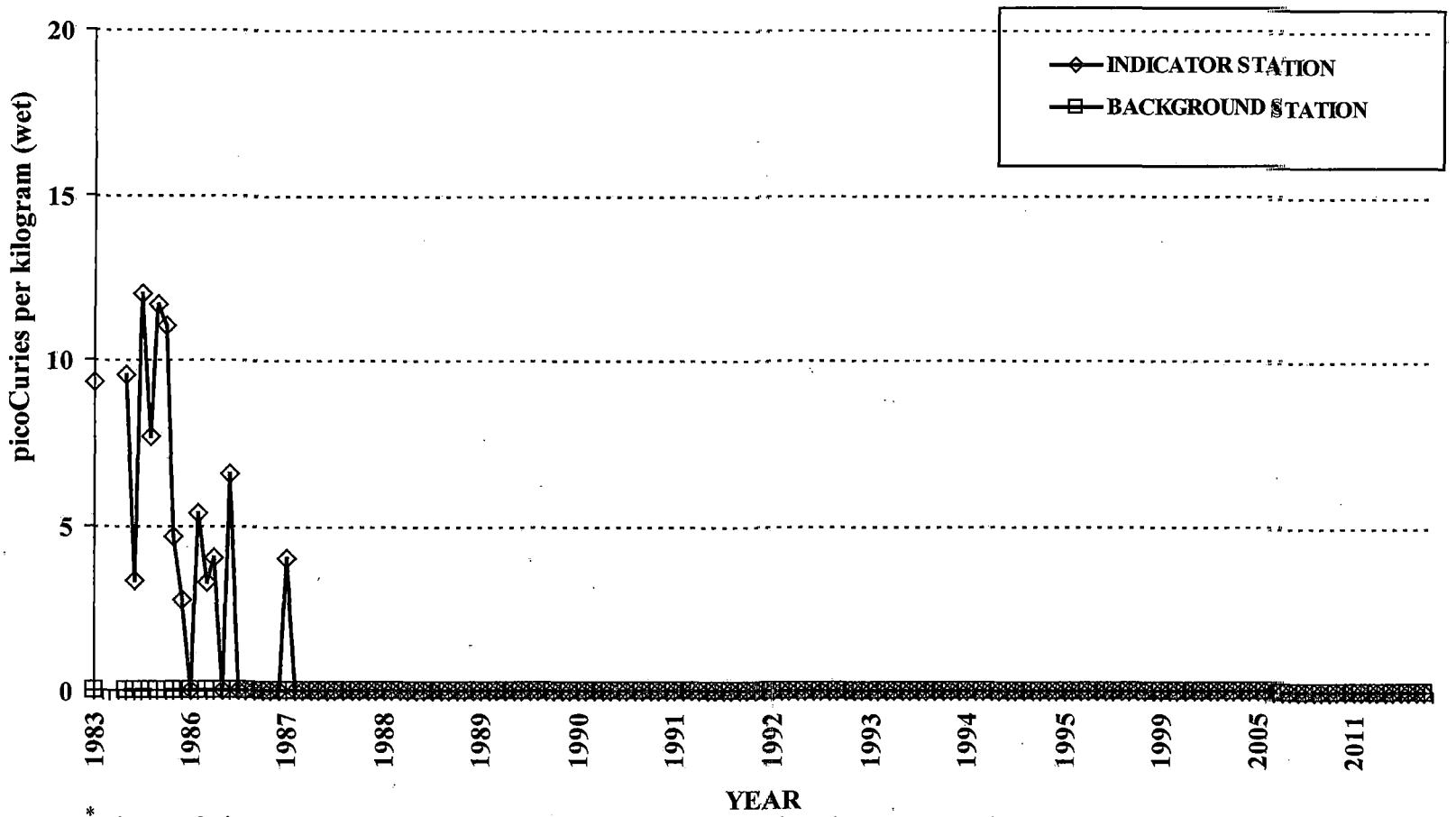
SITE BOUNDARY STATIONS - 1, 112, 113, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, T1

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

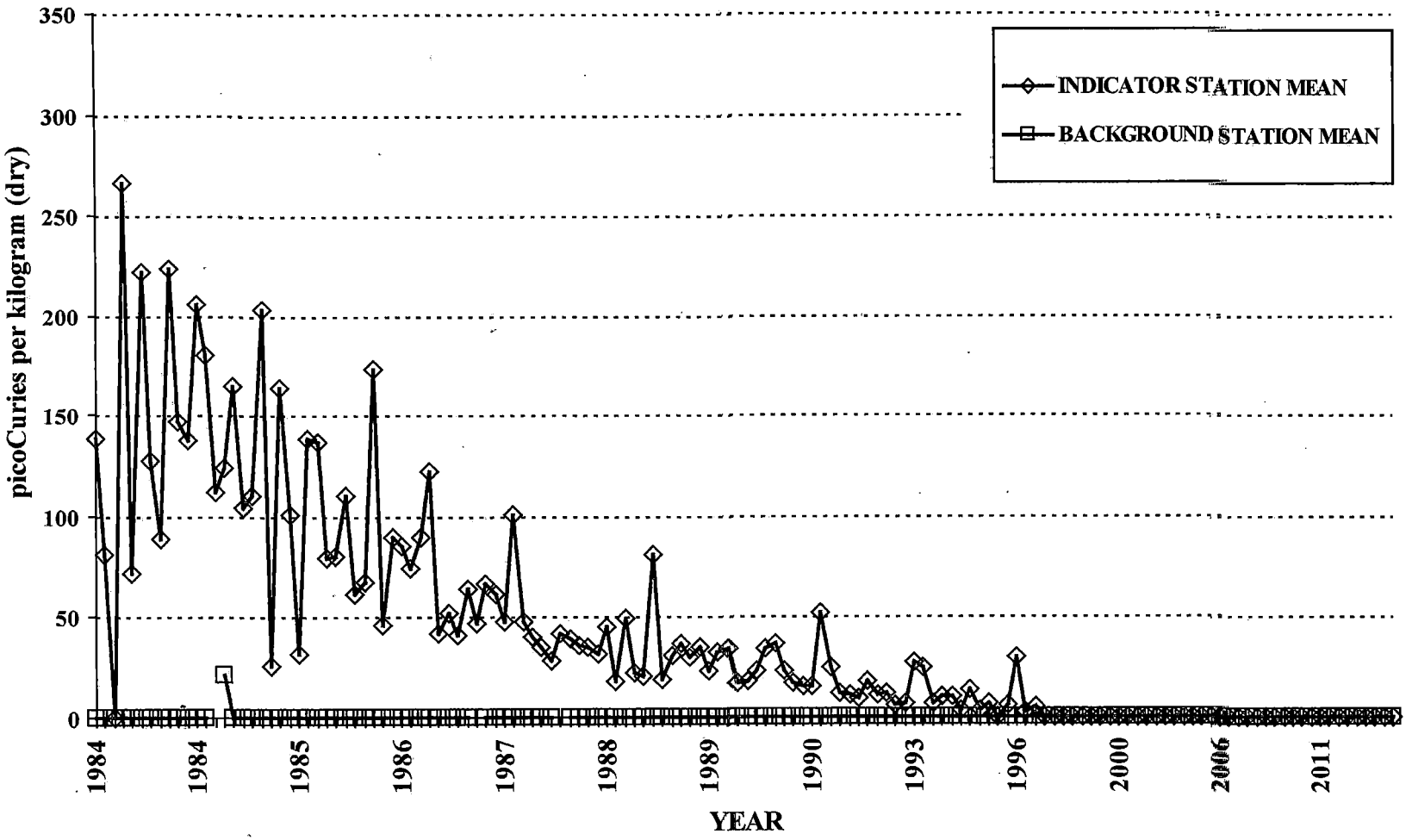
CONTROL STATIONS - 14, C

FIGURE C-1
MEAN COBALT-60 CONCENTRATION IN CLAMS
OYSTER CREEK GENERATING STATION, 1983 - 2015



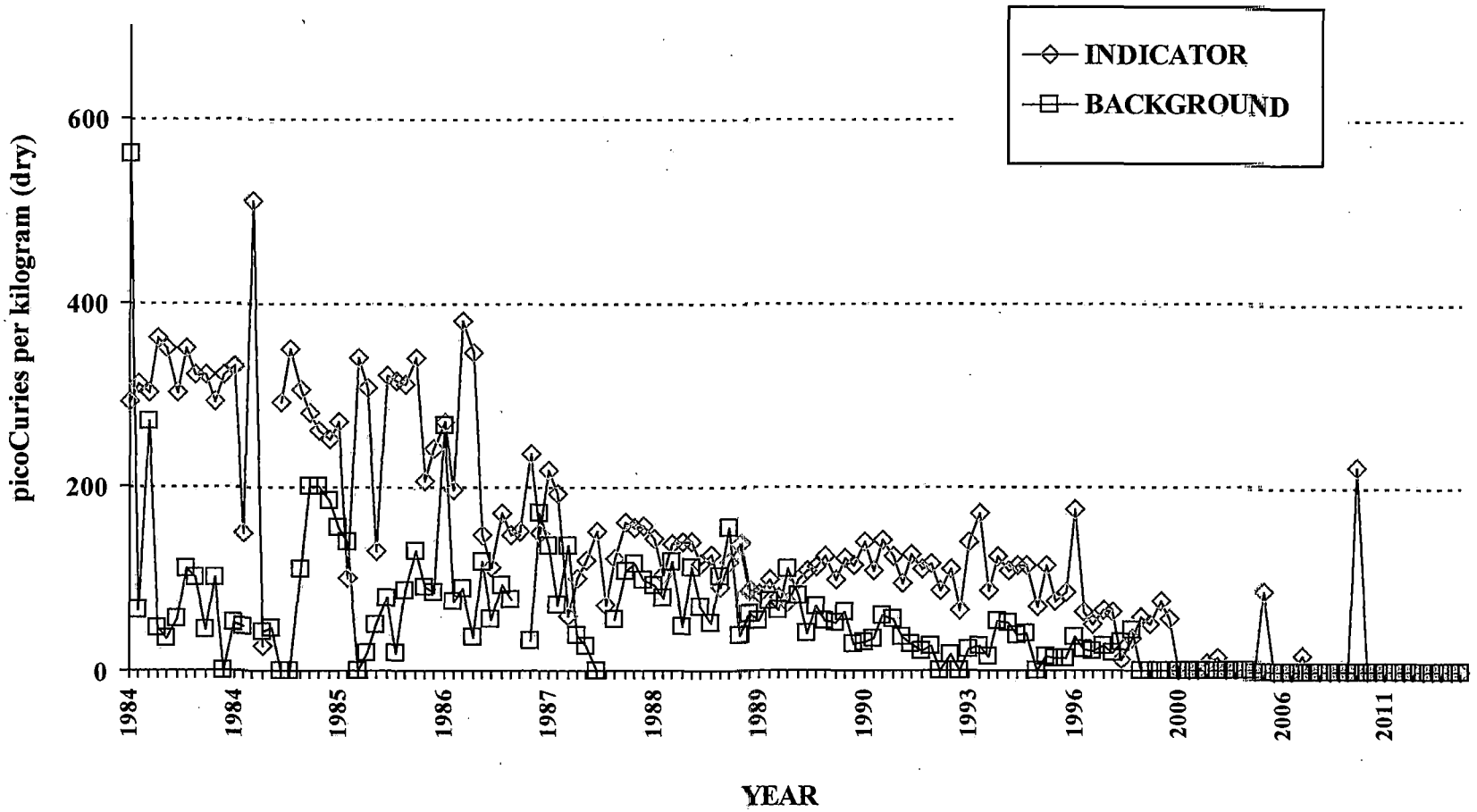
* The year designations on the x-axis reflect multiple sampling periods in a given year, as well as historical changes in the number of sampling periods per year.

FIGURE C-2
MEAN COBALT-60 CONCENTRATION IN AQUATIC SEDIMENT
OYSTER CREEK GENERATING STATION, 1984 - 2015



* 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 - 2015



* 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 - 2015

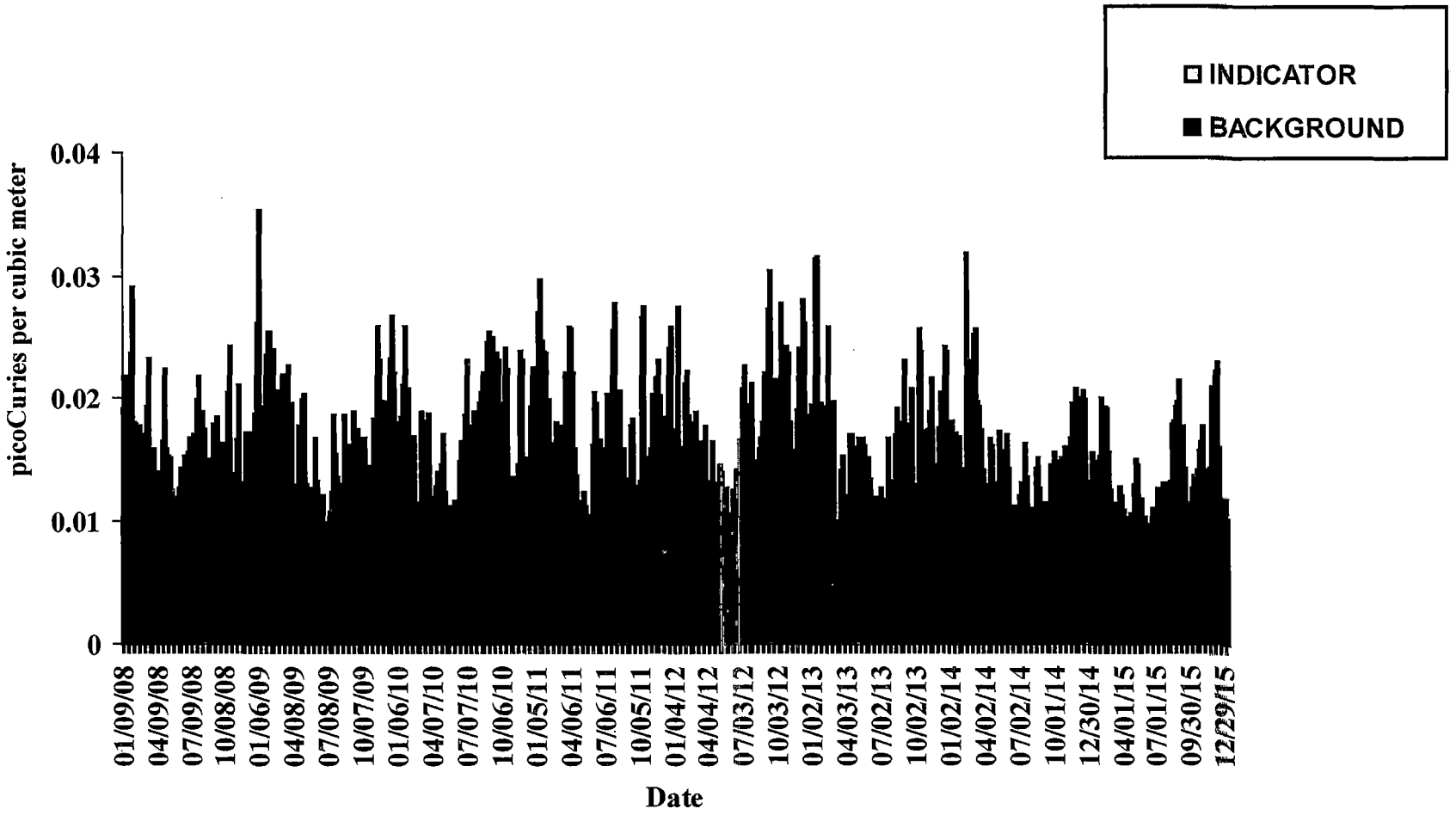
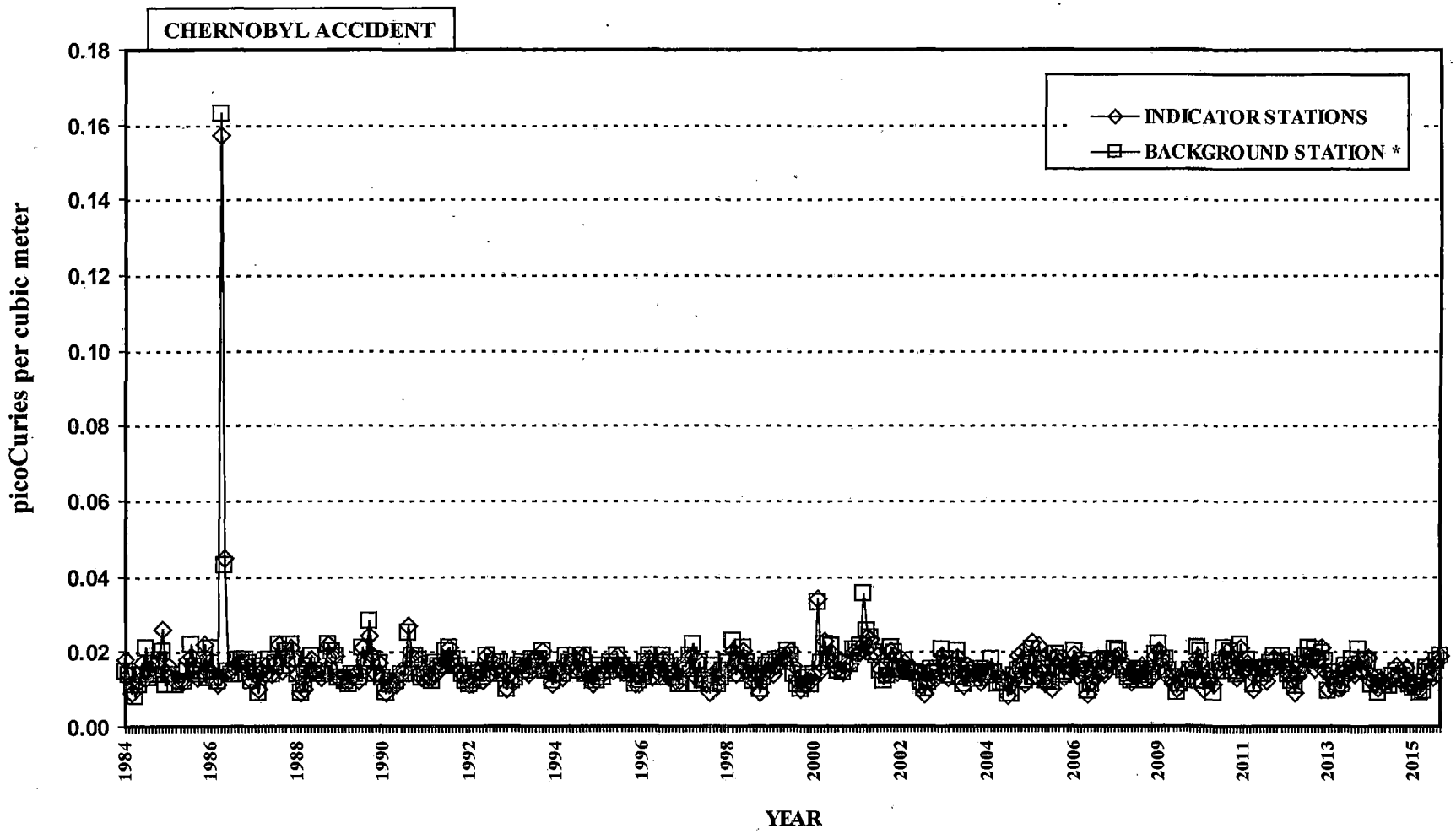
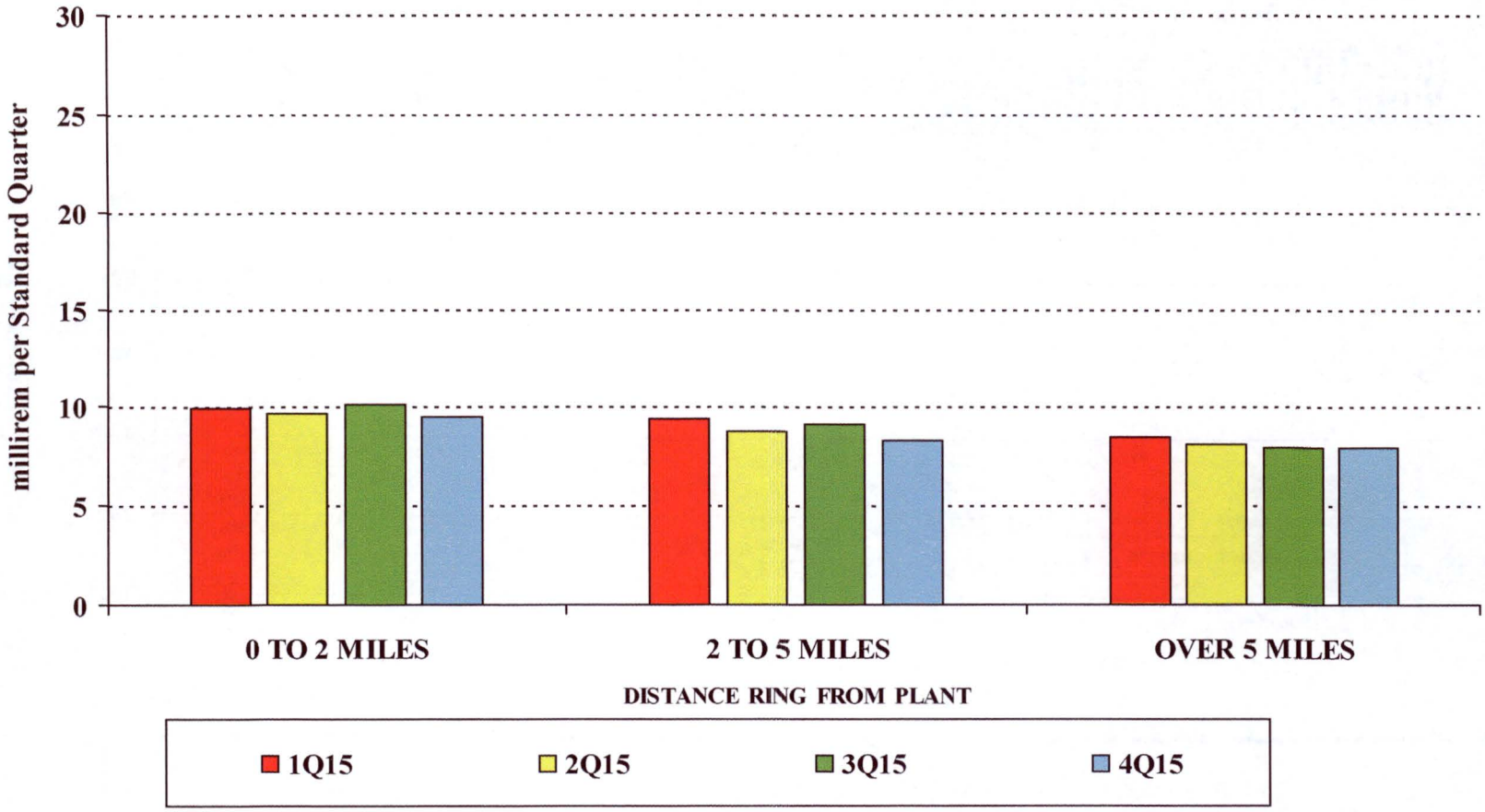


