Docket No: 50-461

# CLINTON POWER STATION

## Annual Radiological Environmental Operating Report

## 1 January Through 31 December 2007

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**April 2008**

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## I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program (REMP) conducted for the Clinton Power Station (CPS) by AmerGen covers the period 1 January 2007 through 31 December 2007. During that time period, 1,580 analyses were performed on 1,465 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of CPS had no adverse radiological impact on the environment.

There were zero (0) radioactive liquid releases from CPS during 2007. Releases of gaseous radioactive materials were accurately measured in plant effluents. There was no gaseous effluent releases that approached the limits specified in the CPS Offsite Dose Calculation Manual (ODCM). The highest calculated offsite dose received by a member of the public due to the release of gaseous effluents from Clinton Power Station was 8.17 E-04 or 0.000817 mrem.

Surface, drinking, and ground water samples were analyzed for concentrations of tritium and gamma emitting nuclides. Drinking water samples were also analyzed for concentrations of gross beta and I-131. No fission or activation products were detected. Gross beta activities detected were consistent with those detected in previous years. No tritium activity was detected and the required lower limit of detection (LLD) was met.

Fish and shoreline sediment samples were analyzed for concentrations of gamma emitting nuclides. No fission or activation products were detected in fish or shoreline sediment samples.

Air particulate samples were analyzed for concentrations of gross beta and gamma emitting nuclides. Cosmogenic Be-7 was detected at levels consistent with those detected in previous years. No fission or activation products were detected.

High sensitivity I-131 analyses were performed on weekly air samples. All required LLDs were met.

Cow milk samples were analyzed for concentrations of I-131 and gamma emitting nuclides. All I-131 results were below the required LLDs. Concentrations of naturally occurring K-40 were consistent with those detected in previous years. No fission or activation products were found.

Food product samples were analyzed for concentrations of gross beta and gamma emitting nuclides. Gross beta activities detected were consistent with those detected in previous years. Concentrations of Cosmogenic Be-7 and naturally occurring K-40 were consistent with those detected in previous years. No fission or activation products were detected.

Grass samples were analyzed for concentrations of gamma emitting nuclides. Concentrations of Cosmogenic Be-7 and naturally occurring K-40 were

consistent with those detected in previous years. No fission or activation products were detected.

Environmental gamma radiation measurements were performed quarterly using thermoluminescent dosimeters. Levels detected were consistent with those observed in previous years.

## II. Introduction

The Clinton Power Station (CPS), consisting of one approximately 1140 MW gross electrical power output boiling water reactor is located in Harp Township, DeWitt County, Illinois. CPS is owned and operated by AmerGen Energy Company and became operational in 1987. Unit No. 1 went critical on 15 February 1987. The site encloses approximately 13,730 acres. This includes the 4,895 acre, man-made cooling lake and about 452 acres of property not owned by AmerGen. The plant is situated on approximately 150 acres. The cooling water discharge flume – which discharges to the eastern arm of the lake – occupies an additional 130 acres. Although the nuclear reactor, supporting equipment and associated electrical generation and distribution equipment lie in Harp Township, portions of the aforementioned 13,730 acre plot reside within Wilson, Rutledge, DeWitt, Creek, Nixon and Santa Anna Townships.

A Radiological Environmental Monitoring Program (REMP) for CPS was initiated in 1987. The preoperational period for most media covers the periods May 1980 through 27 February 1987 and was summarized in a separate report. This report covers those analyses performed by Teledyne Brown Engineering (TBE), Global Dosimetry, and Environmental Inc. (Midwest Labs) on samples collected during the period 1 January 2007 through 31 December 2007.