FIGURE C-5
MEAN MONTHLY GROSS BETA CONCENTRATIONS IN AIR PARTICULATES
OYSTER CREEK GENERATING STATION, 1984 - 2015



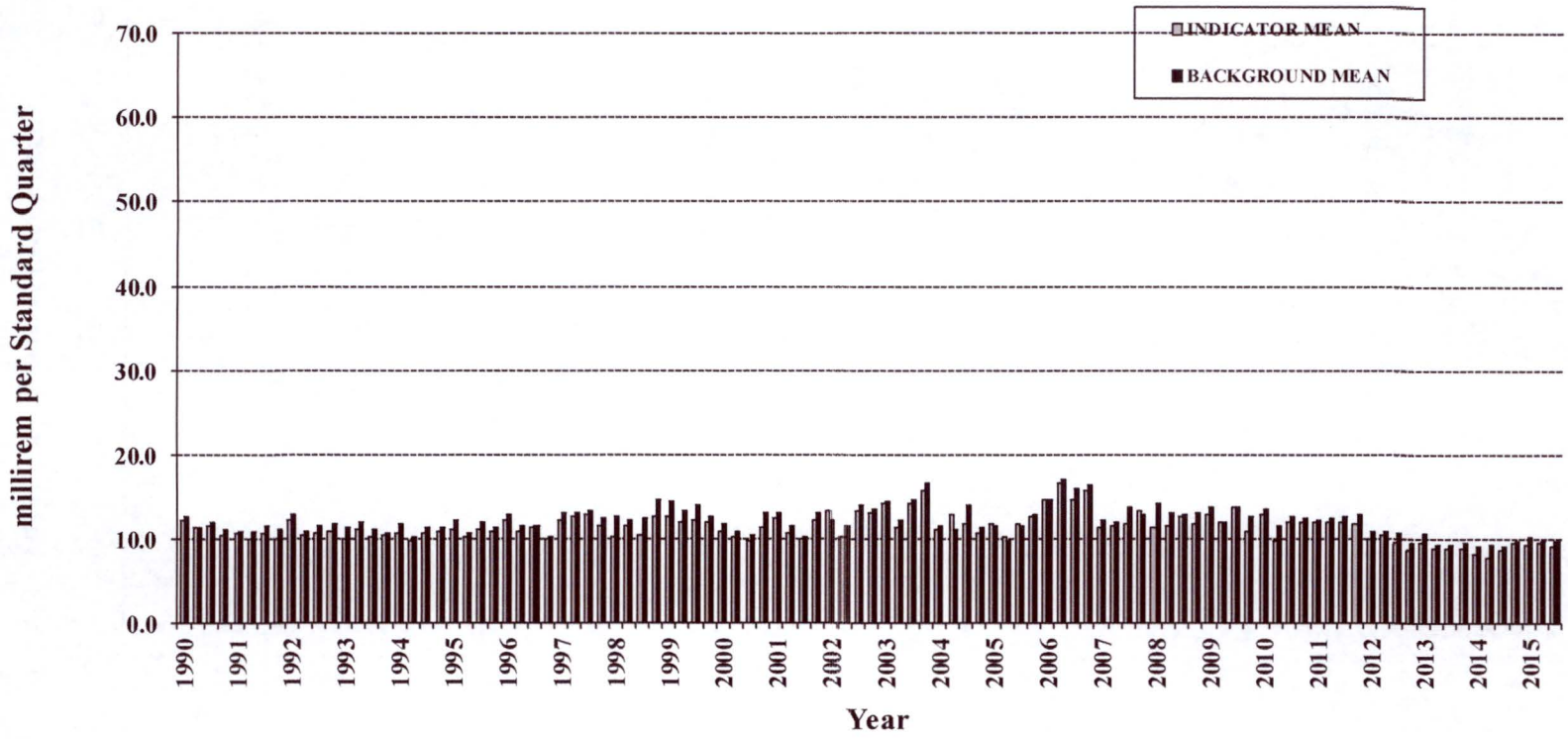
* Data from Cookstown station ONLY after December 1996

FIGURE C-6
MEAN QUARTERLY OSLD GAMMA DOSE
OYSTER CREEK GENERATING STATION, 2015



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 – 2015*



•Oyster Creek's dosimetry changed from TLD to OSLD in 2012.
•In order for Oyster Creek to align with the new ANSI N13.37-2014 Environmental Dosimetry – Criteria for System Design and Implementation, the data was reviewed back to the beginning of 2007 and updated per the guidance in the ANSI Standard.

APPENDIX D

DATA TABLES
QC 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, 2015

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	24	QCA	QCB
05/07/15	< 194	< 192	< 146
10/19/15	< 189	< 195	< 149
MEAN	-	-	-

TABLE D-I.2 CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

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
24	05/07/15	< 8	< 7	< 13	< 8	< 18	< 8	< 14	< 15	< 9	< 8	< 35	< 12
	10/19/15	< 5	< 5	< 11	< 6	< 13	< 6	< 11	< 9	< 6	< 5	< 28	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
QCA	05/07/15	< 5	< 5	< 10	< 4	< 9	< 4	< 8	< 8	< 4	< 4	< 22	< 6
	10/19/15	< 5	< 5	< 10	< 5	< 11	< 5	< 9	< 10	< 5	< 5	< 23	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
QCB	05/07/15	< 4	< 3	< 3	< 3	< 6	< 3	< 4	< 9	< 3	< 2	< 14	< 5
	10/19/15	< 3	< 3	< 6	< 2	< 4	< 3	< 5	< 9	< 3	< 4	< 12	< 5
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE D-II.1 CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1N	1S	QCB 1N	QCB 1S
01/13/15 - 01/29/15	< 163	(1)	< 190	(1)
02/06/15 - 02/25/15	< 164	(1)	< 144	(1)
03/04/15 - 03/26/15	< 177	(1)	< 147	(1)
04/01/15 - 05/01/15	< 186	(1)	< 147	(1)
05/07/15 - 05/27/15	< 187	(1)	< 150	(1)
06/05/15 - 06/24/15	< 163	< 162	< 150	< 150
07/07/15 - 07/28/15	< 188	< 187	< 150	< 151
08/07/15 - 08/26/15	< 191	(1)	< 179	(1)
09/02/15 - 09/30/15	< 187	(1)	< 149	(1)
10/09/15 - 10/28/15	< 190	(1)	< 143	(1)
11/06/15 - 12/03/15	< 185	(1)	< 145	(1)
12/11/15 - 12/29/15	< 190	(1)	< 156	(1)
MEAN	-	-	-	-

TABLE D-II.2 CONCENTRATIONS OF I-131 IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	1N	1S	QCB 1N	QCB 1S
01/13/15 - 01/29/15	< 0.7	(1)	< 0.4	(1)
02/06/15 - 02/25/15	< 0.4	(1)	< 0.4	(1)
03/04/15 - 03/26/15	< 0.6	(1)	< 0.3	(1)
04/01/15 - 05/01/15	< 0.6	(1)	< 0.5	(1)
05/07/15 - 05/27/15	< 0.6	(1)	< 0.4	(1)
06/05/15 - 06/24/15	< 1.1	< 0.6	< 0.9	< 0.4
07/07/15 - 07/28/15	< 0.3	< 0.7	< 0.2	< 0.4
08/07/15 - 08/26/15	< 0.7	(1)	< 0.2	(1)
09/02/15 - 09/30/15	< 0.8	(1)	< 0.4	(1)
10/09/15 - 10/28/15	< 0.8	(1)	< 0.5	(1)
11/06/15 - 12/03/15	< 0.4	(1)	< 0.4	(1)
12/11/15 - 12/29/15	< 0.5	(1)	< 0.2	(1)
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, 2015

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	01/13/15 - 01/29/15	< 5	< 6	< 12	< 4	< 11	< 6	< 11	< 5	< 6	< 35	< 9
	02/03/15 - 02/24/15	< 6	< 6	< 12	< 5	< 14	< 7	< 10	< 6	< 7	< 34	< 10
	03/03/15 - 03/24/15	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 1	< 2	< 20	< 7
	03/31/15 - 04/28/15	< 4	< 4	< 9	< 3	< 7	< 4	< 7	< 4	< 4	< 28	< 8
	05/05/15 - 05/26/15	< 4	< 5	< 10	< 6	< 11	< 6	< 8	< 5	< 5	< 33	< 10
	06/02/15 - 06/09/15	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 1	< 1	< 19	< 5
	07/07/15 - 07/28/15	< 5	< 4	< 10	< 5	< 9	< 5	< 9	< 5	< 5	< 29	< 10
	08/04/15 - 08/25/15	< 6	< 5	< 13	< 7	< 12	< 6	< 12	< 7	< 7	< 32	< 10
	09/01/15 - 09/29/15	< 6	< 5	< 16	< 6	< 13	< 5	< 6	< 5	< 7	< 30	< 9
	10/06/15 - 10/27/15	< 6	< 6	< 10	< 5	< 12	< 7	< 6	< 6	< 7	< 24	< 9
	11/03/15 - 12/01/15	< 8	< 6	< 12	< 5	< 13	< 7	< 9	< 7	< 7	< 35	< 8
	12/08/15 - 12/29/15	< 5	< 5	< 9	< 5	< 11	< 6	< 8	< 6	< 7	< 34	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-
1S	01/07/15 - 01/29/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	02/06/15 - 02/25/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	03/04/15 - 03/26/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	04/01/15 - 04/30/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	05/07/15 - 05/28/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	06/05/15 - 06/23/15	< 2	< 3	< 6	< 2	< 4	< 2	< 5	< 2	< 3	< 20	< 6
	06/30/15 - 07/21/15	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 2	< 3	< 21	< 6
	08/05/15 - 08/26/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	09/02/15 - 10/01/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	10/07/15 - 10/28/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	11/06/15 - 12/03/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	12/11/15 - 12/29/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	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, 2015**

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	01/13/15 - 01/29/15	< 2	< 2	< 3	< 1	< 2	< 1	< 4	< 2	< 2	< 16	< 2
	02/03/15 - 02/24/15	< 3	< 3	< 4	< 2	< 6	< 3	< 4	< 3	< 2	< 17	< 4
	03/03/15 - 03/24/15	< 2	< 2	< 3	< 2	< 2	< 2	< 2	< 3	< 3	< 15	< 3
	03/31/15 - 04/28/15	< 2	< 2	< 3	< 2	< 4	< 2	< 4	< 2	< 3	< 18	< 3
	05/05/15 - 05/26/15	< 2	< 1	< 5	< 2	< 3	< 3	< 6	< 4	< 2	< 14	< 4
	06/02/15 - 06/09/15	< 1	< 1	< 2	< 1	< 2	< 2	< 3	< 1	< 1	< 17	< 4
	07/07/15 - 07/28/15	< 2	< 3	< 2	< 1	< 5	< 1	< 4	< 3	< 3	< 11	< 2
	08/04/15 - 08/25/15	< 2	< 3	< 4	< 2	< 4	< 3	< 4	< 2	< 3	< 13	< 4
	09/01/15 - 09/29/15	< 3	< 3	< 5	< 2	< 4	< 2	< 5	< 2	< 3	< 14	< 4
	10/06/15 - 10/27/15	< 2	< 4	< 7	< 3	< 4	< 5	< 6	< 5	< 2	< 17	< 3
	11/03/15 - 12/01/15	< 2	< 2	< 4	< 2	< 5	< 2	< 2	< 2	< 3	< 12	< 3
	12/08/15 - 12/29/15	< 2	< 2	< 5	< 2	< 3	< 2	< 5	< 2	< 2	< 16	< 3
	MEAN	-	-	-	-	-	-	-	-	-	-	-
QCB 1S	01/13/15 - 01/29/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	02/03/15 - 02/24/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	03/03/15 - 03/24/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	03/31/15 - 04/28/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	05/05/15 - 05/26/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	06/05/15 - 06/23/15	< 3	< 3	< 5	< 2	< 6	< 3	< 5	< 3	< 3	< 14	< 3
	06/30/15 - 07/21/15	< 1	< 1	< 4	< 1	< 3	< 2	< 3	< 1	< 2	< 15	< 4
	08/04/15 - 08/25/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	09/01/15 - 09/29/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	10/06/15 - 10/27/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	11/03/15 - 12/01/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	12/08/15 - 12/29/15 (1)	-	-	-	-	-	-	-	-	-	-	-
	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, 2015

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	W-3C	QCB
01/12/15	< 191	< 188
04/18/15	< 173	< 152
07/21/15	< 190	< 147
10/15/15	< 185	< 142
MEAN	-	-

TABLE D-III.2 CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

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	01/12/15	< 7	< 7	< 15	< 8	< 12	< 7	< 14	< 12	< 6	< 6	< 36	< 11
	04/18/15	< 5	< 5	< 10	< 6	< 8	< 5	< 9	< 14	< 4	< 5	< 32	< 10
	07/21/15	< 5	< 5	< 11	< 5	< 11	< 5	< 11	< 10	< 6	< 5	< 28	< 9
	10/15/15	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 12	< 4
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
QCB	01/12/15	< 3	< 2	< 4	< 2	< 5	< 3	< 2	< 6	< 2	< 2	< 12	< 3
	04/18/15	< 2	< 2	< 5	< 2	< 3	< 3	< 4	< 16	< 2	< 3	< 24	< 3
	07/21/15	< 6	< 4	< 5	< 4	< 8	< 4	< 8	< 10	< 3	< 4	< 25	< 7
	10/15/15	< 2	< 2	< 4	< 2	< 5	< 3	< 3	< 6	< 2	< 3	< 9	< 3
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

TABLE D-IV.1 CONCENTRATIONS OF GAMMA EMITTERS IN CLAM SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

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	05/05/15	2089 ± 698	< 49	< 65	< 150	< 40	< 83	< 54	< 44
	10/19/15	< 787	< 89	< 92	< 179	< 81	< 225	< 89	< 87
QCA	05/05/15	1490 ± 778	< 67	< 92	< 232	< 48	< 120	< 75	< 72
QCB	05/05/15	1632 ± 75	< 3	< 3	< 9	< 4	< 6	< 3	< 3
	MEAN*	1737 ± 626	-	-	-	-	-	-	-

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

TABLE D-V.1 CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

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	05/05/15	< 606	3165 ± 722	< 51	< 59	< 50	< 47	< 53	1007 ± 940	368 ± 77
	10/19/15	< 1050	9615 ± 2086	< 124	< 135	< 139	< 122	< 139	2462 ± 1667	679 ± 195
	MEAN*		6390 ± 9122	-	-	-	-	-	1735 ± 2058	524 ± 440
QCA	05/05/15	< 819	9110 ± 1290	< 79	< 70	< 47	< 69	< 73	2340 ± 1540	440 ± 152
	10/19/15	< 1120	9450 ± 2470	< 114	< 124	< 42	< 112	< 129	3970 ± 2110	781 ± 312
	MEAN*	-	9280 ± 240	-	-	-	-	-	3155 ± 2305	611 ± 482
QCB	05/05/15	< 147	5876 ± 408	< 14	< 14	< 10	< 9	25 ± 14	905 ± 342	< 1172
	10/19/15	< 290	8298 ± 528	< 20	< 22	< 19	< 17	< 21	1577 ± 576	< 1530
	MEAN*	-	7087 ± 3425	-	-	-	-	25 ± 0	1241 ± 950	-

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

TABLE D-VI.1 CONCENTRATIONS OF STRONTIUM AND GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF OYSTER CREEK GENERATING STATION, 2015

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	08/27/15	< 9	< 2.3	2159 ± 317	< 45	< 14	< 17	< 112	< 20	L64315-9
	Collards	08/27/15	< 13	< 3.1	5163 ± 421	< 53	< 16	< 18	< 107	< 23	L64315-10
	Kale	08/27/15	< 12	< 2.9	4536 ± 346	< 50	< 16	< 17	< 117	< 23	L64315-11
		MEAN*	-	-	3953 ± 3169	-	-	-	-	-	
QCA	Cabbage	08/27/15	< 13	< 2.6	1720 ± 369	< 53	< 18	< 22	< 139	< 57	
	Collards	08/27/15	< 13	< 3.3	5120 ± 433	< 56	< 19	< 19	< 126	< 44	
	Kale	08/27/15	< 10	< 2.4	5030 ± 385	< 46	< 14	< 16	< 115	< 28	
		MEAN*	-	-	3957 ± 3875	-	-	-	-	-	
QCB	Cabbage	08/27/15	< 3	< 1.0	1795 ± 188	< 12	< 6	< 4	< 46	< 8	
	Collards	08/27/15	< 7	5.0 ± 2.0	4309 ± 349	< 24	< 8	< 11	< 66	< 13	
	Kale	08/27/15	< 5	3.0 # 1.0	4651 ± 403	< 15	< 8	< 12	< 60	< 17	
		MEAN*	-	4.0 ± 2.8	3585 ± 3119	-	-	-	-	-	

* 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, 2015
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2015	E11181	Milk	Sr-89	pCi/L	88.9	97.2	0.91	A
			Sr-90	pCi/L	12.2	17.4	0.70	W
	~~E11182~~	~~Milk~~	~~I-131~~	~~pCi/L~~	~~61.3~~	~~65.1~~	~~0.94~~	~~A~~
			Ce-141	pCi/L	104	113	0.92	A
			Cr-51	pCi/L	265	276	0.96	A
			Cs-134	pCi/L	138	154	0.90	A
			Cs-137	pCi/L	205	207	0.99	A
			Co-58	pCi/L	178	183	0.97	A
			Mn-54	pCi/L	187	188	0.99	A
			Fe-59	pCi/L	182	177	1.03	A
			Zn-65	pCi/L	345	351	0.98	A
			Co-60	pCi/L	379	405	0.94	A
	E11184	AP	Ce-141	pCi	107	85.0	1.26	W
			Cr-51	pCi	261	224	1.17	A
			Cs-134	pCi	74.6	77.0	0.97	A
			Cs-137	pCi	99.6	102	0.98	A
			Co-58	pCi	99.8	110	0.91	A
			Mn-54	pCi	99.2	96.9	1.02	A
			Fe-59	pCi	109	119	0.92	A
			Zn-65	pCi	188	183	1.03	A
			Co-60	pCi	200	201	1.00	A
	E11183	Charcoal	I-131	pCi	82.9	85.4	0.97	A
	E11185	Water	Fe-55	pCi/L	1950	1900	1.03	A
June 2015	E11234	Milk	Sr-89	pCi/L	94.9	92.6	1.02	A
			Sr-90	pCi/L	14.3	12.7	1.13	A
	E11238	Milk	I-131	pCi/L	93.2	95.9	0.97	A
			Ce-141	pCi/L	Not provided for this study			
			Cr-51	pCi/L	349	276	1.26	W
			Cs-134	pCi/L	165	163	1.01	A
			Cs-137	pCi/L	143	125	1.14	A
			Co-58	pCi/L	82.0	68.4	1.20	A
			Mn-54	pCi/L	113	101	1.12	A
			Fe-59	pCi/L	184	151	1.22	W
			Zn-65	pCi/L	269	248	1.08	A
			Co-60	pCi/L	208	193	1.08	A
	E11237	AP	Ce-141	pCi	Not provided for this study			
			Cr-51	pCi	323	233	1.39	N (1)
			Cs-134	pCi	139	138	1.01	A
			Cs-137	pCi	111	106	1.05	A
			Co-58	pCi	54.0	57.8	0.93	A
			Mn-54	pCi	96.8	84.9	1.14	A
			Fe-59	pCi	162	128	1.27	W
			Zn-65	pCi	198	210	0.94	A
			Co-60	pCi	178	163	1.09	A
	E11236	Charcoal	I-131	pCi	93.9	80	1.17	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2015
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
June 2015	E11238	Water	Fe-55	pCi/L	1890	1790	1.06	A
September 2015	E11289	Milk	Sr-89	pCi/L	95.7	99.1	0.97	A
			~~Sr-90~~	~~pCi/L~~	~~15.4~~	~~16.4~~	~~0.94~~	~~A~~
	E11290	Milk	I-131	pCi/L	94.9	99.9	0.95	A
			Ce-141	pCi/L	228	213	1.07	A
			Cr-51	pCi/L	499	538	0.93	A
			Cs-134	pCi/L	208	212	0.98	A
			Cs-137	pCi/L	270	255	1.06	A
			Co-58	pCi/L	275	263	1.05	A
			Mn-54	pCi/L	320	290	1.10	A
			Fe-59	pCi/L	255	226	1.13	A
			Zn-65	pCi/L	392	353	1.11	A
			Co-60	pCi/L	350	330	1.06	A
	E11292	AP	Ce-141	pCi	104	85.1	1.22	W
			Cr-51	pCi	262	215	1.22	W
			Cs-134	pCi	86.1	84.6	1.02	A
			Cs-137	pCi	93	102	0.91	A
			Co-58	pCi	106	105	1.01	A
			Mn-54	pCi	117	116	1.01	A
			Fe-59	pCi	94.8	90.2	1.05	A
			~~Zn-65~~	~~pCi~~	~~160~~	~~141~~	~~1.13~~	~~A~~
			Co-60	pCi	146	132	1.11	A
	E11291	Charcoal	I-131	pCi	85.9	81.7	1.05	A
	E11293	Water	Fe-55	pCi/L	2090	1800	1.16	A
	E11294	Soil	Ce-141	pCi/kg	209	222	0.94	A
			Cr-51	pCi/kg	463	560	0.83	A
			Cs-134	pCi/kg	231	221	1.05	A
			Cs-137	pCi/kg	311	344	0.90	A
			Co-58	pCi/kg	245	274	0.89	A
			Mn-54	pCi/kg	297	302	0.98	A
			Fe-59	pCi/kg	248	235	1.06	A
			Zn-65	pCi/kg	347	368	0.94	A
			Co-60	pCi/kg	328	344	0.95	A
December 2015	E11354	Milk	Sr-89	pCi/L	96.2	86.8	1.11	A
			Sr-90	pCi/L	14.8	12.5	1.18	A
	E11355	Milk	I-131	pCi/L	95.1	91.2	1.04	A
			Ce-141	pCi/L	117	129	0.91	A
			Cr-51	pCi/L	265	281	0.94	A
			Cs-134	pCi/L	153	160	0.96	A
			Cs-137	pCi/L	119	115	1.03	A
			Co-58	pCi/L	107	110	0.97	A
			Mn-54	pCi/L	153	145	1.06	A
			Fe-59	pCi/L	117	108	1.08	A
			Zn-65	pCi/L	261	248	1.05	A
			Co-60	pCi/L	212	213	1.00	A

TABLE E-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2015
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2015	E11357	AP	Ce-141	pCi	89.9	84.0	1.07	A
			Cr-51	pCi	215	184	1.17	A
			Cs-134	pCi	103	105	0.98	A
			~~Cs-137~~	~~pCi~~	~~76.6~~	~~74.8~~	~~1.02~~	~~A~~
			Co-58	pCi	76.2	71.9	1.06	A
			Mn-54	pCi	91.4	94.4	0.97	A
			Fe-59	pCi	78.6	70.3	1.12	A
			Zn-65	pCi	173	162	1.07	A
			Co-60	pCi	138	139	0.99	A
	E11422	AP	Sr-89	pCi	98.0	96.9	1.01	A
			Sr-90	pCi	10.0	14.0	0.71	W
	E11356	Charcoal	I-131	pCi	74.9	75.2	1.00	A
	E11358	Water	Fe-55	pCi/L	2160	1710	1.26	W
	E11353	Soil	Ce-141	pCi/kg	252	222	1.14	A
			Cr-51	pCi/kg	485	485	1.00	A
			Cs-134	pCi/kg	319	277	1.15	A
			Cs-137	pCi/kg	292	276	1.06	A
			Co-58	pCi/kg	193	190	1.02	A
			Mn-54	pCi/kg	258	250	1.03	A
			~~Fe-59~~	~~pCi/kg~~	~~218~~	~~186~~	~~1.17~~	~~A~~
			Zn-65	pCi/kg	457	429	1.07	A
			Co-60	pCi/kg	381	368	1.04	A

(1) AP Cr-51 - Cr-51 has the shortest half-life and the weakest gamma energy of the mixed nuclide sample, which produces a large error. Taking into account the error, the lowest value would be 119% of the reference value, which would be considered acceptable. NCR 15-18

(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 **DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)**
TELEDYNE BROWN ENGINEERING, 2015
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide*	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
March 2015	15-MaW32	Water	Am-241	Bq/L	0.632	0.654	0.458 - 0.850	A
			Ni-63	Bq/L	2.5		(1)	A
			Pu-238	Bq/L	0.0204	0.0089	(2)	A
			Pu-239/240	Bq/L	0.9	0.8	0.582 - 1.082	A
	15-MaS32	Soil	Ni-63	Bq/kg	392	448.0	314 - 582	A
			Sr-90	Bq/kg	286	653	487 - 849	N (3)
	15-RdF32	AP	Sr-90	Bq/sample	-0.0991		(1)	A
			U-234/233	Bq/sample	0.0211	0.0155	0.0109 - 0.0202	N (3)
			U-238	Bq/sample	0.095	0.099	0.069 - 0.129	A
	15-GrF32	AP	Gr-A	Bq/sample	0.448	1.77	0.53 - 3.01	N (3)
			Gr-B	Bq/sample	0.7580	0.75	0.38 - 1.13	A
	15-RdV32	Vegetation	Cs-134	Bq/sample	8.08	7.32	5.12 - 9.52	A
			Cs-137	Bq/sample	11.6	9.18	6.43 - 11.93	W
			Co-57	Bq/sample	-0.0096		(1)	A
			Co-60	Bq/sample	6.53	5.55	3.89 - 7.22	A
			Mn-54	Bq/sample	0.0058		(1)	A
			Sr-90	Bq/sample	0.999	1.08	0.76 - 1.40	A
			Zn-65	Bq/sample	-0.108		(1)	A
September 2015	15-MaW33	Water	Am-241	Bq/L	1.012	1.055	0.739 - 1.372	A
			Ni-63	Bq/L	11.8	8.55	5.99 - 11.12	N (4)
			Pu-238	Bq/L	0.727	0.681	0.477 - 0.885	A
			Pu-239/240	Bq/L	0.830	0.900	0.630 - 1.170	A
	15-MaS33	Soil	Ni-63	Bq/kg	635	682	477 - 887	A
			Sr-90	Bq/kg	429	425	298 - 553	A
	15-RdF33	AP	Sr-90	Bq/sample	1.48	2.18	1.53 - 2.83	N (4)
			U-234/233	Bq/sample	0.143	0.143	0.100 - 0.186	A
			U-238	Bq/sample	0.149	0.148	0.104 - 0.192	A
	15-GrF33	AP	Gr-A	Bq/sample	0.497	0.90	0.27 - 1.53	A
			Gr-B	Bq/sample	1.34	1.56	0.78 - 2.34	A
	15-RdV33	Vegetation	Cs-134	Bq/sample	6.10	5.80	4.06 - 7.54	A
			Cs-137	Bq/sample	0.0002		(1)	A
			Co-57	Bq/sample	8.01	6.62	4.63 - 8.61	W
			Co-60	Bq/sample	4.97	4.56	3.19 - 5.93	A
			Mn-54	Bq/sample	8.33	7.68	5.38 - 9.98	A
			Sr-90	Bq/sample	0.386	1.30	0.91 - 1.69	N (4)
			Zn-65	Bq/sample	6.07	5.46	3.82 - 7.10	A

(1) False positive test.

(2) Sensitivity evaluation.

(3) Soil Sr-90 - incomplete digestion of the sample resulted in low results; AP U-234/233 - extremely low activity was difficult to quantify AP Gr-A - the MAPEP filter has the activity embedded in the filter. To corrected the low bias, TBE will create an attenuated efficiency for MAPEP samples. NCR 15-13

(4) Water Ni-63 extremely low activity was difficult to quantify; AP & Vegetation Sr-90 was lost during separation, possible from substance added by MAPEP NCR 15-21.

(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-3

ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2015

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Limits	Evaluation (c)
May 2015	RAD-101	Water	Sr-89	pCi/L	45.2	63.2	51.1 - 71.2	N (1)
			Sr-90	pCi/L	28.0	41.9	30.8 - 48.1	N (1)
			Ba-133	pCi/L	80.6	82.5	63.9 - 90.8	A
			Cs-134	pCi/L	71.7	75.7	61.8 - 83.3	A
			Cs-137	pCi/L	187	189	170 - 210	A
			Co-60	pCi/L	85.7	84.5	76.0 - 95.3	A
			Zn-65	pCi/L	197	203	183 - 238	A
			Gr-A	pCi/L	26.1	42.6	22.1 - 54.0	A
			Gr-B	pCi/L	28.8	32.9	21.3 - 40.6	A
			I-131	pCi/L	23.5	23.8	19.7 - 28.3	A
			U-Nat	pCi/L	6.19	6.59	4.99 - 7.83	A
			H-3	pCi/L	3145	3280	2770 - 3620	A
November 2015	RAD-103	Water	Sr-89	pCi/L	40.9	35.7	26.7 - 42.5	A
			Sr-90	pCi/L	29.3	31.1	22.7 - 36.1	A
			Ba-133	pCi/L	31.5	32.5	25.9 - 36.7	A
			Cs-134	pCi/L	59.65	62.3	50.6 - 68.5	A
			Cs-137	pCi/L	156	157	141 - 175	A
			Co-60	pCi/L	70.6	71.1	64.0 - 80.7	A
			Zn-65	pCi/L	145	126	113 - 149	A
			Gr-A	pCi/L	38.2	51.6	26.9 - 64.7	A
			Gr-B	pCi/L	42.0	36.6	24.1 - 44.2	A
			I-131	pCi/L	24.8	26.3	21.9 - 31.0	A
			U-Nat	pCi/L	146.90	56.2	45.7 - 62.4	N (2)
			H-3	pCi/L	21100	21300	18700 - 23400	A

(1) Yield on the high side of our acceptance range indicates possibility of calcium interference. NCR 15-09

(2) Technician failed to dilute original sample. If dilulted, the result would have been 57.1, which fell within the acceptance limits. NCR 15-19

(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-4

ERA (a) STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM[a]
ENVIRONMENTAL, INC., 2015

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result [b]	ERA Result [c]	Control Limits	Acceptance
ERW-1444	04/06/15	Sr-89	59.71 ± 5.44	63.20	51.10 - 71.20	Pass
~~ERW-1444~~	~~04/06/15~~	~~Sr-90~~	~~43.41 ± 2.43~~	~~41.90~~	~~30.80 - 48.10~~	~~Pass~~
ERW-1448	04/06/15	Ba-133	77.75 ± 4.69	82.50	69.30 - 90.80	Pass
ERW-1448	04/06/15	Cs-134	68.82 ± 3.08	75.70	61.80 - 83.30	Pass
ERW-1448	04/06/15	Cs-137	- 191.92 ± 5.9	189	- 170.00 - 210.0	Pass
ERW-1448	04/06/15	Co-60	85.05 ± 4.59	84.50	76.00 - 95.30	Pass
ERW-1448	04/06/15	Zn-65	- 195.97 ± 12.0	203	- 183.00 - 238.0	Pass
ERW-1450	04/06/15	Gr. Alpha	34.05 ± 1.90	42.60	22.10 - 54.00	Pass
ERW-1450	04/06/15	G. Beta	26.93 ± 1.12	32.90	21.30 - 40.60	Pass
ERW-1453	04/06/15	I-131	22.47 ± 0.83	23.80	19.70 - 28.30	Pass
ERW-1456	04/06/15	Uranium	5.98 ± 0.31	6.59	4.99 - 7.83	Pass
ERW-1461	04/06/15	H-3	3,254 ± 180	3280	2,770 - 3620	Pass
ERW-5528	10/05/15	Sr-89	34.76 ± 0.06	35.70	26.70 - 42.50	Pass
ERW-5528	10/05/15	Sr-90	29.23 ± 0.06	31.10	22.70 - 36.10	Pass
ERW-5531	10/05/15	Ba-133	30.91 ± 0.53	32.50	25.90 - 36.70	Pass
ERW-5531	10/05/15	Cs-134	57.40 ± 2.57	62.30	50.69 - 68.50	Pass
ERW-5531	10/05/15	Cs-137	- 163.12 ± 4.8	157	- 141.00 - 175.0	Pass
ERW-5531	10/05/15	Co-60	73.41 ± 1.72	71.10	64.00 - 80.70	Pass
ERW-5531	10/05/15	Zn-65	- 138.94 ± 5.7	126	- 113.00 - 149.0	Pass
ERW-5534	10/05/15	Gr. Alpha	29.99 ± 0.08	51.60	26.90 - 64.70	Pass
ERW-5534	10/05/15	G. Beta	27.52 ± 0.04	36.60	24.10 - 44.20	Pass
ERW-5537	10/05/15	I-131	25.54 ± 0.60	26.30	21.90 - 31.00	Pass
ERW-5540	10/05/15	Uranium	53.30 ± 0.55	56.20	45.70 - 62.40	Pass
ERW-5543	10/05/15	H-3	21,260 ± 351	21,300	18,700 - 23400.0	Pass

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

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

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

TABLE E-5 **DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)**
ENVIRONMENTAL, INC., 2015
(Page 1 of 2)

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MASO-975	02/01/15	Ni-63	341 ± 18	448	314 - 582	Pass
MASO-975	02/01/15	Sr-90	523 ± 12	653	457 - 849	Pass
MASO-975	02/01/15	Cs-134	533 ± 6	678	475 - 881	Pass
~~MASO-975~~	~~02/01/15~~	~~Cs-137~~	~~0.8 ± 2.5~~	~~0.0~~	~~NA [c]~~	~~Pass~~
MASO-975	02/01/15	Co-57	0.5 ± 1	0.0	NA [c]	Pass
MASO-975	02/01/15	Co-60	741 ± 8	817	572 - 1062	Pass
MASO-975	02/01/15	Mn-54	1,153 ± 9	1,198	839 - 1557	Pass
MASO-975	02/01/15	Zn-65	892 ± 18	1064	745 - 1383	Pass
MAW-969	02/01/15	Am-241	0.650 ± 0.078	0.654	0.458 - 0.850	Pass
MAW-969	02/01/15	Cs-134	21.09 ± 0.25	23.5	16.5 - 30.6	Pass
MAW-969	02/01/15	Cs-137	19.63 ± 0.34	19.1	13.4 - 24.8	Pass
MAW-969 [d]	02/01/15	Co-57	10.2 ± 0.4	29.9	20.9 - 38.9	Fail
MAW-969	02/01/15	Co-60	0.02 ± 0.05	0.00	NA [c]	Pass
MAW-969	02/01/15	H-3	569 ± 13	563	394 - 732	Pass
MAW-969	02/01/15	Fe-55	6.00 ± 6.60	6.88	4.82 - 8.94	Pass
MAW-969	02/01/15	Mn-54	0.02 ± 0.07	0.00	NA [c]	Pass
MAW-969	02/01/15	Ni-63	2.9 ± 3	0.00	NA [c]	Pass
MAW-969	02/01/15	Zn-65	16.54 ± 0.85	18.3	12.8 - 23.8	Pass
MAW-969	02/01/15	Pu-238	0.02 ± 0.03	0.01	NA [e]	Pass
MAW-969	02/01/15	Pu-239/240	0.81 ± 0.10	0.83	0.58 - 1.08	Pass
~~MAW-969~~	~~02/01/15~~	~~Sr-90~~	~~9.40 ± 1.30~~	~~9.48~~	~~6.64 - 12.32~~	~~Pass~~
MAW-950	02/01/15	Gr. Alpha	0.66 ± 0.05	1.07	0.32 - 1.81	Pass
MAW-950	02/01/15	Gr. Beta	2.72 ± 0.06	2.79	1.40 - 4.19	Pass
MAAP-978	02/01/15	Cs-134	1.00 ± 0.04	1.15	0.81 - 1.50	Pass
MAAP-978	02/01/15	Cs-137	0.004 ± 0.023	0.00	NA [c]	Pass
MAAP-978 e	02/01/15	Co-57	0.04 ± 0.04	1.51	1.06 - 1.96	Fail
MAAP-978	02/01/15	Co-60	0.01 ± 0.02	0.00	NA [c]	Pass
MAAP-978	02/01/15	Mn-54	1.11 ± 0.08	1.02	0.71 - 1.33	Pass
MAAP-978	02/01/15	Zn-65	0.83 ± 0.10	0.83	0.58 - 1.08	Pass
MAAP-981	02/01/15	Sr-89	38.12 ± 1.01	47.5	33.3 - 61.8	Pass
MAAP-981	02/01/15	Sr-90	1.22 ± 0.13	1.06	0.74 - 1.38	Pass
MAAP-984	02/01/15	Gr. Alpha	0.59 ± 0.06	1.77	0.53 - 3.01	Pass
MAAP-984	02/01/15	Gr. Beta	0.95 ± 0.07	0.75	0.38 - 1.13	Pass
MAVE-972	02/01/15	Cs-134	6.98 ± 0.13	7.32	5.12 - 9.52	Pass
MAVE-972	02/01/15	Cs-137	9.73 ± 0.21	9.18	6.43 - 11.93	Pass
MAVE-972	02/01/15	Co-57	0.01 ± 0.04	0.00	NA [c]	Pass
MAVE-972	02/01/15	Co-60	3.89 ± 0.20	5.55	3.89 - 7.22	Pass
MAVE-972	02/01/15	Mn-54	0.04 ± 0.07	0.00	NA [c]	Pass
MAVE-972	02/01/15	Zn-65	0.09 ± 0.12	0.00	NA [c]	Pass

TABLE E-5 **DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)**
ENVIRONMENTAL, INC., 2015
(Page 2 of 2)

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MASO-4903	08/01/15	Ni-63	556 ± 18	682	477 - 887	Pass
MASO-4903 f	08/01/15	Sr-90	231 ± 7	425	298 - 553	Fail
MASO-4903 f	08/01/15	Sr-90	352 ± 10	425	298 - 553	Pass
~~MASO-4903~~	~~08/01/15~~	~~Cs-134~~	~~833 ± 10~~	~~1,010~~	~~707 - 1313~~	~~Pass~~
MASO-4903	08/01/15	Cs-137	808 ± 11	809.00	566 - 1052	Pass
MASO-4903	08/01/15	Co-57	1,052 ± 10	1,180	826 - 1534	Pass
MASO-4903	08/01/15	Co-60	2 ± 2	1.3	NA [e]	Pass
MASO-4903	08/01/15	Mn-54	1,331 ± 13	1,340	938 - 1742	Pass
MASO-4903	08/01/15	Zn-65	686 ± 15	662	463 - 861	Pass
MAW-5007	08/01/15	Cs-134	16.7 ± 0.4	23.1	16.2 - 30	Pass
MAW-5007	08/01/15	Cs-137	-0.36 ± 0.13	0	NA [c]	Pass
MAW-5007	08/01/15	Co-57	21.8 ± 0.4	20.8	14.6 - 27	Pass
MAW-5007	08/01/15	Co-60	17.3 ± 0.3	17.1	12 - 22.2	Pass
MAW-5007	08/01/15	H-3	227.5 ± 8.9	216	151 - 281	Pass
MAW-5007 g	08/01/15	Fe-55	4.2 ± 14.1	13.1	9.2 - 17	Fail
MAW-5007	08/01/15	Mn-54	16.6 ± 0.5	15.6	10.9 - 20.3	Pass
MAW-5007	08/01/15	Ni-63	9.1 ± 2.6	8.55	5.99 - 11.12	Pass
MAW-5007	08/01/15	Zn-65	15.5 ± 0.9	13.9	9.7 - 18.1	Pass
MAW-5007	08/01/15	Sr-90	4.80 ± 0.50	4.80	3.36 - 6.24	Pass
MAW-5007	08/01/15	Gr. Alpha	0.41 ± 0.04	0.43	0.13 - 0.73	Pass
MAW-5007	08/01/15	Gr. Beta	3.45 ± 0.07	3.52	1.76 - 5.28	Pass
MAAP-4911	08/01/15	Sr-89	3.55 ± 0.67	3.98	2.79 - 5.17	Pass
MAAP-4911	08/01/15	Sr-90	0.94 ± 0.16	1.05	0.74 - 1.37	Pass
MAAP-4907	08/01/15	Gr. Alpha	0.30 ± 0.04	0.90	0.27 - 1.53	Pass
MAAP-4907	08/01/15	Gr. Beta	1.85 ± 0.09	1.56	0.78 - 2.34	Pass
MAVE-4901	08/01/15	Cs-134	5.56 ± 0.16	5.80	4.06 - 7.54	Pass
MAVE-4901	08/01/15	Cs-137	-0.02 ± 0.06	0.00	NA [c]	Pass
MAVE-4901	08/01/15	Co-57	7.74 ± 0.18	6.62	4.63 - 8.61	Pass
MAVE-4901	08/01/15	Co-60	4.84 ± 0.15	4.56	3.19 - 5.93	Pass
MAVE-4901	08/01/15	Mn-54	8.25 ± 0.25	7.68	5.38 - 9.98	Pass
MAVE-4901	08/01/15	Zn-65	5.78 ± 0.29	5.46	3.82 - 7.10	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: MAW (water), MAAP (air filter), MASO (soil), MAVE (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] Lab result was 27.84. Data entry error resulted in a non-acceptable result.
[e] Lab result was 1.58. Data entry error resulted in a non-acceptable result.
f The incomplete separation of calcium from strontium caused a failed low result. The result of reanalysis acceptable.
g The known activity was below the routine laboratory detection limits for the available aliquot fraction.

APPENDIX F

ERRATA DATA

There is no errata data for 2015.

APPENDIX G

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 2015

Prepared By

Teledyne Brown Engineering
Environmental Services

ExelonGeneration.