### A. Objective of the REMP

The objectives of the REMP are to:

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

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

### B. Implementation of the Objectives

The implementation of the objectives is accomplished by:

1. Identifying significant exposure pathways.

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

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

III. Program Description

A. Sample Collection

This section describes the general collection methods used by Environmental Inc. (Midwest Labs) to obtain environmental samples for the CPS REMP in 2007. Sample locations and descriptions can be found in Tables B–1 and B–2, and Figures B–1 through B–3, Appendix B. The sampling methods used by Environmental Inc. (Midwest Labs) are listed in Table B-2.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, drinking water, well water, fish, and shoreline sediment. Two gallon water samples were collected monthly from continuous samplers located at three surface water locations (CL-90, CL-91 and CL-99) and one drinking water location (CL-14). A monthly grab sample was obtained from one surface water location (CL-13). Quarterly samples were obtained from two well water locations (CL-07D and CL-12). All samples were collected in new unused plastic bottles, which were rinsed at least twice with source water prior to collection. Fish samples comprising the flesh of largemouth bass, crappie, carp, and bluegill, the species most commonly harvested from the lakes by sporting fishermen, were collected semiannually at two locations, CL-19 and CL-105 (control). Shoreline sediment samples composed of recently deposited substrate were collected at one location semiannually, CL-07B.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate, airborne iodine, milk, food produce and grass. Airborne iodine and particulate samples were collected and analyzed weekly at ten locations (CL-01, CL-02, CL-03, CL-04, CL-06, CL-07, CL-08, CL-11, CL-15, and CL-94). The control location was CL-11. 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.

Milk samples were collected biweekly at one location (CL-116) from May through October, and monthly from November through April to coincide with the grazing season. All samples were collected in new unused

plastic bottles from the bulk tank at each location, preserved with sodium bisulfite, and shipped promptly to the laboratory.

Food products were collected once a month from June through September at four locations (CL-114, CL-115, CL-117 and CL-118). The control location was CL-114. Various broadleaf vegetable samples were collected and placed in new unused plastic bags, and sent to the laboratory for analysis.

Grass samples were collected biweekly at four locations (CL-01, CL-02, CL-08 and CL-116) from May through October. The control location was CL-116. All samples were collected in new unused plastic bags and sent to the laboratory for analysis.

Ambient Gamma Radiation

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

An inner ring consisting of 16 locations (CL-01, CL-05, CL-22, CL-23, CL-24, CL-34, CL-35, CL-36, CL-42 CL-43, CL-44, CL-45, CL-46, CL-47, CL-48 and CL-63) near and within the site perimeter.

An outer ring consisting of 16 locations (CL-51, CL-52, CL-53, CL-54, CL-55, CL-56, CL-57, CL-58, CL-60, CL-61, CL-76, CL-77, CL-78, CL-79, CL-80 and CL-81) extending to approximately 5 miles from the site designed to measure possible exposures to close-in population.

A special interest set consisting of seven locations (CL-37, CL-41, CL-49, CL-64, CL65, CL-74 and CL-75) representing special interest areas.

A supplemental set consisting of 14 locations (CL-02, CL-03, CL-04, CL-06, CL-07, CL-08, CL-15, CL-33, CL-84, CL-90, CL-91, CL-97, CL-99, and CL-114).

The balance of 1 location (CL-11) representing the control station.

The specific TLD locations were determined by the following criteria:

1. The presence of relatively dense population;

2. Site meteorological data taking into account distance and elevation for each of the sixteen–22 1/2 degree sectors around the site, where estimated annual dose from CPS, if any, would be most

significant;

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

4. And near the closest dwelling to the HVAC stacks in the prevailing downwind direction.

Two TLDs – each composed of two $CaSO_4$ thermoluminescent phosphors enclosed in plastic – were placed at each location in a vented PVC conduit located approximately three feet above ground level. The TLDs were exchanged quarterly and sent to Global Dosimetry 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 CPS REMP in 2007. The analytical procedures used by the laboratories are listed in Table B-2.