Oyster Creek Generating Station
Forked River, NJ 08731

April 2016

Table of Contents

I. Summary and Conclusions 1

II. Introduction 3
- A. Objectives of the RGPP 4
- B. Implementation of the Objectives 6
- C. Program Description 6
- D. Characteristics of Tritium (H-3) 7

III. Program Description 7
- A. Sample Analysis 7
- B. Data Interpretation 8
- C. Background Analysis 9

IV. Results and Discussion 11
- A. Program Exceptions 11
- B. Groundwater Results 12
- C. Surface Water Results 13
- D. Precipitation Water Results 14
- E. Summary of Results – Inter-laboratory Comparison Program 14
- F. Leaks, Spills, and Releases 15
- G. Trends 15
- H. Investigations 15
- I. Actions Taken 15

V. References 16

Appendices

Appendix A Location Designation

Tables

Table A-1 Radiological Groundwater Protection Program – Sampling Locations, Oyster Creek Generating Station, 2015

Figures

Figure A-1 Sampling locations – Selected Cohansey and Cape May Formation Wells, Oyster Creek Generating Station, 2015

Security-Related Information: Detailed maps of the Oyster Creek Generating Station have been withheld from public disclosure under 10 CFR 2.390 and N.J.S.A. 47:1A-1.1

Appendix B Data Tables

Tables

Table B-I.1 Concentrations of Tritium, Strontium, Gross Alpha and Gross Beta in Groundwater Samples Collected as Part of the Radiological Groundwater Protection Program, Oyster Creek Generating Station, 2015.

Table B-I.2 Concentrations of Gamma Emitters in Groundwater Samples Collected as Part of the Radiological Groundwater Protection Program, Oyster Creek Generating Station, 2015.

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, 2015.

Table B-II.1 Concentrations of Tritium in Surface Water Samples Collected as Part of the Radiological Groundwater Protection Program, Oyster Creek Generating Station, 2015.

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, 2015.

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, 2015.

Table B-III.1 Concentrations of Tritium in Precipitation Water Samples Collected as Part of the Radiological Groundwater Protection Program, Oyster Creek Generating Station, 2015.

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 2015 through 31 December 2015.

This report covers groundwater and surface water samples collected from the environment, both on and off station property in 2015. In 2015, 1,341 analyses were performed on 559 samples from 60 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 four of the 67 groundwater well samples. The concentrations ranged from 33 to 152 pCi/L. Potassium-40 was detected in 310 of 313 surface water samples. The concentrations ranged from 180 to 487 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 2015 Tritium concentrations varied from <200 to 23,400 pCi/l. The well with the highest concentration was MW-56I. 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 2015.

Strontium-89 and strontium-90 were not detected in any groundwater samples during 2015.

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater samples during the second quarter sampling in 2015.

There were 50 samples taken from 43 groundwater well locations. Gross Alpha (dissolved) was detected in five samples and ranged from 0.6 to 2.7 pCi/L. Gross Alpha (suspended) was detected in 15 samples and ranged from 1.0 to 13.7 pCi/L. Gross Beta (dissolved) was detected in 46 samples and ranged from

1.3 to 29.2 pCi/L. Gross Beta (suspended) was detected in 17 samples and ranged from 1.7 to 72.2 pCi/L.

"Hard-To-Detect" analyses were performed on a select group of groundwater locations. The analyses for groundwater included Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, U-238, Fe-55, and Ni-63. U-234 and U-238 were detected in four of 10 samples. The concentrations of U-234 and U-238 ranged from 0.27 to 2.29 pCi/L and 0.35 to 2.24 pCi/L, respectively. All other Hard-To-Detect analyses were less than the MDC. Occasionally the isotopes of U-234 and U-238 are detected and 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 2015.

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 PI-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 2015. 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 2015. 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 were no sample anomalies in 2015.

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.

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
Transuranics	0.2

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 51 locations were analyzed for tritium activity (Table

B–I.1, Appendix B). Tritium was detected in 27 of 220 samples. The values ranged from <200 to 23,400 pCi/l. The well with the highest concentration was MW-56I (Table B-I.1, Appendix B).

Strontium

Strontium-89 and strontium-90 were not detected in any location sampled in 2015. (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 2015.

There were 50 samples taken from 43 groundwater well locations. Gross Alpha (dissolved) was detected in five samples and ranged from 0.6 to 2.7 pCi/L. Gross Alpha (suspended) was detected in 15 samples and ranged from 1.0 to 13.7 pCi/L. Gross Beta (dissolved) was detected in 46 samples and ranged from 1.3 to 29.2 pCi/L. Gross Beta (suspended) was detected in 17 samples and ranged from 1.7 to 72.2 pCi/L.

Gamma Emitters

Gamma emitting nuclide K-40 was detected in four of 67 samples analyzed during 2015. The concentrations ranged from 33 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. The analyses for groundwater included Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, U-238, Fe-55, and Ni-63. U-234 and U-238 were detected in four of 10 samples. The concentrations of U-234 and U-238 ranged from 0.27 to 2.29 pCi/L and 0.35 to 2.24 pCi/L, respectively. All other Hard-To-Detect analyses were less than the MDC. Occasionally the isotopes of U-234 and U-238 are detected and are considered background.
(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.

Gross Alpha and Gross Beta (dissolved and suspended)

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions are not required on a routine basis and were not analyzed in 2015.

Gamma Emitters

Gamma emitting nuclide, naturally occurring potassium-40, was detected in 310 of 313 samples analyzed. The concentrations ranged from 180 to 487 pCi/L. (Table B–II.2, Appendix B)

"Hard-To-Detect"

"Hard-To-Detect" analyses are not required on a routine basis and were not analyzed in 2015.

D. Precipitation Water Results

Precipitation samples were collected from onsite and offsite locations in accordance with the station radiological groundwater protection program. Analytical results and anomalies are discussed below.

Tritium

Samples from five 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. (Table B–III.1, Appendix B)

E. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE and Environmental Inc. (Midwest Labs) are presented in the 2015 Oyster Creek AREOR.

This report is part of the AREOR

F. Leaks, Spills, and Releases

There were no abnormal liquid releases during 2015.

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 1, 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
Well Number	Formation	Well Installation Date
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, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
DWN	North Domestic Well	358373.33 574672.98	300.0	B	2,000 pCi/L	Kirkwood
~~DWS~~	South ~~Domestic~~ Well	~~356955.90~~ ~~574616.69~~	~~145.0~~	~~B~~	~~2,000~~ pCi/L	~~Kirkwood~~
LW-1	E of ISFSI – (microwave zone)	357632.49 575569.96	21.0	I	2,000 pCi/L	Cape May
LW-2	E of ISFSI – (microwave zone)	357645.30 575581.92	21.0	I	2,000 pCi/L	Cape May
LW-3	E of ISFSI – (microwave zone)	357630.20 575575.52	21.0	D	2,000 pCi/L	Cape May
LW-4	East of ISFSI – (microwave zone)	357652.78 575573.75	49.0	D	2,000 pCi/L	Cohansey
MW-1A-2A	SW of MFOT ~~Moat~~	357380.76 575043.44	24.0	D	2,000 pCi/L	Cape May
MW-1G-1A	East of fueling station	358551.94 575308.91	20.0	I	2,000 pCi/L	Cape May
MW-1G-1B	East of fueling station	358550.57 575316.19	45.0	I	2,000 pCi/L	Cohansey
MW-1I-1A	Roadway – NW of TWST	357598.17 574412.70	19.0	D	2,000 pCi/L	Cape May
MW-1I-2A	Roadway – SE of TWST	357574.80 574493.50	17.5	D	2,000 pCi/L	Cape May
MW-15K-1A	Roadway - Intake	357297.90 574469.50	19.0	D	2,000 pCi/L	Cape May
MW-16D	Yard – W of MAC Building	357573.30 574746.50	25.0	D	2,000 pCi/L	Cape May

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
MW-24-2A	Finninger Farm – near DSB	356838.52 579470.94	18.0	I	2,000 pCi/L	Cape May
MW-24-3A	Finninger Farm – near DSB	356828.49 578969.05	17.0	I	2,000 pCi/L	Cape May
MCD	Main Condenser Discharge	N/A	N/A	SW	2,000 pCi/L	Surface Water
SW-1	Intake Canal	N/A	N/A	SW	2,000 pCi/L	Surface Water
SW-2	RT 9 South Bridge	N/A	N/A	SW	2,000 pCi/L	Surface Water
SW-3	Fire Pond	N/A	N/A	SW	2,000 pCi/L	Surface Water
W-1	Dilution Pump Area – West Bank	357029.86 574140.61	50.0	I	2,000 pCi/L	Cohansey
W-1A	North Yard Area	358311.70 574679.00	50.0	B	2,000 pCi/L	Cohansey
W-1B	North Yard Area	358312.80 574685.40	20.0	I	2,000 pCi/L	Cape May
W-1C	West end of backsite	357149.22 572741.00	60.0	I	2,000 pCi/L	Cohansey
W-1K	West end of backsite	357151.55 572728.77	150.0	I	2,000 pCi/L	Kirkwood
W-2	S of EDG Bldg	356965.65 574555.73	57.0	I	2,000 pCi/L	Cohansey
W-2A	Field – W of North Yard Bldg	358105.00 574348.60	50.0	I	2,000 pCi/L	Cohansey

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
W-2B	Field – W of North Yard Building	358110.30 574348.50	20.0	B	2,000 pCi/L	Cape May
W-2C	Forked River CT Site	357923.67 573809.92	60.0	I	2,000 pCi/L	Cohansey
W-2K	Forked River CT Site	358030.88 573762.54	150.0	I	2,000 pCi/L	Kirkwood
W-3	Intake – Access Road	357173.00 574499.10	24.0	D	2,000 pCi/L	Cape May
W-3A	Plant Access Road	358067.92 575664.22	50.0	I	2,000 pCi/L	Cohansey
W-3B	Plant Access Road	358070.58 575656.25	20.0	I	2,000 pCi/L	Cape May
W-3C	Finninger Farm – N of Discharge	356595.30 576663.33	60.0	I	2,000 pCi/L	Cohansey
W-3K	Finninger Farm – N of Discharge	356602.17 576675.04	100.0	I	2,000 pCi/L	Kirkwood
W-4	Intake – Access Road	357176.40 574497.70	55.0	D	2,000 pCi/L	Cohansey
W-4A	SE of OCAB Building	356913.30 575387.10	50.0	B	2,000 pCi/L	Cohansey
W-4B	SE of OCAB Building	356916.40 575388.90	20.0	B	2,000 pCi/L	Cape May
W-4C	Finninger Farm – S of Intake	359305.61 575867.58	60.0	I	2,000 pCi/L	Cohansey
W-4K	Finninger Farm – S of Intake	359321.83 575874.07	100.00	I	2,000 pCi/L	Kirkwood

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
W-5	NW Yard area, near Fire Water Tank	357510.95 574374.05	20.5	D	2,000 pCi/L	Cape May
W-5C	Finninger Farm – E of dredge spoils	356758.59 580642.26	60.0	B	2,000 pCi/L	Cohansey
W-5K	Finninger Farm – E of dredge spoils	356743.81 580646.48	150.0	B	2,000 pCi/L	Kirkwood
W-6	NW Yard – near Fire Water Tank	357514.02 574373.77	52.0	D	2,000 pCi/L	Cohansey
W-7	NE – Building 4	357074.46 574713.08	20.0	D	2,000 pCi/L	Cape May
W-9	Roadway – NE of SAS Building	357289.29 574892.74	20.0	D	2,000 pCi/L	Cape May
W-10	NW of SAS Building	357286.29 574890.61	60.0	D	2,000 pCi/L	Cohansey
W-12	Yard – NW of DWPC Building	357669.10 574755.60	20.0	D	2,000 pCi/L	Cape May
W-13	Yard – NW of DWPC Building	357666.00 574755.90	50.0	D	2,000 pCi/L	Cohansey
W-14	Yard – SW of Warehouse	357702.41 575018.75	53.0	D	2,000 pCi/L	Cohansey
W-15	Yard – SW of Warehouse	357705.83 575017.70	20.0	D	2,000 pCi/L	Cape May
W-16	Yard – E of LLRW	357967.26 574933.03	20.0	D	2,000 pCi/L	Cape May
W-17	Road/ Exit Near W-3A	358078.05 575667.14	150.0	I	2,000 pCi/L	Kirkwood

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
W-18	Near EDG Building	357005.78 574621.6	20.0	I	2,000 pCi/L	Cape May
W-19	Near EDG Building	357077.91 574633.23	20.0	I	2,000 pCi/L	Cape May
W-20	SW of EDG Building	356927.46 574542.59	20.0	I	2,000 pCi/L	Cape May
W-21	Near EDG Building	357009.15 574518.22	20.0	I	2,000 pCi/L	Cape May
W-22	Near EDG Building	357024.50 574590.19	39.0	I	2,000 pCi/L	Cape May
W-23	Near EDG Building	357054.89 574564.88	20.0	I	2,000 pCi/L	Cape May
W-24	South of TB W of old Machine Shop	357128.94 574650.77	19.0	D	2,000 pCi/L	Cape May
W-25	Near EDG Building	356962.59 574677.59	20.0	I	2,000 pCi/L	Cape May
W-26	Near EDG Building	357006.60 574644.03	20.0	I	2,000 pCi/L	Cape May
W-27	Near EDG Building	357042.43 574636.35	20.0	I	2,000 pCi/L	Cape May
W-28	Near EDG Building	356991.29 574573.64	19.5	I	2,000 pCi/L	Cape May
W-29	Near EDG Building	357012.62 574568.69	19.5	I	2,000 pCi/L	Cape May
W-30	Near EDG Building	357058.00 574516.71	19.5	I	2,000 pCi/L	Cape May

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
W-31	Near EDG Building	357051.78 574495.62	19.5	I	2,000 pCi/L	Cape May
W-32	Near EDG Building	356978.58 574528.44	19.5	I	2,000 pCi/L	Cape May
W-33	Near EDG Building	357026.93 574499.17	19.5	I	2,000 pCi/L	Cape May
W-34	South of TB W of old Machine Shop	357196.14 574649.43	40.0	D	2,000 pCi/L	Cohansey
MW-50	Between CST and Intake Structure	357368.21 574436.80	20.0	E	2,000 pCi/L	Cape May
MW-51	Near CST	357378.30 574480.80	20.0	E	2,000 pCi/L	Cape May
MW-52	Near Intake Structure	357400.90 574353.00	20.0	D	2,000 pCi/L	Cape May
MW-53	Near end of CW discharge piping	357272.80 574447.60	20.0	D	2,000 pCi/L	Cape May
MW-54	Near Intake Structure	357276.20 574311.70	20.0	E	2,000 pCi/L	Cape May
MW-55	Between CST and Intake Structure	357354.88 574440.07	30.0	E	2,000 pCi/L	Cape May
MW-56I	By NaOCl tanks	357305.30 574465.50	52.0	E	2,000 pCi/L	Cohansey
MW-57I	Near Intake Structure	357343.71 574373.89	50.0	E	2,000 pCi/L	Cohansey
MW-58I	Near Intake Structure	357346.70 574377.28	72.0	D	2,000 pCi/L	Cohansey

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
MW-59I	Intake Roadway – NW of CST	357422.14 574406.38	44.0	D	2,000 pCi/L	Cohansey
MW-60I	~~Near~~ Intake Structure	~~357346.55~~ 574373.88	92.0	D	2,000 pCi/L	Cohansey
MW-61I	Between CST and Intake Structure	357328.64 574444.45	72.0	E	2,000 pCi/L	Cohansey
MW-62	NW Corner of Turbine Bldg	357467.93 574524.10	25.0	D	2,000 pCi/L	Cape May
MW-63I	Between CST and Intake Structure	357329.40 574447.67	92.0	D	2,000 pCi/L	Cohansey
MW-64	Near Intake Structure	357343.96 574377.88	25.0	E	2,000 pCi/L	Cape May
MW-65	Intake Roadway – NW of CST	357421.00 574402.55	25.0	D	2,000 pCi/L	Cape May
MW-66I	SE of Reactor Bldg	357320.44 574889.18	80.0	D	2,000 pCi/L	Cohansey
MW-67	West side of Turbine Bldg	357401.99 574540.38	25.0	E	2,000 pCi/L	Cape May
MW-68I	SE of Reactor Bldg	357323.83 574897.64	100.0	D	2,000 pCi/L	Cohansey
MW-69I	Yard – NW of DWPC Building	357664.03 574760.93	78.0	D	2,000 pCi/L	Cohansey
MW-70I	Yard – NW of DWPC Building	357670.57 574759.18	98.0	D	2,000 pCi/L	Cohansey
MW-71	S of Reactor Bldg	357365.52 574841.89	25.0	D	2,000 pCi/L	Cape May

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Oyster Creek Generating Station, 2015

Oyster Creek Generating Station RGPP Sample Point List

Sample Identification Number	Location	Well GPS Coordinates (Northing/Easting)	Depth (ft)	RGPP Sample Point Designation	Tritium Alert Value	Aquifer or Water Body Monitored
MW-72	N of Reactor Bldg	357549.87 574788.52	25.0	D	2,000 pCi/L	Cape May
MW-73	Remediation System	N/A	N/A	N/A	N/A	N/A

* Tritium sampling frequency based upon agreement made with the NJDEP on 4/26/13.

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

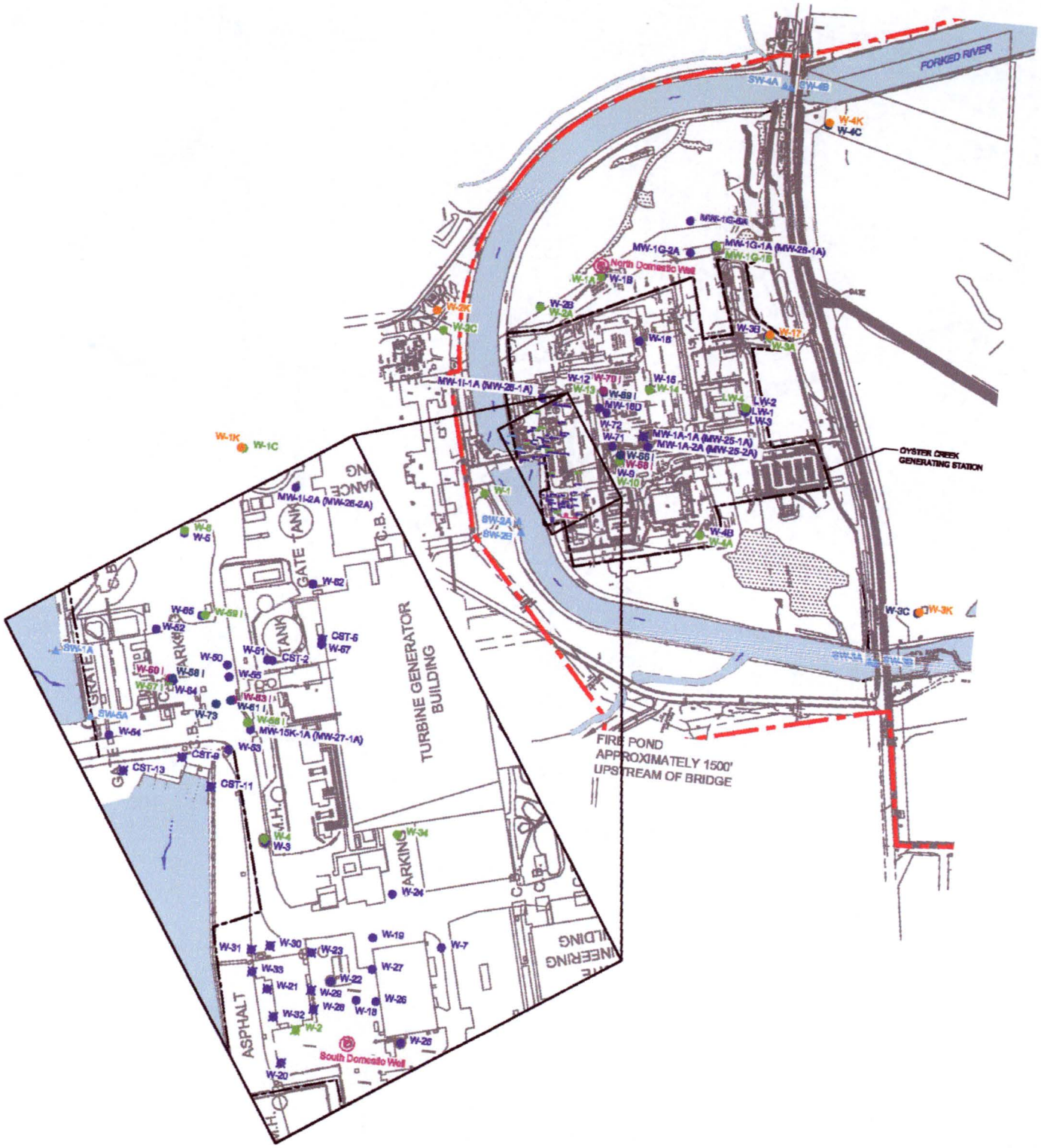


Figure A-1
Sampling Locations – Selected Cohansey and Cape May Formation Wells, Oyster Creek Generating Station, 2015

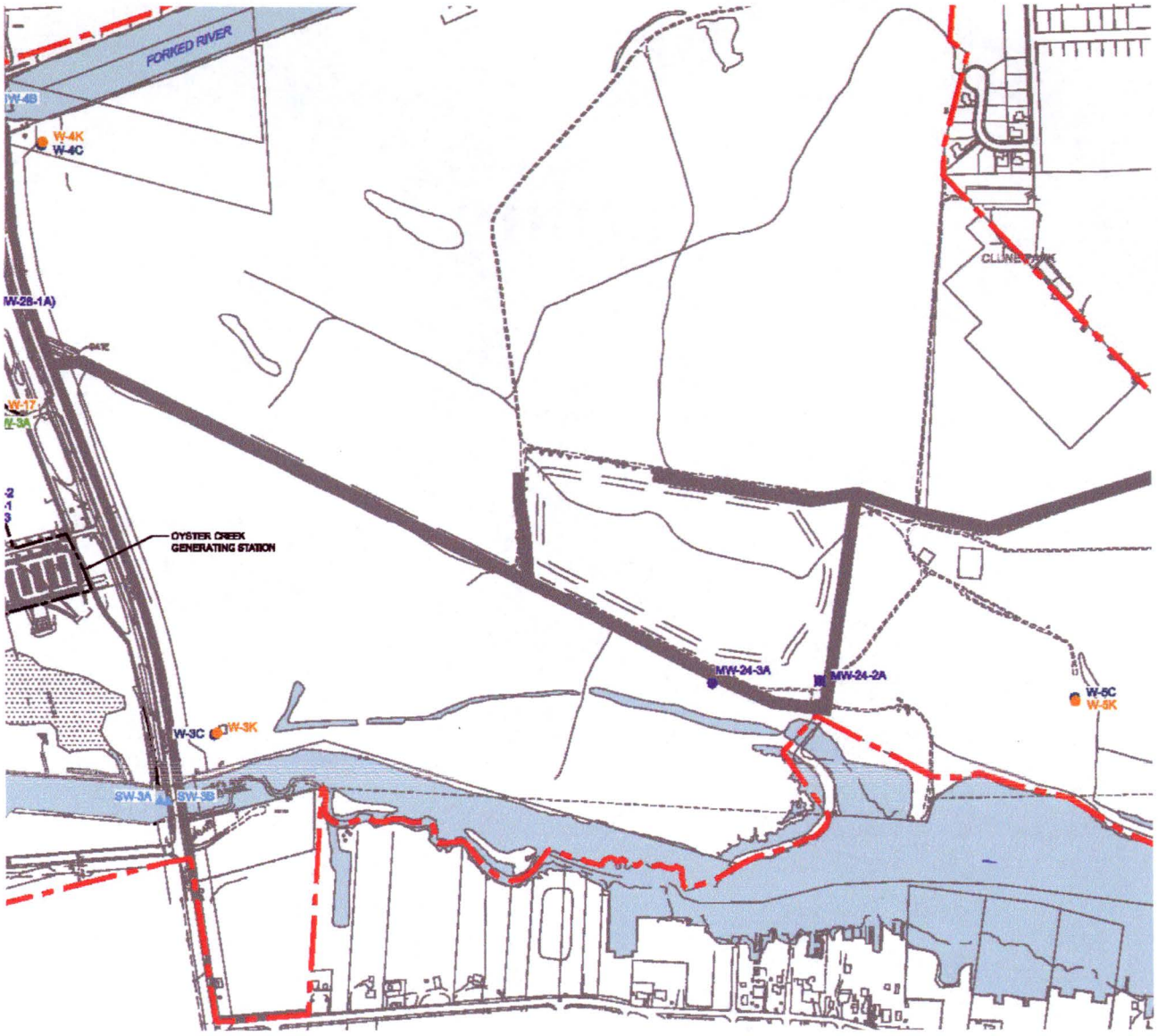


Figure A-1
Sampling Locations – Selected Cohansey and Cape May Formation Wells, Oyster Creek Generating Station, 2015

APPENDIX B

DATA TABLES

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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	04/15/15		< 171						
DWS	04/15/15		< 191						
LW-3	01/15/15	TBE	< 177						
LW-3	01/15/15	TBE	< 180						
LW-3	01/15/15	EIML	< 184						
LW-3	04/17/15	TBE	< 175	< 3.8	< 0.6	< 0.5	< 0.3	< 0.8	< 1.4
LW-3	04/17/15	TBE	< 173	< 3.1	< 0.5	< 0.3	< 0.4	< 0.8	< 1.3
LW-3	04/17/15	EIML	< 152	< 0.8	< 0.6				
LW-3	07/20/15	TBE	< 199						
LW-3	07/20/15	TBE	< 196						
LW-3	07/20/15	EIML	< 148						
LW-3	10/15/15	TBE	< 195						
LW-3	10/15/15	TBE	< 199						
LW-3	10/15/15	EIML	< 142						
LW-4	01/15/15		< 181						
LW-4	04/17/15		< 177	< 3.9	< 0.5	< 0.3	< 0.4	1.8 ± 0.6	< 1.3
LW-4	07/20/15		< 187						
LW-4	10/15/15		< 196						
MW-15K-1A	01/13/15		< 176						
MW-15K-1A	04/14/15		< 188	< 6.3	< 0.7	< 0.7	< 1.3	1.6 ± 0.9	5.5 ± 2.2
MW-15K-1A	07/15/15		< 170						
MW-15K-1A	10/13/15		< 189						
MW-16D	01/15/15		< 174						
MW-16D	04/15/15		< 199	< 7.3	< 0.9	< 3.2	< 1.6	10.1 ± 1.6	< 3.6
MW-16D	07/22/15		< 198						
MW-16D	10/14/15		< 188						
MW-1A-2A	01/14/15		< 176						
MW-1A-2A	04/16/15		< 191	< 5.3	< 0.7	< 2.0	< 1.3	4.1 ± 1.1	< 2.4
MW-1A-2A	07/20/15		< 186						
MW-1A-2A	10/14/15		< 194						
MW-1I-1A	01/15/15		< 174						
MW-1I-1A	04/14/15		< 175	< 5.4	< 0.6	0.6 ± 0.4	2.1 ± 0.9	2.1 ± 0.7	< 1.4
MW-1I-1A	07/21/15		< 194						
MW-1I-1A	10/14/15		< 195						
MW-1I-2A	01/15/15		< 183						
MW-1I-2A	04/14/15		< 177	< 3.8	< 0.4	< 0.6	< 0.4	2.0 ± 0.7	< 1.3
MW-1I-2A	07/21/15		< 197						
MW-1I-2A	10/14/15		< 194						
MW-50	01/13/15		5740 ± 622						
MW-50	04/14/15		< 197	< 5.1	< 0.6	1.0 ± 0.7	< 0.5	3.5 ± 0.8	< 1.4
MW-50	07/15/15		713 ± 146						
MW-50	10/13/15		1080 ± 178						
MW-52	01/13/15		< 175						
MW-52	04/14/15	Original	< 178	< 5.1	< 0.7	< 0.6	3.3 ± 1.4	2.6 ± 0.7	4.8 ± 1.5
MW-52	04/14/15	Recount					3.9 ± 1.4		
MW-52	07/15/15		< 171						
MW-52	10/13/15		< 192						
MW-53	01/13/15		< 176						
MW-53	04/16/15		< 182	< 5.2	< 0.7	< 1.3	< 0.5	5.7 ± 1.3	< 1.4
MW-53	07/15/15		< 189						
MW-53	10/14/15		< 190						
MW-54	01/13/15		< 176						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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-54	04/14/15		208 ± 126	< 5.1	< 0.6	< 2.8	12.7 ± 6.1	10.9 ± 3.3	25.4 ± 7.5
MW-54	07/15/15		277 ± 134						
MW-54	10/13/15		206 ± 125						
MW-55	01/13/15		181 ± 115						
MW-55	04/14/15		< 174	< 6.7	< 0.8	< 1.1	< 0.9	3.1 ± 1.0	< 1.4
MW-55	07/15/15		170 ± 113						
MW-55	10/13/15		< 190						
MW-56I	01/13/15	TBE	4960 ± 545						
MW-56I	01/13/15	TBE	5870 ± 626						
MW-56I	01/13/15	EIML	5525 ± 278						
MW-56I	04/14/15		20500 ± 2100	< 4.6	< 0.6	< 4.0	< 0.7	11.6 ± 1.9	< 1.5
MW-56I	04/15/15		23400 ± 2380	< 5.6	< 0.7	< 2.2	< 0.4	29.2 ± 2.3	< 1.4
MW-56I	06/05/15		3190 ± 370						
MW-56I	07/15/15	TBE	6900 ± 728						
MW-56I	07/15/15	TBE	6150 ± 652						
MW-56I	07/15/15	EIML	8041 ± 269						
MW-56I	10/13/15	Original	2520 ± 312						
MW-56I	10/13/15	Recount	2210 ± 274						
MW-57I	01/13/15		2080 ± 263						
MW-57I	04/14/15		1300 ± 184	< 5.7	< 0.8	< 1.3	2.3 ± 1.3	17.8 ± 1.7	4.0 ± 1.4
MW-57I	07/15/15		747 ± 139						
MW-57I	10/13/15	Original	3050 ± 363						
MW-57I	10/13/15	Recount	2910 ± 340						
MW-57I	10/13/15	Rerun	2620 ± 320						
MW-58I	01/13/15		< 177						
MW-58I	04/14/15		< 187	< 5.6	< 0.8	< 0.4	< 0.9	1.3 ± 0.6	< 1.4
MW-58I	07/21/15		< 197						
MW-58I	10/13/15		< 189						
MW-59I	01/13/15		< 174						
MW-59I	04/14/15		< 179	< 5.1	< 0.8	2.7 ± 1.6	1.4 ± 0.7	6.6 ± 1.8	1.7 ± 1.1
MW-59I	07/21/15		< 197						
MW-59I	10/13/15		< 188						
MW-60I	01/13/15		< 180						
MW-60I	04/14/15		< 176	< 5.4	< 0.6	< 0.6	13.7 ± 2.3	3.7 ± 0.7	23.4 ± 2.3
MW-60I	07/21/15		< 196						
MW-60I	10/13/15		< 189						
MW-61I	01/13/15		< 179						
MW-61I	04/15/15		< 174	< 5.7	< 0.9	< 0.3	< 0.5	3.8 ± 0.6	< 1.7
MW-61I	07/21/15		< 187						
MW-61I	10/13/15		< 195						
MW-62	01/13/15		< 191						
MW-62	04/16/15		< 178	< 5.0	< 0.7	< 1.3	< 0.9	4.8 ± 0.9	2.9 ± 1.3
MW-62	07/15/15		< 167						
MW-62	10/14/15		< 194						
MW-63I	01/13/15		< 187						
MW-63I	04/15/15		< 177	< 3.5	< 0.5	< 1.6	< 0.6	7.4 ± 1.7	< 1.4
MW-63I	07/21/15		< 191						
MW-63I	10/13/15		< 190						
MW-64	01/13/15		< 188						
MW-64	04/14/15	Original	< 185	< 5.1	< 0.6	< 1.8	1.6 ± 0.9	21.2 ± 2.0	2.8 ± 1.2
MW-64	04/14/15	Recount						19.9 ± 2.6	
MW-64	07/15/15		< 167						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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-64	10/13/15		< 200						
MW-65	01/13/15		< 190						
MW-65	04/14/15		< 181	< 6.2	< 0.7	< 3.5	< 1.1	10.1 ± 1.7	< 1.5
MW-65	07/15/15		< 191						
MW-65	10/13/15		< 197						
MW-66I	01/14/15		< 188						
MW-66I	04/16/15		< 169	< 4.3	< 0.6	< 0.4	< 1.9	14.9 ± 1.0	< 2.2
MW-66I	07/20/15		< 194						
MW-66I	10/14/15		< 200						
MW-67	01/13/15		10500 ± 1090						
MW-67	04/14/15	Original	3600 ± 407	< 5.8	< 0.7	< 2.5	9.8 ± 6.0	< 4.0	13.6 ± 6.2
MW-67	04/14/15	Recount					11.2 ± 5.6		15.0 ± 6.5
MW-67	07/15/15		2260 ± 262						
MW-67	10/14/15		1620 ± 226						
MW-68I	01/14/15		< 186						
MW-68I	04/16/15	Original	< 172	< 5.1	< 0.6	< 0.5	< 1.5	2.0 ± 0.6	3.8 ± 1.3
MW-68I	04/16/15	Recount							3.3 ± 2.1
MW-68I	04/16/15	Rerun							3.9 ± 1.3
MW-68I	07/20/15		< 193						
MW-68I	10/14/15		< 195						
MW-69I	01/14/15		< 186						
MW-69I	04/15/15		< 183	< 4.5	< 0.5	< 0.5	1.3 ± 0.7	3.5 ± 0.6	< 1.4
MW-69I	07/22/15		< 198						
MW-69I	10/14/15		< 197						
MW-70I	01/14/15	TBE	< 188						
MW-70I	01/14/15	TBE	< 190						
MW-70I	01/14/15	EIML	< 184						
MW-70I	04/15/15		< 189	< 6.3	< 0.8	< 0.5	< 0.4	7.3 ± 0.8	< 1.4
MW-70I	04/15/15		< 189	< 6.1	< 0.7	< 0.4	< 0.4	7.8 ± 0.8	< 1.4
MW-70I	07/22/15		< 199						
MW-70I	10/14/15		< 193						
MW-71	01/14/15		< 182						
MW-71	04/15/15		< 194	< 4.9	< 0.6	< 1.2	< 0.4	6.5 ± 1.0	< 1.4
MW-71	07/20/15		< 198						
MW-71	10/14/15		< 197						
MW-72	01/14/15		< 187						
MW-72	04/15/15		< 194	< 6.9	< 0.8	< 0.7	< 0.4	4.4 ± 0.7	< 1.4
MW-72	07/22/15		< 197						
MW-72	10/14/15		< 196						
W-10	01/14/15		< 178						
W-10	04/16/15		< 194	< 6.2	< 0.7	< 0.7	< 0.4	1.5 ± 0.6	< 1.5
W-10	07/20/15		< 198						
W-10	10/14/15		< 197						
W-12	01/14/15		< 176						
W-12	04/15/15		< 196	< 5.3	< 0.7	< 1.3	10.2 ± 4.5	2.7 ± 1.5	72.2 ± 7.8
W-12	07/22/15		< 198						
W-12	10/14/15		< 199						
W-13	01/14/15		< 173						
W-13	04/15/15		< 195	< 1.5	< 0.5	< 1.6	< 0.5	4.4 ± 1.3	< 1.4
W-13	07/22/15		< 195						
W-13	10/14/15		< 196						
W-14	01/14/15		< 181						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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-14	04/15/15		< 177	< 4.5	< 0.7	0.7 ± 0.4	< 0.5	4.1 ± 0.7	< 1.4
W-14	07/20/15		< 189						
W-14	10/14/15		< 199						
W-15	01/14/15		< 180						
W-15	04/15/15		< 198	< 7.3	< 0.8	< 1.2	< 0.5	3.5 ± 0.8	< 1.6
W-15	07/20/15		< 198						
W-15	10/14/15		< 199						
W-16	01/15/15	TBE	< 183						
W-16	01/15/15	TBE	< 178						
W-16	01/15/15	EIML	< 184						
W-16	04/16/15	TBE	< 186	< 3.9	< 0.8	< 0.4	< 0.4	1.4 ± 0.6	< 1.5
W-16	04/16/15	TBE	< 176	< 5.4	< 0.6	< 0.5	< 0.5	2.1 ± 0.6	< 1.4
W-16	04/16/15	EIML	< 152	< 0.6	< 0.5				
W-16	07/21/15	TBE	< 196						
W-16	07/21/15	TBE	< 196						
W-16	07/21/15	EIML	< 147						
W-16	10/15/15	TBE	< 190						
W-16	10/15/15	TBE	< 199						
W-16	10/15/15	EIML	< 142						
W-1A	04/13/15		< 181						
W-24	01/15/15		< 176						
W-24	04/16/15		< 196	< 3.0	< 0.4	< 0.3	1.6 ± 0.8	< 0.8	2.7 ± 1.2
W-24	07/21/15	Original	542 ± 145						
W-24	07/21/15	Recount	439 ± 137						
W-24	07/21/15	Rerun	467 ± 142						
W-24	09/01/15	Original	< 191	< 7.6	< 0.8	2.6 ± 1.2	< 0.5	8.6 ± 1.4	< 1.7
W-24	09/01/15	Rerun	< 198						
W-24	10/14/15		< 190						
W-2B	04/13/15		< 197						
W-3	01/13/15	TBE	< 178						
W-3	01/13/15	TBE	< 191						
W-3	01/13/15	EIML	< 184						
W-3	04/15/15	TBE	< 174	< 4.5	< 0.7	< 1.6	4.0 ± 1.7	3.7 ± 1.2	13.4 ± 2.2
W-3	04/15/15	TBE	< 176	< 3.3	< 0.5	< 4.1	< 0.4	14.6 ± 1.9	< 1.4
W-3	04/15/15	EIML	< 152	< 0.9	< 0.4				
W-3	07/15/15	TBE	< 169						
W-3	07/15/15	TBE	< 169						
W-3	07/15/15	EIML	< 148						
W-3	10/13/15	TBE	< 189						
W-3	10/13/15	TBE	< 194						
W-3	10/13/15	EIML	< 142						
W-34	01/13/15		< 179						
W-34	04/16/15		< 197	< 1.7	< 0.7	< 1.7	1.0 ± 0.6	9.6 ± 1.1	< 1.6
W-34	07/21/15		< 186						
W-34	10/14/15		< 199						
W-4	01/13/15		< 179						
W-4	04/15/15		< 172	< 3.9	< 0.5	< 0.7	< 0.4	5.5 ± 0.9	< 1.3
W-4	07/15/15		< 167						
W-4	10/13/15		< 191						
W-4A	04/16/15		< 172						
W-4B	04/16/15		< 195						
W-5	01/13/15		< 179						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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-5	04/14/15		< 176	< 3.9	< 0.4	< 0.7	< 0.3	3.6 ± 0.7	< 1.5
W-5	07/21/15		< 188						
W-5	10/13/15	TBE	< 195						
W-5	10/13/15	TBE	< 191						
W-5	10/13/15	EIML	< 142						
W-5C	04/18/15		< 176						
W-5K	04/18/15		< 177						
W-6	01/13/15		< 176						
W-6	04/14/15		< 179	< 5.7	< 0.7	< 0.6	< 0.5	4.9 ± 0.8	< 1.4
W-6	07/21/15		< 191						
W-6	10/13/15		< 192						
W-7	01/15/15	TBE	< 154						
W-7	01/15/15	TBE	< 182						
W-7	01/15/15	EIML	< 184						
W-7	04/16/15	TBE	< 195	< 4.0	< 0.6	< 3.2	4.6 ± 1.3	16.7 ± 2.0	2.9 ± 1.2
W-7	04/16/15	TBE	< 200	< 5.8	< 0.7	< 3.2	< 0.4	17.9 ± 2.0	< 1.5
W-7	04/16/15	EIML	< 152	< 0.8	< 0.6				
W-7	07/21/15	TBE	< 198						
W-7	07/21/15	TBE	< 198						
W-7	07/21/15	EIML	< 147						
W-7	10/14/15	TBE	< 191						
W-7	10/14/15	TBE	< 191						
W-7	10/14/15	EIML	< 142						
W-9	01/14/15		< 169						
W-9	04/16/15		< 181	< 5.6	< 0.8	< 1.7	< 0.5	19.2 ± 1.8	< 1.4
W-9	07/20/15		< 192						
W-9	10/14/15		< 192						

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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	04/15/15	< 20	< 30	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 7
DWS	04/15/15	< 34	< 34	< 3	< 4	< 8	< 4	< 7	< 4	< 7	< 11	< 3	< 4	< 24	< 8
LW-3	04/17/15 TBE	< 45	< 41	< 4	< 5	< 12	< 5	< 11	< 5	< 8	< 15	< 4	< 5	< 33	< 11
LW-3	04/17/15 TBE	< 28	< 25	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 9	< 3	< 3	< 20	< 6
LW-3	04/17/15 EIML	24	57	3	2	5	2	6	2	5	4	2	3	9	1
LW-4	04/17/15	< 47	< 89	< 5	< 6	< 13	< 5	< 9	< 5	< 10	< 14	< 5	< 5	< 35	< 11
MW-15K-1A	04/14/15	< 37	< 37	< 4	< 4	< 10	< 5	< 9	< 5	< 8	< 15	< 4	< 4	< 31	< 12
MW-16D	04/15/15	< 43	< 75	< 5	< 5	< 11	< 7	< 9	< 5	< 10	< 15	< 5	< 5	< 33	< 9
MW-1A-2A	04/16/15	< 48	< 142	< 5	< 5	< 12	< 5	< 11	< 6	< 9	< 15	< 5	< 6	< 38	< 11
MW-1I-1A	04/14/15	< 24	< 30	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 11	< 3	< 3	< 22	< 6
MW-1I-2A	04/14/15	< 33	< 60	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 13	< 3	< 3	< 27	< 9
MW-50	04/14/15	< 37	< 54	< 4	< 4	< 7	< 3	< 8	< 5	< 7	< 14	< 4	< 4	< 27	< 9
MW-50	10/13/15	< 51	95 ± 63	< 5	< 5	< 11	< 4	< 9	< 6	< 9	< 12	< 4	< 5	< 29	< 9
MW-52	04/14/15	< 43	< 31	< 4	< 4	< 9	< 4	< 7	< 5	< 7	< 15	< 4	< 5	< 32	< 10
MW-53	04/16/15	< 45	< 40	< 4	< 5	< 11	< 5	< 10	< 5	< 10	< 15	< 5	< 5	< 32	< 11
MW-54	04/14/15	< 34	< 34	< 4	< 4	< 9	< 4	< 6	< 4	< 7	< 13	< 4	< 4	< 26	< 9
MW-54	10/13/15	< 58	< 52	< 7	< 5	< 12	< 5	< 14	< 7	< 11	< 13	< 5	< 7	< 30	< 10
MW-55	04/14/15	< 37	< 31	< 3	< 4	< 8	< 4	< 7	< 4	< 7	< 14	< 3	< 4	< 28	< 7
MW-55	10/13/15	< 44	< 105	< 6	< 7	< 12	< 6	< 12	< 6	< 9	< 11	< 5	< 6	< 27	< 9
MW-56I	04/15/15	< 21	< 45	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 10	< 2	< 2	< 21	< 8
MW-56I	04/14/15	< 40	< 37	< 4	< 5	< 10	< 5	< 9	< 5	< 8	< 14	< 4	< 5	< 33	< 11
MW-56I	06/05/15	< 22	152 ± 35	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 9	< 2	< 3	< 19	< 6
MW-56I	10/13/15	< 59	< 75	< 7	< 6	< 15	< 6	< 10	< 9	< 14	< 12	< 5	< 7	< 34	< 11
MW-57I	04/14/15	< 30	< 34	< 3	< 3	< 7	< 4	< 7	< 3	< 6	< 12	< 3	< 3	< 22	< 8
MW-57I	10/13/15	< 54	< 123	< 5	< 6	< 11	< 6	< 8	< 5	< 11	< 12	< 5	< 4	< 38	< 7
MW-58I	04/14/15	< 32	< 28	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 13	< 3	< 3	< 24	< 7
MW-59I	04/14/15	< 15	< 13	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 11	< 1	< 2	< 19	< 5
MW-60I	04/14/15	< 18	< 16	< 2	< 2	< 5	< 2	< 3	< 2	< 3	< 14	< 2	< 2	< 21	< 7
MW-61I	04/15/15	< 20	< 18	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 15	< 2	< 2	< 23	< 7
MW-61I	10/13/15	< 59	< 72	< 6	< 8	< 12	< 6	< 16	< 8	< 11	< 15	< 7	< 7	< 31	< 14
MW-62	04/16/15	< 26	< 21	< 3	< 3	< 5	< 3	< 5	< 3	< 4	< 9	< 3	< 3	< 18	< 6
MW-63I	04/15/15	< 17	< 14	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 1	< 2	< 18	< 6
MW-64	04/14/15	< 39	< 48	< 5	< 5	< 10	< 5	< 8	< 5	< 9	< 14	< 4	< 5	< 33	< 7
MW-64	10/13/15	< 49	< 101	< 5	< 5	< 10	< 5	< 11	< 7	< 9	< 11	< 5	< 6	< 30	< 10
MW-65	04/14/15	< 37	< 56	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 13	< 3	< 4	< 26	< 8
MW-66I	04/16/15	< 23	< 22	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 14	< 2	< 2	< 25	< 8
MW-67	04/14/15	< 30	< 61	< 3	< 3	< 7	< 3	< 5	< 3	< 6	< 11	< 3	< 3	< 23	< 6
MW-67	10/14/15	< 69	< 133	< 8	< 7	< 16	< 6	< 19	< 9	< 14	< 14	< 7	< 8	< 40	< 11