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

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

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

3. Concentrations of tritium in surface, drinking and well water.

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

5. Ambient gamma radiation levels at various on-site and off-site environs.

C. Data Interpretation

The radiological and direct radiation data collected prior to CPS becoming operational was used as a baseline with which these operational data were compared. For the purpose of this report, CPS was considered operational at initial criticality. In addition, data were compared to previous years' operational data for consistency and trending. 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) was defined as the smallest concentration of radioactive material in a sample that would yield a net count (above background) that would be detected with only a 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD was intended as a before the fact estimate of a system (including instrumentation, procedure and sample type) and not as an after the fact criteria for the presence of activity. All analyses were designed to achieve the required CPS detection capabilities for environmental sample analysis.

2. Net Activity Calculation and Reporting of Results

Net activity for a sample was calculated by subtracting background activity from the sample activity. Since the REMP measures extremely small changes in radioactivity in the environment, background variations may result in sample activity being lower than the background activity resulting 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 water and well water 12 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, Cs-134, Cs-137, Ba-140, La-140, and Ce-144 were reported.

For fish, sediment and milk, 14 nuclides, Be-7, K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, Cs-134, Cs-137, Ba-140, La-140, and Ce-144 were reported.

For drinking water, grass and vegetation 13 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, I-131, Cs-134, Cs-137, Ba-140, La-140, and Ce-144 were reported.

For grass 15 nuclides, 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, and Ce-144 were reported.

For air particulate 11 nuclides, Be-7, K-40, Co-60, Nb-95, Zr-95, Ru-103, Ru-106, Cs-134, Cs-137, Ce-141 and Ce-144, 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

The exceptions described below are those that are considered 'deviations' from the Radiological Environmental Monitoring Program as required by the Station's ODCM. By definition, 'deviations' are permitted as delineated within NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants", October 1978, and within Radiological Assessment Branch Technical Position, Revision 1, November 1979, which states...."Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons".... The below section addresses the reporting requirements found within Section 7.1 of the Station's ODCM.

April 16, 2007, IR # 00618289

Only one kilogram of crappie was collected from the fish control station CI-105, due to both low lake level and water temperature of 48-50 degrees. The coves where fish tend to migrate were either non-existent or at too low a depth and the low water temperatures cause the fish to migrate towards deeper water, which challenges the ability of the electro-shocking process. Although the fish volume was one kilogram, all required LLDs were met and there was no impact to the results.

July 04, 2007 – November 07, 2007 IR # 00695727

Non-ODCM Composite Water Sampler, CL-99, displayed sporadic performance throughout the summer. Surface water station CL-99 serves as a supplement to the ODCM. Grab sampling was augmented during periods of troubleshooting and repairs when consistent compositing was either too much or too little. There was no impact on the results, and all LLDs were met.

July 25, 2007, IR # 00653836

Clinton's second quarter 2007 H-3 composite sample for surface water station CL-90 was missing the June contribution. Although the Licensee complied by collecting the required sample, before arriving at the vendor for analysis, the sample was inadvertently disposed of by the sample collecting vendor.

July 30, 2007, IR 00655565

Air samplers CL-02 and CL-03 were found not operating during the weekly surveillance. Although trouble-shooting determined a blown fuse, there was sufficient sampling volume collected such that there was no impact to the results, and all required LLDs were achieved.

October 08, 2007, IR # 00681664

ODCM Drinking Water Compositor CL-14 had a loss of power for 11 hours due to a 138 KV Line Outage. This resulted in a less than 2% loss of composite sampling to what is typically collected over a month; four (4) gallons of water. There was no impact to the results, and all required LLDs were achieved.

November 28, 2007 – December 05, 2007 IR # 00707575

Non-ODCM environmental Air Sampler CL-06 was found not running during the performance of the weekly surveillance due to a loss of power. Sample volume calculations revealed that the minimum sample volume had not been achieved. Air Sampler CL-06 serves as a special interest supplement to the ODCM.

Each program exception was reviewed to understand the causes of the program exception. Sampling and maintenance errors were reviewed with the personnel involved to prevent recurrence. Occasional equipment breakdowns and power outages were unavoidable.

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

E. Program Changes

Starting in 2007, the mean and two standard deviation values are calculated using the positive values only.