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

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-68I	04/16/15	< 19	< 32	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
MW-69I	04/15/15	< 40	< 94	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 14	< 4	< 4	< 29	< 10
MW-70I	04/15/15	< 45	< 48	< 4	< 5	< 11	< 5	< 9	< 5	< 9	< 14	< 5	< 5	< 31	< 13
MW-70I	04/15/15	< 15	< 27	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 7	< 1	< 2	< 13	< 5
MW-71	04/15/15	< 11	< 20	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 5	< 1	< 1	< 10	< 3
MW-72	04/15/15	< 22	< 17	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 19	< 6
W-10	04/16/15	< 50	< 67	< 6	< 6	< 14	< 5	< 13	< 6	< 10	< 14	< 6	< 6	< 37	< 12
W-12	04/15/15	< 42	< 46	< 4	< 4	< 9	< 5	< 10	< 5	< 8	< 13	< 4	< 5	< 26	< 9
W-13	04/15/15	< 46	< 95	< 4	< 5	< 11	< 5	< 10	< 5	< 8	< 13	< 4	< 5	< 25	< 9
W-14	04/15/15	< 37	< 40	< 5	< 4	< 9	< 4	< 9	< 5	< 7	< 12	< 4	< 4	< 25	< 8
W-15	04/15/15	< 45	< 65	< 6	< 6	< 10	< 5	< 13	< 6	< 11	< 15	< 5	< 6	< 40	< 9
W-16	04/16/15 TBE	< 59	< 91	< 5	< 7	< 13	< 6	< 12	< 6	< 10	< 13	< 6	< 4	< 34	< 10
W-16	04/16/15 TBE	< 67	< 144	< 7	< 7	< 17	< 5	< 13	< 7	< 12	< 15	< 6	< 7	< 40	< 8
W-16	04/16/15 EIML	32	54	2	2	4	1	3	3	6	5	3	2	13	2
W-1A	04/13/15	< 38	< 56	< 4	< 4	< 7	< 4	< 8	< 4	< 8	< 12	< 4	< 5	< 28	< 10
W-24	04/16/15	< 40	< 82	< 3	< 4	< 9	< 4	< 8	< 4	< 7	< 11	< 4	< 4	< 25	< 8
W-24	09/01/15	< 53	< 43	< 6	< 5	< 11	< 4	< 9	< 5	< 12	< 6	< 5	< 6	< 22	< 7
W-2B	04/13/15	< 30	< 27	< 3	< 4	< 7	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 23	< 7
W-3	04/15/15 TBE	< 20	33 ± 21	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 19	< 5
W-3	04/15/15 TBE	< 28	69 ± 36	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 10	< 3	< 3	< 20	< 6
W-3	04/15/15 EIML	29	154 ± 40	3	2	3	2	5	4	6	6	2	3	11	4
W-34	04/16/15	< 45	< 41	< 6	< 5	< 12	< 6	< 11	< 6	< 11	< 14	< 5	< 5	< 28	< 6
W-4	04/15/15	< 16	< 13	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 1	< 2	< 15	< 5
W-4A	04/16/15	< 50	< 86	< 6	< 6	< 11	< 7	< 11	< 6	< 11	< 14	< 5	< 5	< 40	< 14
W-4B	04/16/15	< 45	< 92	< 5	< 4	< 11	< 4	< 10	< 5	< 8	< 13	< 4	< 5	< 31	< 12
W-5	04/14/15	< 22	< 45	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 20	< 7
W-5C	04/18/15	< 27	< 68	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 9	< 3	< 3	< 20	< 6
W-5K	04/18/15	< 30	< 33	< 4	< 4	< 9	< 4	< 7	< 4	< 7	< 9	< 3	< 4	< 22	< 8
W-6	04/14/15	< 42	< 53	< 4	< 4	< 8	< 4	< 9	< 4	< 8	< 14	< 5	< 5	< 33	< 11
W-7	04/16/15 TBE	< 41	< 82	< 4	< 4	< 9	< 5	< 9	< 5	< 8	< 13	< 4	< 5	< 29	< 11
W-7	04/16/15 TBE	< 44	< 46	< 5	< 4.9	< 12	< 5	< 11	< 6	< 8	< 13	< 5	< 5	< 29	< 11
W-7	04/16/15 EIML	24	74	3	3	4	3	6	2	3	7	3	4	16	3
W-9	04/16/15	< 52	< 45	< 6	< 6	< 11	< 6	< 11	< 6	< 10	< 14	< 5	< 4	< 37	< 13

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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-50	04/14/15	< 0.07	< 0.03	< 0.19	< 0.03	< 0.09	< 0.07	< 0.06	< 0.08	< 144	< 3.9
MW-54	04/14/15	< 0.12	< 0.04	< 0.13	< 0.07	< 0.08	2.29 ± 0.52	< 0.08	2.24 ± 0.51	< 161	< 4.6
MW-55	04/14/15	< 0.10	< 0.04	< 0.07	< 0.03	< 0.08	< 0.11	< 0.05	< 0.12	< 149	< 3.7
MW-56I	04/14/15	< 0.07	< 0.09	< 0.03	< 0.03	< 0.06	< 0.15	< 0.13	< 0.15	< 200	< 4.0
MW-56I	04/15/15	< 0.08	< 0.05	< 0.02	< 0.18	< 0.17	< 0.09	< 0.11	< 0.06	< 158	< 4.0
MW-57I	04/14/15	< 0.10	< 0.02	< 0.02	< 0.03	< 0.13	0.27 ± 0.15	< 0.06	0.35 ± 0.18	< 88	< 4.5
MW-61I	04/15/15	< 0.10	< 0.12	< 0.02	< 0.03	< 0.11	< 0.06	< 0.03	< 0.06	< 178	< 3.9
MW-64	04/14/15	< 0.02	< 0.02	< 0.04	< 0.04	< 0.08	0.27 ± 0.16	< 0.13	0.46 ± 0.22	< 104	< 4.5
MW-67	04/14/15	< 0.09	< 0.02	< 0.02	< 0.02	< 0.02	1.21 ± 0.27	< 0.02	1.95 ± 0.35	< 119	< 4.6
W-24	09/01/15	< 0.10	< 0.02	< 0.03	< 0.06	< 0.04	< 0.02	< 0.02	< 0.03	< 108	< 4.6

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	01/01/15	< 172
MCD	01/02/15	< 171
MCD	01/03/15	< 173
MCD	01/04/15	< 178
MCD	01/05/15	< 176
MCD	01/06/15	< 176
MCD	01/07/15	< 176
MCD	01/08/15	< 175
MCD	01/09/15	< 179
MCD	01/10/15	< 174
MCD	01/11/15	< 177
MCD	01/12/15	< 190
MCD	01/13/15	< 177
MCD	01/14/15	< 178
MCD	01/15/15	< 177
MCD	01/16/15	< 176
MCD	01/17/15	< 178
MCD	01/18/15	< 177
MCD	01/19/15	< 195
MCD	01/20/15	< 195
MCD	01/21/15	< 196
MCD	01/22/15	< 193
MCD	01/23/15	< 198
MCD	01/24/15	< 195
MCD	01/25/15	< 194
MCD	01/26/15	< 194
MCD	01/30/15	< 194
MCD	04/27/15	< 190
MCD	04/28/15	< 189
MCD	04/29/15	< 190
MCD	04/30/15	< 186
MCD	05/01/15	< 193
MCD	05/02/15	< 189
MCD	05/03/15	< 185
MCD	05/04/15	< 187
MCD	05/05/15	< 188
MCD	05/06/15	< 186
MCD	05/07/15	< 191
MCD	05/08/15	< 188
MCD	05/09/15	< 184
MCD	05/10/15	< 182
MCD	05/11/15	< 182
MCD	05/12/15	< 183
MCD	05/13/15	< 178
MCD	05/14/15	< 181
MCD	05/15/15	< 182
MCD	05/16/15	< 184
MCD	05/17/15	< 183
MCD	05/18/15	< 180
MCD	05/19/15	< 178
MCD	05/20/15	< 183
MCD	05/21/15	< 182
MCD	05/22/15	< 193

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	05/23/15	< 186
MCD	05/24/15	< 192
MCD	05/25/15	< 186
MCD	05/26/15	< 191
MCD	05/27/15	< 189
MCD	05/28/15	< 189
MCD	05/29/15	< 188
MCD	05/30/15	< 187
MCD	05/31/15	< 188
MCD	06/01/15	< 181
MCD	06/02/15	< 182
MCD	06/03/15	< 182
MCD	06/04/15	< 190
MCD	06/05/15	< 181
MCD	06/06/15	< 185
MCD	06/07/15	< 182
MCD	06/08/15	< 177
MCD	06/09/15	< 183
MCD	06/10/15	< 185
MCD	06/11/15	< 185
MCD	06/12/15	< 187
MCD	06/13/15	< 185
MCD	06/14/15	< 188
MCD	06/15/15	< 183
MCD	06/16/15	< 184
MCD	06/17/15	< 186
MCD	06/18/15	< 179
MCD	06/19/15	< 178
MCD	06/20/15	< 174
MCD	06/21/15	< 180
MCD	06/22/15	< 177
MCD	06/23/15	< 180
MCD	06/24/15	< 192
MCD	06/25/15	< 189
MCD	06/26/15	< 192
MCD	06/27/15	< 190
MCD	06/28/15	< 191
MCD	06/29/15	< 191
MCD	06/30/15	< 192
MCD	07/01/15	< 193
MCD	07/02/15	< 190
MCD	07/03/15	< 194
MCD	07/04/15	< 192
MCD	07/05/15	< 192
MCD	07/06/15	< 191
MCD	07/07/15	< 186
MCD	07/08/15	< 189
MCD	07/09/15	< 191
MCD	07/10/15	< 191
MCD	07/11/15	< 191
MCD	07/12/15	< 195
MCD	07/13/15	< 192
MCD	07/14/15	< 193

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	07/15/15	< 191
MCD	07/16/15	< 185
MCD	07/17/15	< 193
MCD	07/18/15	< 189
MCD	07/19/15	< 189
MCD	07/20/15	< 188
MCD	07/21/15	< 187
MCD	07/22/15	< 191
MCD	07/23/15	< 184
MCD	07/24/15	< 182
MCD	07/25/15	< 186
MCD	07/26/15	< 180
MCD	07/27/15	< 200
MCD	07/28/15	< 197
MCD	07/29/15	< 195
MCD	07/30/15	< 197
MCD	07/31/15	< 197
MCD	08/01/15	< 195
MCD	08/02/15	< 199
MCD	08/03/15	< 198
MCD	08/04/15	< 196
MCD	08/05/15	< 199
MCD	08/06/15	< 191
MCD	08/07/15	< 189
MCD	08/08/15	< 189
MCD	08/09/15	< 191
MCD	08/10/15	< 185
MCD	08/11/15	< 185
MCD	08/12/15	< 184
MCD	08/13/15	< 185
MCD	08/14/15	< 184
MCD	08/15/15	< 186
MCD	08/16/15	< 186
MCD	08/17/15	< 189
MCD	08/18/15	< 184
MCD	08/19/15	< 183
MCD	08/20/15	< 184
MCD	08/21/15	< 189
MCD	08/22/15	< 191
MCD	08/23/15	< 192
MCD	08/24/15	< 185
MCD	08/25/15	< 190
MCD	08/26/15	< 188
MCD	08/27/15	< 188
MCD	08/28/15	< 188
MCD	08/29/15	< 192
MCD	08/30/15	< 188
MCD	08/31/15	< 187
MCD	09/01/15	< 193
MCD	09/02/15	< 194
MCD	09/03/15	< 194
MCD	09/04/15	< 194
MCD	09/05/15	< 195

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	09/06/15	< 197
MCD	09/07/15	< 196
MCD	09/08/15	< 195
MCD	09/09/15	< 193
MCD	09/10/15	< 196
MCD	09/11/15	< 197
MCD	09/12/15	< 195
MCD	09/13/15	< 196
MCD	09/14/15	< 194
MCD	09/15/15	< 198
MCD	09/16/15	< 195
MCD	09/17/15	< 194
MCD	09/18/15	< 195
MCD	09/19/15	< 195
MCD	09/20/15	< 193
MCD	09/21/15	< 194
MCD	09/22/15	< 192
MCD	09/23/15	< 194
MCD	09/24/15	< 192
MCD	09/25/15	< 192
MCD	09/26/15	< 189
MCD	09/27/15	< 192
MCD	09/28/15	< 194
MCD	09/29/15	< 194
MCD	09/30/15	< 197
MCD	10/01/15	< 192
MCD	10/02/15	< 188
MCD	10/03/15	< 190
MCD	10/04/15	< 189
MCD	10/05/15	< 190
MCD	10/06/15	< 186
MCD	10/07/15	< 190
MCD	10/08/15	< 191
MCD	10/09/15	< 191
MCD	10/10/15	< 191
MCD	10/11/15	< 190
MCD	10/12/15	< 190
MCD	10/13/15	< 188
MCD	10/14/15	< 191
MCD	10/15/15	< 188
MCD	10/16/15	< 191
MCD	10/17/15	< 193
MCD	10/18/15	< 194
MCD	10/19/15	< 192
MCD	10/20/15	< 192
MCD	10/21/15	< 194
MCD	10/22/15	< 192
MCD	10/23/15	< 190
MCD	10/24/15	< 191
MCD	10/25/15	< 192
MCD	10/26/15	< 181
MCD	10/27/15	< 192
MCD	10/28/15	< 192

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	10/29/15	< 195
MCD	10/30/15	< 192
MCD	10/31/15	< 195
MCD	11/01/15	< 195
MCD	11/02/15	< 196
MCD	11/03/15	< 195
MCD	11/04/15	< 195
MCD	11/05/15	< 193
MCD	11/06/15	< 194
MCD	11/07/15	< 194
MCD	11/08/15	< 193
MCD	11/09/15	< 194
MCD	11/10/15	< 188
MCD	11/11/15	< 190
MCD	11/12/15	< 188
MCD	11/13/15	< 190
MCD	11/14/15	< 190
MCD	11/15/15	< 188
MCD	11/16/15	< 188
MCD	11/17/15	< 188
MCD	11/18/15	< 190
MCD	11/19/15	< 190
MCD	11/20/15	< 189
MCD	11/21/15	< 187
MCD	11/22/15	< 188
MCD	11/23/15	< 189
MCD	11/24/15	< 193
MCD	11/25/15	< 193
MCD	11/26/15	< 194
MCD	11/27/15	< 192
MCD	11/28/15	< 195
MCD	11/29/15	< 196
MCD	11/30/15	< 193
MCD	12/01/15	< 194
MCD	12/02/15	< 190
MCD	12/03/15	< 194
MCD	12/04/15	< 189
MCD	12/05/15	< 197
MCD	12/06/15	< 193
MCD	12/07/15	< 192
MCD	12/08/15	< 188
MCD	12/09/15	< 193
MCD	12/10/15	< 181
MCD	12/11/15	< 186
MCD	12/12/15	< 184
MCD	12/13/15	< 187
MCD	12/14/15	< 185
MCD	12/15/15	< 182
MCD	12/16/15	< 187
MCD	12/17/15	< 191
MCD	12/18/15	< 190
MCD	12/19/15	< 192
MCD	12/20/15	< 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, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
MCD	12/21/15	< 189
MCD	12/22/15	< 188
MCD	12/23/15	< 189
MCD	12/24/15	< 191
MCD	12/25/15	< 193
MCD	12/26/15	< 192
MCD	12/27/15	< 193
MCD	12/28/15	< 190
MCD	12/29/15	< 187
MCD	12/30/15	< 187
MCD	12/31/15	< 192
SW-1	01/07/15	< 178
SW-1	01/14/15	< 177
SW-1	01/21/15	< 195
SW-1	01/30/15	< 196
SW-1	04/15/15	< 199
SW-1	04/29/15	< 185
SW-1	05/06/15	< 181
SW-1	05/13/15	< 195
SW-1	05/20/15	< 181
SW-1	05/27/15	< 200
SW-1	06/03/15	< 198
SW-1	06/10/15	< 185
SW-1	06/17/15	< 187
SW-1	07/22/15	< 189
SW-1	08/12/15	< 187
SW-1	08/19/15	< 187
SW-1	08/26/15	< 188
SW-1	09/02/15	< 199
SW-1	09/09/15	< 197
SW-1	09/16/15	< 195
SW-1	09/23/15	< 194
SW-1	09/30/15	< 194
SW-1	10/07/15	< 190
SW-1	10/14/15	< 189
SW-1	10/21/15	< 191
SW-1	10/28/15	< 194
SW-1	11/04/15	< 193
SW-1	11/11/15	< 192
SW-1	11/18/15	< 189
SW-1	11/25/15	< 191
SW-1	12/02/15	< 194
SW-1	12/09/15	< 191
SW-1	12/16/15	< 186
SW-1	12/23/15	< 191
SW-1	12/30/15	< 185
SW-2	01/12/15	< 188
SW-2	04/13/15	< 166
SW-2	07/13/15	< 171
SW-2	10/12/15	< 191
SW-3	01/12/15	< 188
SW-3	04/13/15	< 172
SW-3	07/13/15	< 156

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
SW-3	10/12/15	< 192

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, 2015**

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	01/01/15	< 22	366 ± 81	< 2	< 2	< 5	< 2	< 4	< 3	< 3	**< 22**	< 2	< 2	< 30.7	< 10
MCD	01/02/15	< 24	251 ± 70	< 2	< 3	< 5	< 2	< 4	< 2	< 4	**< 23**	< 2	< 2	< 31	< 9
MCD	01/03/15	< 36	266 ± 78	< 3	< 3	< 7	< 3	< 6	< 4	< 6	**< 26**	< 3	< 3	< 42	< 10
MCD	01/04/15	< 20	322 ± 59	< 2	< 2	< 5	< 3	< 4	< 2	< 4	< 11	< 2	< 2	< 23	< 4
MCD	01/05/15	< 21	230 ± 52	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 5
MCD	01/06/15	< 26	261 ± 61	< 2	< 2	< 5	< 2	< 5	< 3	< 5	< 14	< 2	< 2	< 24	< 6
MCD	01/07/15	< 24	233 ± 90	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 11	< 2	< 2	< 24	< 6
MCD	01/08/15	< 17	231 ± 67	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 1	< 2	< 15	< 4
MCD	01/09/15	< 19	293 ± 87	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 17	< 6
MCD	01/10/15	< 18	196 ± 68	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 7	< 2	< 2	< 13	< 3
MCD	01/11/15	< 21	271 ± 90	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 8	< 2	< 2	< 16	< 5
MCD	01/12/15	< 30	280 ± 73	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 25	< 5
MCD	01/13/15	< 36	240 ± 69	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 14	< 4	< 4	< 28	< 7
MCD	01/14/15	< 42	294 ± 109	< 5	< 5	< 10	< 5	< 9	< 5	< 9	< 15	< 4	< 5	< 34	< 9
MCD	01/15/15	< 37	290 ± 82	< 4	< 4	< 8	< 3	< 7	< 4	< 7	< 12	< 4	< 4	< 27	< 6
MCD	01/16/15	< 48	228 ± 109	< 6	< 6	< 11	< 5	< 10	< 6	< 9	< 13	< 5	< 6	< 32	< 9
MCD	01/17/15	< 50	349 ± 96	< 5	< 5	< 13	< 5	< 12	< 6	< 11	< 14	< 5	< 5	< 35	< 10
MCD	01/18/15	< 57	< 66	< 6	< 7	< 14	< 7	< 16	< 7	< 12	< 14	< 6	< 7	< 38	< 13
MCD	01/19/15	< 58	280 ± 90	< 3	< 5	< 17	< 2	< 6	< 6	< 9	**< 10550**	< 2	< 2	**< 1355**	**< 451**
MCD	01/20/15	< 56	327 ± 91	< 2	< 4	< 15	< 2	< 5	< 5	< 9	**< 9402**	< 2	< 2	**< 1342**	**< 350**
MCD	01/21/15	< 41	281 ± 57	< 2	< 3	< 11	< 2	< 4	< 4	< 6	**< 5563**	< 1	< 2	**< 1054**	**< 247**
MCD	01/22/15	< 49	215 ± 62	< 2	< 4	< 14	< 2	< 5	< 5	< 7	**< 8109**	< 2	< 2	**< 1159**	**< 394**
MCD	01/23/15	< 85	238 ± 89	< 3	< 8	< 21	< 2	< 8	< 8	< 15	**< 10680**	< 2	< 3	**< 1779**	**< 532**
MCD	01/24/15	< 59	263 ± 74	< 3	< 4	< 16	< 2	< 5	< 6	< 10	**< 7715**	< 2	< 2	**< 1320**	**< 257**
MCD	01/25/15	< 68	352 ± 101	< 3	< 6	< 15	< 3	< 6	< 6	< 10	**< 9198**	< 3	< 2	**< 1397**	**< 348**
MCD	01/26/15	< 62	253 ± 88	< 3	< 5	< 16	< 2	< 5	< 6	< 10	**< 6451**	< 2	< 2	**< 1381**	**< 311**
MCD	01/30/15	< 53	306 ± 82	< 3	< 5	< 14	< 3	< 6	< 6	< 10	**< 4953**	< 2	< 3	**< 990**	**< 284**
MCD	04/27/15	< 23	373 ± 68	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 57**	< 2	< 1	< 48	**< 17**
MCD	04/28/15	< 29	282 ± 90	< 2	< 3	< 7	< 3	< 5	< 3	< 6	**< 70**	< 2	< 2	**< 70**	**< 21**
MCD	04/29/15	< 26	339 ± 67	< 2	< 3	< 6	< 2	< 5	< 3	< 5	**< 62**	< 2	< 2	**< 61**	**< 16**
MCD	04/30/15	< 23	360 ± 71	< 2	< 2	< 6	< 2	< 4	< 2	< 4	**< 41**	< 2	< 2	< 47	< 14
MCD	05/01/15	< 32	353 ± 87	< 3	< 3	< 8	< 2	< 5	< 3	< 6	**< 65**	< 2	< 3	**< 63**	**< 17**
MCD	05/02/15	< 28	323 ± 80	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 52**	< 2	< 2	< 57	< 14
MCD	05/03/15	< 17	268 ± 55	< 2	< 2	< 4	< 1	< 3	< 2	< 4	**< 28**	< 1	< 1	< 36	< 8

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015

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	05/04/15	< 25	344 ± 69	< 2	< 3	< 6	< 2	< 5	< 3	< 5	**< 41**	< 2	< 2	< 45	< 12
MCD	05/05/15	< 25	357 ± 77	< 2	< 3	< 5	< 2	< 4	< 3	< 5	**< 33**	< 2	< 2	< 46	< 11
MCD	05/06/15	< 25	315 ± 74	< 2	< 2	< 7	< 2	< 4	< 3	< 5	**< 34**	< 2	< 2	< 47	< 12
MCD	05/07/15	< 27	272 ± 70	< 2	< 2	< 7	< 2	< 4	< 3	< 5	**< 31**	< 2	< 2	< 39	< 12
MCD	05/08/15	< 26	304 ± 87	< 2	< 3	< 5	< 2	< 4	< 3	< 5	**< 28**	< 2	< 2	< 36	< 8
MCD	05/09/15	< 25	274 ± 81	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 24**	< 2	< 2	< 36	< 10
MCD	05/10/15	< 18	225 ± 63	< 2	< 2	< 4	< 2	< 3	< 2	< 3	**< 16**	< 2	< 2	< 24	< 7
MCD	05/11/15	< 18	246 ± 75	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 8
MCD	05/12/15	< 14	228 ± 53	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 11	< 1	< 2	< 18	< 6
MCD	05/13/15	< 15	233 ± 69	< 2	< 2	< 4	< 2	< 3	< 2	< 4	< 13	< 1	< 2	< 21	< 6
MCD	05/14/15	< 21	393 ± 62	< 2	< 2	< 6	< 2	< 5	< 3	< 4	< 12	< 2	< 2	< 23	< 5
MCD	05/15/15	< 31	402 ± 78	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 15	< 3	< 3	< 29	< 9
MCD	05/16/15	< 30	333 ± 89	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 14	< 3	< 3	< 27	< 7
MCD	05/17/15	< 19	276 ± 53	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 16	< 5
MCD	05/18/15	< 22	315 ± 69	< 3	< 3	< 5	< 2	< 5	< 3	< 5	< 9	< 2	< 2	< 19	< 5
MCD	05/19/15	< 21	234 ± 70	< 2	< 2	< 5	< 3	< 5	< 3	< 4	< 7	< 2	< 3	< 18	< 6
MCD	05/20/15	< 33	338 ± 101	< 4	< 4	< 9	< 3	< 8	< 4	< 7	< 10	< 3	< 4	< 24	< 9
MCD	05/21/15	< 26	288 ± 66	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 9	< 3	< 3	< 18	< 4
MCD	05/22/15	< 26	308 ± 86	< 2	< 3	< 6	< 2	< 4	< 3	< 5	**< 19**	< 2	< 2	< 33	< 8
MCD	05/23/15	< 24	339 ± 87	< 3	< 3	< 7	< 3	< 5	< 3	< 6	**< 19**	< 2	< 2	< 28	< 6
MCD	05/24/15	< 25	273 ± 75	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 18**	< 2	< 2	< 30	< 8
MCD	05/25/15	< 16	335 ± 68	< 2	< 2	< 5	< 2	< 3	< 2	< 4	< 11	< 2	< 2	< 21	< 7
MCD	05/26/15	< 15	209 ± 57	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 9	< 1	< 2	< 17	< 5
MCD	05/27/15	< 16	348 ± 67	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 2	< 2	< 19	< 5
MCD	05/28/15	< 23	401 ± 80	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 12	< 2	< 2	< 21	< 7
MCD	05/29/15	< 30	298 ± 64	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 14	< 3	< 3	< 28	< 9
MCD	05/30/15	< 30	279 ± 90	< 3	< 3	< 7	< 3	< 6	< 4	< 6	< 12	< 3	< 3	< 28	< 8
MCD	05/31/15	< 34	429 ± 72	< 4	< 4	< 7	< 3	< 7	< 4	< 7	< 13	< 3	< 3	< 28	< 8
MCD	06/01/15	< 39	275 ± 70	< 4	< 4	< 10	< 5	< 9	< 5	< 8	< 14	< 4	< 4	< 32	< 9
MCD	06/02/15	< 42	264 ± 85	< 5	< 5	< 10	< 5	< 9	< 5	< 8	< 14	< 4	< 4	< 32	< 9
MCD	06/03/15	< 40	245 ± 84	< 4	< 5	< 9	< 4	< 9	< 5	< 8	< 14	< 4	< 5	< 33	< 10
MCD	06/04/15	< 48	310 ± 99	< 6	< 6	< 14	< 6	< 12	< 6	< 11	< 14	< 5	< 6	< 36	< 12
MCD	06/05/15	< 20	342 ± 64	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 19	< 4
MCD	06/06/15	< 17	198 ± 61	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 8	< 2	< 2	< 17	< 5

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	06/07/15	< 31	367 ± 67	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 15	< 3	< 3	< 30	< 8
MCD	06/08/15	< 36	328 ± 77	< 3	< 4	< 8	< 4	< 8	< 4	< 7	< 14	< 4	< 4	< 29	< 8
MCD	06/09/15	< 41	318 ± 84	< 4	< 5	< 10	< 5	< 9	< 5	< 8	< 15	< 4	< 5	< 31	< 10
MCD	06/10/15	< 27	297 ± 102	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 8	< 3	< 3	< 21	< 6
MCD	06/11/15	< 44	396 ± 92	< 5	< 5	< 11	< 5	< 10	< 6	< 10	< 15	< 5	< 5	< 35	< 11
MCD	06/12/15	< 36	295 ± 68	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 10	< 4	< 4	< 25	< 8
MCD	06/13/15	< 47	359 ± 89	< 6	< 6	< 13	< 6	< 11	< 6	< 10	< 13	< 5	< 6	< 33	< 12
MCD	06/14/15	< 56	241 ± 103	< 6	< 6	< 14	< 7	< 13	< 7	< 12	< 14	< 6	< 6	< 39	< 11
MCD	06/15/15	< 45	183 ± 77	< 6	< 6	< 12	< 6	< 11	< 6	< 10	< 11	< 5	< 6	< 29	< 10
MCD	06/16/15	< 71	454 ± 91	< 8	< 7	< 14	< 7	< 17	< 8	< 14	< 15	< 8	< 8	< 41	< 12
MCD	06/17/15	< 76	244 ± 161	< 10	< 9	< 21	< 8	< 19	< 10	< 17	< 14	< 8	< 9	< 43	< 15
MCD	06/18/15	< 26	307 ± 78	< 2	< 2	< 6	< 3	< 5	< 3	< 5	**< 45**	< 2	< 2	< 48	< 13
MCD	06/19/15	< 25	313 ± 100	< 2	< 3	< 7	< 3	< 6	< 3	< 5	**< 38**	< 2	< 2	< 49	< 15
MCD	06/20/15	< 23	307 ± 80	< 2	< 2	< 6	< 2	< 4	< 3	< 4	**< 36**	< 2	< 2	< 47	< 12
MCD	06/21/15	< 26	316 ± 69	< 2	< 3	< 5	< 2	< 4	< 3	< 5	**< 35**	< 2	< 2	< 45	< 11
MCD	06/22/15	< 21	256 ± 76	< 2	< 2	< 5	< 2	< 4	< 3	< 4	**< 30**	< 2	< 2	< 37	< 9
MCD	06/23/15	< 15	220 ± 48	< 1	< 2	< 4	< 1	< 2	< 2	< 3	**< 20**	< 1	< 2	< 24	< 8
MCD	06/24/15	< 24	322 ± 75	< 2	< 3	< 7	< 3	< 4	< 3	< 5	**< 32**	< 2	< 2	< 42	< 11
MCD	06/25/15	< 24	255 ± 83	< 2	< 2	< 6	< 2	< 5	< 3	< 4	**< 24**	< 2	< 2	< 33	< 9
MCD	06/26/15	< 19	282 ± 62	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 20**	< 2	< 2	< 30	< 9
MCD	06/27/15	< 24	253 ± 92	< 2	< 3	< 7	< 2	< 5	< 3	< 5	**< 24**	< 2	< 3	< 37	< 14
MCD	06/28/15	< 23	227 ± 86	< 2	< 3	< 4	< 2	< 4	< 2	< 4	**< 20**	< 2	< 2	< 29	< 8
MCD	06/29/15	< 23	204 ± 76	< 2	< 2	< 6	< 2	< 5	< 3	< 5	**< 19**	< 2	< 2	< 29	< 10
MCD	06/30/15	< 17	272 ± 71	< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 15	< 2	< 2	< 24	< 6
MCD	07/01/15	< 19	254 ± 70	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 22	< 7
MCD	07/02/15	< 20	254 ± 85	< 2	< 2	< 5	< 2	< 4	< 2	< 5	< 14	< 2	< 2	< 26	< 7
MCD	07/03/15	< 23	300 ± 88	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 12	< 2	< 2	< 23	< 8
MCD	07/04/15	< 32	400 ± 69	< 3	< 4	< 7	< 3	< 7	< 4	< 7	< 15	< 3	< 4	< 31	< 9
MCD	07/05/15	< 34	241 ± 86	< 4	< 4	< 8	< 3	< 6	< 3	< 7	< 15	< 3	< 4	< 30	< 8
MCD	07/06/15	< 36	282 ± 68	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 15	< 4	< 4	< 30	< 9
MCD	07/07/15	< 37	265 ± 80	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 14	< 4	< 4	< 32	< 9
MCD	07/08/15	< 21	226 ± 73	< 2	< 3	< 5	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 15	< 4
MCD	07/09/15	< 19	271 ± 79	< 2	< 2	< 4	< 2	< 5	< 2	< 4	< 6	< 2	< 2	< 14	< 4
MCD	07/10/15	< 18	244 ± 78	< 2	< 2	< 4	< 2	< 5	< 2	< 4	< 5	< 2	< 2	< 13	< 4

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	07/11/15	< 22	296 ± 87	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 5	< 2	< 2	< 12	< 4
MCD	07/12/15	< 17	305 ± 79	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 4	< 2	< 2	< 12	< 3
MCD	07/13/15	< 15	202 ± 68	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 3	< 2	< 2	< 9	< 3
MCD	07/14/15	< 14	403 ± 74	< 2	< 2	< 3	< 2	< 4	< 2	< 3	< 3	< 2	< 2	< 9	< 3
MCD	07/15/15	< 15	271 ± 66	< 2	< 2	< 3	< 2	< 3	< 2	< 3	< 3	< 2	< 2	< 9	< 2
MCD	07/16/15	< 28	225 ± 49	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 9	< 3	< 3	< 21	< 7
MCD	07/17/15	< 36	339 ± 67	< 4	< 4	< 9	< 4	< 8	< 5	< 8	< 12	< 4	< 4	< 27	< 8
MCD	07/18/15	< 50	238 ± 82	< 6	< 5	< 12	< 6	< 11	< 6	< 10	< 14	< 5	< 6	< 32	< 10
MCD	07/19/15	< 49	328 ± 91	< 6	< 6	< 12	< 6	< 12	< 6	< 11	< 12	< 5	< 6	< 30	< 11
MCD	07/20/15	< 51	251 ± 102	< 6	< 6	< 12	< 6	< 12	< 6	< 11	< 11	< 6	< 6	< 32	< 10
MCD	07/21/15	< 35	346 ± 67	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 7	< 4	< 4	< 19	< 6
MCD	07/22/15	< 42	223 ± 73	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 8	< 5	< 5	< 23	< 7
MCD	07/23/15	< 24	273 ± 59	< 2	< 2	< 6	< 3	< 5	< 3	< 4	< 12	< 2	< 2	< 22	< 7
MCD	07/24/15	< 27	300 ± 84	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 15	< 3	< 3	< 28	< 7
MCD	07/25/15	< 27	354 ± 86	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 12	< 3	< 3	< 26	< 7
MCD	07/26/15	< 36	468 ± 107	< 4	< 4	< 8	< 3	< 8	< 4	< 7	< 15	< 3	< 4	< 36	< 10
MCD	07/27/15	< 28	273 ± 89	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 9	< 3	< 3	< 23	< 7
MCD	07/28/15	< 35	393 ± 99	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 13	< 4	< 4	< 28	< 6
MCD	07/29/15	< 35	340 ± 93	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 12	< 4	< 4	< 28	< 7
MCD	07/30/15	< 35	325 ± 127	< 5	< 5	< 9	< 4	< 9	< 4	< 8	< 11	< 4	< 5	< 26	< 9
MCD	07/31/15	< 38	310 ± 72	< 4	< 4	< 9	< 5	< 9	< 5	< 8	< 10	< 4	< 5	< 25	< 8
MCD	08/01/15	< 27	319 ± 51	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 7	< 3	< 3	< 17	< 6
MCD	08/02/15	< 33	321 ± 65	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 7	< 4	< 4	< 20	< 6
MCD	08/03/15	< 44	343 ± 72	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 9	< 5	< 5	< 24	< 7
MCD	08/04/15	< 44	364 ± 73	< 5	< 5	< 9	< 5	< 10	< 5	< 9	< 9	< 5	< 5	< 24	< 8
MCD	08/05/15	< 40	351 ± 89	< 4	< 5	< 9	< 4	< 9	< 5	< 9	< 8	< 4	< 5	< 22	< 5
MCD	08/06/15	< 21	337 ± 54	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 21	< 5
MCD	08/07/15	< 18	300 ± 57	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 16	< 5
MCD	08/08/15	< 33	463 ± 94	< 3	< 3	< 6	< 4	< 6	< 4	< 6	< 14	< 3	< 3	< 30	< 7
MCD	08/09/15	< 26	315 ± 75	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 11	< 3	< 3	< 23	< 7
MCD	08/10/15	< 31	373 ± 83	< 3	< 3	< 8	< 4	< 7	< 3	< 6	< 11	< 3	< 4	< 25	< 7
MCD	08/11/15	< 30	317 ± 83	< 3	< 3	< 7	< 3	< 7	< 4	< 6	< 10	< 3	< 3	< 21	< 7
MCD	08/12/15	< 34	354 ± 114	< 4	< 4	< 8	< 3	< 8	< 4	< 7	< 11	< 3	< 4	< 26	< 8
MCD	08/13/15	< 41	400 ± 71	< 4	< 4	< 9	< 4	< 8	< 5	< 8	< 13	< 4	< 5	< 29	< 7

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	08/14/15	< 35	456 ± 100	< 4	< 4	< 9	< 6	< 7	< 4	< 7	< 10	< 3	< 4	< 25	< 6
MCD	08/15/15	< 38	296 ± 68	< 4	< 4	< 9	< 4	< 9	< 4	< 8	< 11	< 4	< 4	< 24	< 9
MCD	08/16/15	< 49	313 ± 82	< 6	< 6	< 11	< 6	< 12	< 6	< 10	< 13	< 5	< 6	< 32	< 10
MCD	08/17/15	< 48	441 ± 77	< 5	< 6	< 12	< 6	< 12	< 6	< 10	< 11	< 5	< 6	< 30	< 9
MCD	08/18/15	< 48	365 ± 102	< 6	< 6	< 13	< 6	< 12	< 6	< 10	< 10	< 5	< 6	< 28	< 10
MCD	08/19/15	< 50	404 ± 118	< 6	< 7	< 14	< 7	< 14	< 6	< 11	< 10	< 6	< 6	< 30	< 11
MCD	08/20/15	< 55	267 ± 137	< 7	< 7	< 13	< 6	< 12	< 7	< 13	< 11	< 8	< 7	< 33	< 10
MCD	08/21/15	< 17	267 ± 50	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 6	< 2	< 2	< 12	< 4
MCD	08/22/15	< 33	277 ± 57	< 3	< 4	< 8	< 3	< 8	< 4	< 7	< 12	< 3	< 4	< 25	< 8
MCD	08/23/15	< 35	273 ± 67	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 10	< 3	< 4	< 26	< 8
MCD	08/24/15	< 28	377 ± 55	< 3	< 3	< 7	< 3	< 7	< 3	< 6	< 9	< 3	< 3	< 21	< 6
MCD	08/25/15	< 41	305 ± 104	< 5	< 6	< 12	< 5	< 11	< 5	< 10	< 12	< 5	< 5	< 30	< 9
MCD	08/26/15	< 38	325 ± 76	< 5	< 5	< 9	< 5	< 9	< 5	< 8	< 10	< 4	< 5	< 26	< 8
MCD	08/27/15	< 42	296 ± 80	< 4	< 5	< 10	< 5	< 10	< 5	< 8	< 10	< 4	< 5	< 26	< 8
MCD	08/28/15	< 37	310 ± 71	< 4	< 4	< 8	< 4	< 8	< 5	< 8	< 9	< 4	< 5	< 22	< 7
MCD	08/29/15	< 40	301 ± 82	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 8	< 4	< 5	< 25	< 8
MCD	08/30/15	< 36	326 ± 70	< 4	< 4	< 8	< 4	< 9	< 4	< 7	< 7	< 4	< 4	< 20	< 6
MCD	08/31/15	< 34	294 ± 61	< 4	< 4	< 8	< 4	< 8	< 4	< 7	< 7	< 4	< 4	< 19	< 6
MCD	09/01/15	< 18	346 ± 57	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 12	< 2	< 2	< 22	< 5
MCD	09/02/15	< 22	317 ± 60	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 12	< 2	< 2	< 22	< 7
MCD	09/03/15	< 24	399 ± 63	< 3	< 3	< 6	< 2	< 5	< 3	< 5	< 12	< 2	< 3	< 24	< 7
MCD	09/04/15	< 26	402 ± 80	< 3	< 3	< 7	< 2	< 5	< 3	< 5	< 13	< 2	< 3	< 23	< 6
MCD	09/05/15	< 31	355 ± 81	< 3	< 3	< 7	< 3	< 6	< 4	< 6	< 13	< 3	< 3	< 26	< 6
MCD	09/06/15	< 22	308 ± 73	< 2	< 3	< 6	< 3	< 4	< 3	< 4	< 8	< 2	< 3	< 19	< 6
MCD	09/07/15	< 29	293 ± 84	< 3	< 4	< 7	< 3	< 6	< 3	< 6	< 10	< 3	< 3	< 23	< 8
MCD	09/08/15	< 30	298 ± 98	< 4	< 4	< 8	< 4	< 7	< 4	< 6	< 10	< 3	< 4	< 25	< 8
MCD	09/09/15	< 31	365 ± 81	< 3	< 3	< 6	< 3	< 7	< 3	< 6	< 10	< 3	< 3	< 21	< 6
MCD	09/10/15	< 24	403 ± 66	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 8	< 2	< 3	< 19	< 5
MCD	09/11/15	< 26	389 ± 85	< 3	< 3	< 7	< 3	< 6	< 4	< 5	< 9	< 3	< 4	< 20	< 5
MCD	09/12/15	< 20	275 ± 62	< 3	< 2	< 5	< 3	< 5	< 2	< 4	< 6	< 2	< 2	< 14	< 6
MCD	09/13/15	< 28	334 ± 80	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 7	< 3	< 3	< 18	< 5
MCD	09/14/15	< 26	390 ± 87	< 3	< 3	< 6	< 3	< 7	< 3	< 5	< 6	< 3	< 3	< 15	< 5
MCD	09/15/15	< 27	326 ± 79	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 6	< 3	< 3	< 18	< 5
MCD	09/16/15	< 71	443 ± 130	< 8	< 7	< 17	< 9	< 15	< 8	< 14	< 15	< 8	< 8	< 41	< 10

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	09/17/15	< 64	337 ± 124	< 8	< 7	< 16	< 7	< 15	< 7	< 14	< 12	< 7	< 8	< 35	< 11
MCD	09/18/15	< 17	370 ± 52	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 17	< 5
MCD	09/19/15	< 22	312 ± 60	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 18	< 6
MCD	09/20/15	< 26	346 ± 66	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 12	< 2	< 2	< 22	< 6
MCD	09/21/15	< 25	301 ± 77	< 3	< 3	< 5	< 2	< 4	< 3	< 5	< 10	< 2	< 3	< 20	< 5
MCD	09/22/15	< 28	373 ± 77	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 23	< 7
MCD	09/23/15	< 23	288 ± 64	< 2	< 2	< 6	< 3	< 5	< 3	< 5	< 7	< 2	< 3	< 18	< 6
MCD	09/24/15	< 26	446 ± 80	< 3	< 3	< 6	< 2	< 6	< 3	< 5	< 8	< 3	< 3	< 20	< 6
MCD	09/25/15	< 29	331 ± 91	< 3	< 4	< 7	< 3	< 7	< 3	< 6	< 8	< 3	< 3	< 21	< 6
MCD	09/26/15	< 25	392 ± 72	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 7	< 3	< 3	< 17	< 4
MCD	09/27/15	< 42	381 ± 81	< 5	< 5	< 10	< 5	< 10	< 5	< 9	< 11	< 5	< 5	< 27	< 10
MCD	09/28/15	< 51	404 ± 98	< 6	< 6	< 13	< 6	< 13	< 6	< 11	< 12	< 5	< 6	< 32	< 12
MCD	09/29/15	< 46	382 ± 73	< 5	< 5	< 10	< 5	< 9	< 6	< 8	< 12	< 5	< 5	< 28	< 8
MCD	09/30/15	< 42	298 ± 81	< 4	< 5	< 11	< 5	< 11	< 5	< 9	< 10	< 5	< 5	< 26	< 8
MCD	10/01/15	< 20	321 ± 59	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 11	< 2	< 2	< 21	< 6
MCD	10/02/15	< 24	438 ± 76	< 2	< 3	< 6	< 3	< 4	< 3	< 4	< 12	< 2	< 3	< 22	< 6
MCD	10/03/15	< 29	276 ± 83	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 13	< 3	< 3	< 27	< 7
MCD	10/04/15	< 35	263 ± 107	< 4	< 4	< 9	< 3	< 7	< 5	< 7	< 15	< 3	< 4	< 30	< 9
MCD	10/05/15	< 31	352 ± 85	< 3	< 3	< 7	< 4	< 8	< 4	< 6	< 12	< 3	< 3	< 26	< 8
MCD	10/06/15	< 31	265 ± 91	< 3	< 3	< 7	< 3	< 7	< 3	< 6	< 12	< 3	< 3	< 26	< 5
MCD	10/07/15	< 25	262 ± 62	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 9	< 2	< 3	< 20	< 6
MCD	10/08/15	< 23	294 ± 71	< 2	< 3	< 5	< 2	< 5	< 2	< 4	< 7	< 2	< 2	< 17	< 4
MCD	10/09/15	< 22	271 ± 70	< 2	< 2	< 6	< 2	< 5	< 2	< 4	< 6	< 2	< 2	< 16	< 4
MCD	10/10/15	< 28	383 ± 92	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 8	< 3	< 3	< 21	< 6
MCD	10/11/15	< 29	314 ± 79	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 7	< 3	< 3	< 20	< 6
MCD	10/12/15	< 30	353 ± 85	< 3	< 3	< 5	< 3	< 7	< 3	< 6	< 7	< 3	< 3	< 19	< 6
MCD	10/13/15	< 25	380 ± 91	< 3	< 3	< 6	< 3	< 5	< 3	< 6	< 7	< 3	< 3	< 17	< 7
MCD	10/14/15	< 33	337 ± 102	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 7	< 4	< 4	< 21	< 6
MCD	10/15/15	< 23	272 ± 85	< 3	< 3	< 6	< 3	< 7	< 3	< 5	< 5	< 3	< 3	< 15	< 4
MCD	10/16/15	< 26	311 ± 49	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 13	< 3	< 3	< 25	< 8
MCD	10/17/15	< 33	284 ± 66	< 3	< 4	< 8	< 4	< 7	< 4	< 7	< 13	< 3	< 3	< 29	< 9
MCD	10/18/15	< 31	310 ± 70	< 3	< 3	< 9	< 4	< 7	< 4	< 7	< 13	< 3	< 3	< 28	< 9
MCD	10/19/15	< 32	300 ± 88	< 3	< 3	< 7	< 3	< 6	< 4	< 6	< 12	< 3	< 3	< 28	< 6
MCD	10/20/15	< 28	306 ± 79	< 3	< 3	< 7	< 3	< 6	< 4	< 5	< 11	< 3	< 3	< 25	< 7

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	10/21/15	< 23	284 ± 69	< 3	< 2	< 5	< 3	< 5	< 3	< 5	< 8	< 2	< 3	< 17	< 6
MCD	10/22/15	< 17	299 ± 51	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 14	< 4
MCD	10/23/15	< 25	379 ± 70	< 3	< 3	< 6	< 2	< 6	< 3	< 5	< 9	< 3	< 3	< 20	< 4
MCD	10/24/15	< 23	366 ± 63	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 15	< 3
MCD	10/25/15	< 23	311 ± 71	< 3	< 2	< 6	< 2	< 6	< 3	< 5	< 7	< 2	< 3	< 17	< 4
MCD	10/26/15	< 51	301 ± 86	< 6	< 6	< 14	< 6	< 13	< 6	< 12	< 14	< 6	< 6	< 37	< 12
MCD	10/27/15	< 25	373 ± 80	< 3	< 3	< 5	< 3	< 6	< 3	< 5	< 7	< 3	< 3	< 17	< 4
MCD	10/28/15	< 21	262 ± 77	< 3	< 3	< 5	< 3	< 5	< 3	< 4	< 5	< 2	< 3	< 13	< 5
MCD	10/29/15	< 17	353 ± 47	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 17	< 4
MCD	10/30/15	< 26	311 ± 67	< 3	< 3	< 6	< 3	< 5	< 3	< 4	< 11	< 2	< 3	< 23	< 7
MCD	10/31/15	< 28	373 ± 87	< 3	< 3	< 6	< 4	< 6	< 3	< 5	< 11	< 3	< 3	< 24	< 8
MCD	11/01/15	< 21	373 ± 61	< 2	< 2	< 5	< 2	< 5	< 3	< 4	< 9	< 2	< 2	< 19	< 5
MCD	11/02/15	< 30	353 ± 87	< 3	< 4	< 8	< 4	< 7	< 4	< 7	< 10	< 3	< 4	< 23	< 8
MCD	11/03/15	< 26	399 ± 77	< 3	< 3	< 6	< 2	< 5	< 3	< 5	< 9	< 2	< 3	< 18	< 5
MCD	11/04/15	< 25	392 ± 76	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 8	< 3	< 3	< 19	< 6
MCD	11/05/15	< 20	256 ± 64	< 2	< 2	< 6	< 3	< 5	< 2	< 4	< 6	< 2	< 2	< 17	< 5
MCD	11/06/15	< 25	397 ± 75	< 3	< 3	< 5	< 3	< 6	< 3	< 5	< 8	< 3	< 3	< 18	< 4
MCD	11/07/15	< 26	313 ± 48	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 8	< 3	< 3	< 19	< 5
MCD	11/08/15	< 32	289 ± 58	< 3	< 4	< 8	< 3	< 7	< 4	< 6	< 8	< 3	< 4	< 22	< 6
MCD	11/09/15	< 38	371 ± 75	< 4	< 4	< 8	< 4	< 7	< 4	< 7	< 10	< 4	< 4	< 24	< 6
MCD	11/10/15	< 20	341 ± 55	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 20	< 6
MCD	11/11/15	< 25	356 ± 67	< 3	< 3	< 7	< 3	< 5	< 3	< 5	< 14	< 2	< 2	< 26	< 9
MCD	11/12/15	< 31	300 ± 70	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 15	< 3	< 3	< 29	< 8
MCD	11/13/15	< 29	430 ± 90	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 13	< 3	< 3	< 26	< 6
MCD	11/14/15	< 34	334 ± 58	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 14	< 3	< 4	< 30	< 10
MCD	11/15/15	< 20	305 ± 72	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 8	< 2	< 3	< 16	< 5
MCD	11/16/15	< 43	< 46	< 5	< 5	< 11	< 5	< 8	< 5	< 8	< 14	< 4	< 5	< 34	< 6
MCD	11/17/15	< 43	414 ± 81	< 4	< 4	< 9	< 4	< 8	< 5	< 8	< 15	< 4	< 4	< 33	< 9
MCD	11/18/15	< 39	441 ± 83	< 4	< 5	< 9	< 4	< 8	< 5	< 7	< 14	< 4	< 4	< 31	< 8
MCD	11/19/15	< 46	381 ± 81	< 5	< 6	< 11	< 5	< 10	< 5	< 9	< 14	< 5	< 5	< 34	< 10
MCD	11/20/15	< 37	339 ± 66	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 10	< 4	< 4	< 26	< 8
MCD	11/21/15	< 43	293 ± 75	< 5	< 5	< 11	< 4	< 10	< 5	< 9	< 11	< 5	< 5	< 29	< 9
MCD	11/22/15	< 26	336 ± 74	< 3	< 3	< 5	< 2	< 5	< 3	< 5	< 7	< 3	< 3	< 16	< 4
MCD	11/23/15	< 25	435 ± 83	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 6	< 3	< 3	< 16	< 5

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	11/24/15	< 20	239 ± 69	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 15	< 2	< 2	< 27	< 6
MCD	11/25/15	< 15	246 ± 52	< 1	< 1	< 3	< 1	< 2	< 2	< 3	< 11	< 1	< 1	< 18	< 5
MCD	11/26/15	< 17	207 ± 67	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 2	< 2	< 21	< 6
MCD	11/27/15	< 23	345 ± 78	< 2	< 2	< 7	< 2	< 5	< 3	< 4	< 15	< 2	< 2	< 27	< 8
MCD	11/28/15	< 21	236 ± 74	< 2	< 2	< 5	< 2	< 5	< 3	< 4	< 13	< 2	< 2	< 21	< 8
MCD	11/29/15	< 14	262 ± 49	< 1	< 2	< 3	< 1	< 3	< 1	< 3	< 8	< 1	< 1	< 16	< 5
MCD	11/30/15	< 27	359 ± 77	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 15	< 2	< 3	< 28	< 8
MCD	12/01/15	< 17	246 ± 68	< 2	< 2	< 3	< 2	< 4	< 2	< 3	< 9	< 2	< 2	< 16	< 5
MCD	12/02/15	< 22	346 ± 91	< 2	< 2	< 6	< 2	< 5	< 3	< 4	< 9	< 2	< 2	< 19	< 6
MCD	12/03/15	< 22	350 ± 83	< 2	< 2	< 5	< 2	< 4	< 3	< 5	< 10	< 2	< 2	< 21	< 7
MCD	12/04/15	< 21	225 ± 78	< 2	< 2	< 4	< 2	< 4	< 2	< 5	< 9	< 2	< 2	< 19	< 7
MCD	12/05/15	< 16	275 ± 66	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 6	< 1	< 2	< 14	< 4
MCD	12/06/15	< 11	234 ± 48	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 4	< 1	< 1	< 10	< 3
MCD	12/07/15	< 15	255 ± 69	< 2	< 2	< 3	< 2	< 3	< 2	< 3	< 6	< 2	< 2	< 13	< 3
MCD	12/08/15	< 20	331 ± 93	< 3	< 3	< 5	< 2	< 5	< 3	< 5	< 8	< 2	< 3	< 18	< 5
MCD	12/09/15	< 29	430 ± 100	< 4	< 3	< 7	< 4	< 7	< 4	< 6	< 6	< 3	< 3	< 15	< 5
MCD	12/10/15	< 13	338 ± 59	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 8	< 1	< 1	< 14	< 4
MCD	12/11/15	< 16	354 ± 63	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 1	< 2	< 16	< 4
MCD	12/12/15	< 18	487 ± 72	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 9	< 2	< 2	< 18	< 4
MCD	12/13/15	< 20	339 ± 68	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 8	< 2	< 2	< 15	< 4
MCD	12/14/15	< 17	309 ± 68	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 7	< 1	< 2	< 13	< 5
MCD	12/15/15	< 21	317 ± 79	< 3	< 2	< 5	< 2	< 5	< 3	< 4	< 9	< 2	< 2	< 18	< 5
MCD	12/16/15	< 20	432 ± 85	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 7	< 2	< 2	< 16	< 3
MCD	12/17/15	< 20	370 ± 70	< 2	< 2	< 5	< 2	< 3	< 2	< 3	**< 17**	< 2	< 2	< 27	< 8
MCD	12/18/15	< 21	340 ± 76	< 2	< 2	< 5	< 2	< 4	< 2	< 4	**< 18**	< 2	< 2	< 27	< 11
MCD	12/19/15	< 19	374 ± 64	< 2	< 2	< 4	< 2	< 3	< 2	< 3	**< 16**	< 2	< 2	< 24	< 5
MCD	12/20/15	< 20	325 ± 82	< 2	< 2	< 6	< 2	< 3	< 3	< 4	**< 16**	< 2	< 2	< 27	< 9
MCD	12/21/15	< 21	272 ± 76	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 15	< 2	< 2	< 25	< 9
MCD	12/22/15	< 20	289 ± 67	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 11	< 2	< 2	< 22	< 6
MCD	12/23/15	< 19	385 ± 72	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 22	< 6
MCD	12/24/15	< 13	288 ± 44	< 1	< 1	< 3	< 1	< 2	< 2	< 2	< 8	< 1	< 1	< 14	< 4
MCD	12/25/15	< 18	307 ± 64	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 2	< 2	< 18	< 4
MCD	12/26/15	< 16	225 ± 66	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 9	< 2	< 2	< 17	< 5
MCD	12/27/15	< 13	264 ± 51	< 1	< 1	< 3	< 1	< 3	< 1	< 2	< 7	< 1	< 1	< 12	< 3

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	12/28/15	< 23	180 ± 82	< 2	< 2	< 5	< 2	< 5	< 3	< 5	< 9	< 2	< 2	< 20	< 6
MCD	12/29/15	< 14	263 ± 53	< 1	< 1	< 4	< 1	< 3	< 2	< 3	< 14	< 1	< 1	< 21	< 7
MCD	12/30/15	< 27	349 ± 72	< 3	< 3	< 5	< 3	< 5	< 3	< 6	**< 28**	< 2	< 3	< 39	< 10
MCD	12/31/15	< 24	353 ± 79	< 2	< 2	< 5	< 2	< 4	< 3	< 4	**< 23**	< 2	< 2	< 30	< 10
SW-1	01/07/15	< 19	292 ± 63	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 2	< 2	< 18	< 4
SW-1	01/14/15	< 40	200 ± 69	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 15	< 5	< 5	< 35	< 11
SW-1	01/21/15	< 41	211 ± 60	< 2	< 3	< 13	< 2	< 4	< 4	< 6	**< 6574**	< 2	< 2	**< 1064**	**< 225**
SW-1	01/30/15	< 43	214 ± 66	< 2	< 4	< 11	< 2	< 4	< 4	< 7	**< 3171**	< 2	< 2	**< 684**	**< 158**
SW-1	04/15/15	< 41	233 ± 64	< 4	< 4	< 9	< 4	< 9	< 4	< 8	< 15	< 4	< 4	< 27	< 8
SW-1	04/29/15	< 52	207 ± 66	< 4	< 6	< 14	< 4	< 9	< 6	< 10	**< 113**	< 4	< 4	**< 114**	**< 41**
SW-1	05/06/15	< 18	240 ± 70	< 1	< 2	< 4	< 2	< 3	< 2	< 4	**< 25**	< 2	< 2	< 32	< 11
SW-1	05/13/15	< 17	268 ± 63	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 14	< 2	< 2	< 22	< 5
SW-1	05/20/15	< 30	381 ± 82	< 3	< 3	< 7	< 3	< 7	< 3	< 6	< 11	< 3	< 3	< 23	< 7
SW-1	05/27/15	< 28	208 ± 60	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 15	< 3	< 3	< 28	< 7
SW-1	06/03/15	< 44	303 ± 72	< 5	< 5	< 10	< 4	< 9	< 5	< 9	< 15	< 5	< 5	< 33	< 10
SW-1	06/10/15	< 19	217 ± 86	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 6	< 2	< 2	< 16	< 4
SW-1	06/17/15	< 69	406 ± 120	< 8	< 8	< 18	< 7	< 16	< 9	< 16	< 15	< 8	< 8	< 43	< 15
SW-1	07/22/15	< 44	263 ± 87	< 5	< 5	< 9	< 5	< 9	< 5	< 9	< 7	< 5	< 5	< 22	< 6
SW-1	08/12/15	< 41	361 ± 82	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 14	< 4	< 4	< 31	< 8
SW-1	08/19/15	< 56	286 ± 97	< 8	< 7	< 16	< 9	< 14	< 7	< 12	< 11	< 7	< 8	< 35	< 10
SW-1	08/26/15	< 38	299 ± 69	< 4	< 4	< 9	< 4	< 9	< 4	< 8	< 10	< 4	< 4	< 24	< 8
SW-1	09/02/15	< 22	338 ± 53	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 11	< 2	< 2	< 21	< 7
SW-1	09/09/15	< 22	339 ± 64	< 2	< 2	< 5	< 2	< 5	< 2	< 4	< 7	< 2	< 2	< 16	< 5
SW-1	09/16/15	< 62	305 ± 98	< 7	< 7	< 14	< 8	< 13	< 7	< 11	< 12	< 6	< 8	< 33	< 9
SW-1	09/23/15	< 31	308 ± 83	< 3	< 4	< 8	< 3	< 8	< 4	< 7	< 12	< 3	< 3	< 24	< 9
SW-1	09/30/15	< 13	324 ± 55	< 1	< 2	< 4	< 1	< 4	< 2	< 3	< 10	< 1	< 1	< 16	< 6
SW-1	10/07/15	< 15	240 ± 46	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 6	< 1	< 2	< 13	< 4
SW-1	10/14/15	< 22	294 ± 79	< 3	< 3	< 5	< 3	< 5	< 3	< 5	< 5	< 2	< 3	< 13	< 4
SW-1	10/21/15	< 30	295 ± 51	< 3	< 3	< 8	< 3	< 7	< 4	< 6	< 12	< 3	< 3	< 25	< 8
SW-1	10/28/15	< 47	255 ± 86	< 5	< 5	< 13	< 6	< 11	< 6	< 10	< 11	< 5	< 6	< 30	< 11
SW-1	11/04/15	< 36	291 ± 60	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 13	< 4	< 4	< 28	< 9
SW-1	11/11/15	< 21	341 ± 56	< 2	< 2	< 6	< 2	< 4	< 3	< 4	< 12	< 2	< 2	< 20	< 6
SW-1	11/18/15	< 31	403 ± 79	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 23	< 6
SW-1	11/25/15	< 19	248 ± 60	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 21	< 6

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

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, 2015**

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	12/02/15	< 24	208 ± 76	< 3	< 3	< 6	< 3	< 6	< 3	< 5	< 8	< 2	< 3	< 19	< 5
SW-1	12/09/15	< 24	303 ± 79	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 5	< 3	< 3	< 16	< 5
SW-1	12/16/15	< 21	329 ± 83	< 2	< 2	< 5	< 3	< 5	< 3	< 4	< 7	< 2	< 2	< 15	< 4
SW-1	12/23/15	< 22	387 ± 75	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 7
SW-1	12/30/15	< 21	392 ± 67	< 2	< 2	< 5	< 1	< 4	< 2	< 4	**< 32**	< 2	< 2	< 35	< 9
SW-2	04/13/15	< 45	182 ± 72	< 5	< 5	< 11	< 5	< 9	< 6	< 10	< 14	< 4	< 5	< 31	< 10
SW-3	04/13/15	< 43	< 70	< 4	< 5	< 9	< 4	< 8	< 4	< 7	< 15	< 4	< 4	< 29	< 11

BOLDED VALUES INDICATE LLD WAS NOT MET DUE TO THE AGE OF THE SAMPLE AT TIME OF RECEIPT AT THE LABORATORY

TABLE B-II.3 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, 2015

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

NONE FOR 2015

TABLE B-III.1 **CONCENTRATIONS OF TRITIUM IN PRECIPITATION WATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, OYSTER CREEK GENERATING STATION, 2015**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3
2	01/12/15	< 193
2	04/13/15	< 194
2	07/16/15	< 182
2	10/29/15	< 197
3	01/12/15	< 186
3	04/13/15	< 186
3	07/16/15	< 189
3	10/29/15	< 194
4	01/12/15	< 190
4	04/13/15	< 188
4	07/16/15	< 180
4	10/29/15	< 193
5	01/12/15	< 196
5	04/13/15	< 194
5	07/16/15	< 179
5	10/29/15	< 193
6	01/12/15	< 191
6	04/13/15	< 191
6	07/16/15	< 181
6	10/29/15	< 197