## IV. Results and Discussion

### A. Aquatic Environment

#### 1. Surface Water

Samples were taken hourly, and grab samples to supplement during periods of inoperability – see exceptions, from a continuous compositor at three locations (CL-90, CL-91 and CL-99) on a monthly schedule and grab samples were taken monthly from one

station (CL-13). The following analyses were performed.

Iodine-131

Monthly samples from location CL-90 were analyzed for I-131 activity (Table C-I.1, Appendix C). The required LLD was met.

Tritium

Monthly samples from all locations were composited quarterly and analyzed for tritium activity (Table C–I.2, Appendix C). The required LLD was met.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–I.3, Appendix C). Naturally occurring K-40 was found in three of 12 samples at locations CL-13 and CL-91 and one of 12 samples at locations CL-90 and CL-99. No other nuclides were detected and all required LLDs were met.

2. Drinking Water

Monthly samples were collected from a continuous compositor at one location (CL-14). The following analyses were performed:

Gross Beta

Monthly samples were analyzed for concentrations of gross beta (Tables C–II.1, Appendix C). Gross beta was found in three of 12 samples. The values ranged from 1.9 to 3.5 pCi/l. Concentrations detected were consistent with those detected in previous years.

Tritium

Monthly samples were composited quarterly and analyzed for tritium activity (Table C–II.2, Appendix C). The required LLD was met.

Gamma Spectrometry

Monthly samples were analyzed for gamma emitting nuclides (Table C–II.3, Appendix C). ). Naturally occurring K-40 was found in five samples at location CL-14. No other nuclides were detected and all required LLDs were met.

3. Ground Water

Quarterly grab samples were collected at two locations (CL-7D and CL-12, consisting of CL-12R [a raw water sample from this well] and CL-12T [same well water, but after treatment and available for consumption]). The following analyses were performed:

Tritium

Samples from all locations were analyzed for tritium activity (Table C–III.1, Appendix C). The required LLD was met.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–III.2, Appendix C). No nuclides were detected and all required LLDs were met.

4. Fish

Fish samples comprised of carp, bass, bluegill, crappie and channel catfish were collected at two locations (CL-19 and CL-105) semiannually. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from both locations was analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). Naturally occurring K-40 was found at both stations. No fission or activation products were found. No other nuclides were detected and the required LLDs were met.

5. Shoreline Sediment

Aquatic shoreline sediment samples were collected at CL-07B semiannually. The following analysis was performed:

Gamma Spectrometry

Shoreline sediment samples were analyzed for gamma emitting nuclides (Table C–V.1, Appendix C). Naturally occurring K-40 was detected in both samples. No fission or activation products were found. No other nuclides were detected and the required LLDs were met.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from 10 locations on a weekly basis. The 10 locations were separated into three groups: Group I represents locations within one mile of the CPS site boundary (CL-02, CL-03, CL-04, CL-06, CL-15, and CL-94). Group II represents the locations at an intermediate distance within one to five miles of CPS (CL-01, CL-07, and CL-08), and Group III represents the control location greater than five miles from CPS (CL-11). The following analyses were performed:

Gross Beta

Weekly samples were analyzed for concentrations of beta emitters (Table C–VI.1 and C–VI.2 and Figure C–1, Appendix C).

Detectable gross beta activity was observed at all locations. Comparison of results among the three groups aid in determining the effects, if any, resulting from the operation of CPS. The results from the On-Site locations (Group I) ranged from 22 to 45 E–3 pCi/$m^3$ with a mean of 22 E–3 pCi/$m^3$. The results from the Intermediate Distance location (Group II) ranged from 9 to 45 E–3 pCi/$m^3$ with a mean of 21 E–3 pCi/$m^3$. The results from the Control locations (Group III) ranged from 8 to 39 E–3 pCi/$m^3$ with a mean of 22 E–3 pCi/$m^3$. Comparison of the 2007 air particulate data with previous years data indicate no effects from the operation of CPS (Figure C–5, Appendix C). In addition a comparison of the weekly mean values for 2007 indicate no notable differences among the three groups.

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–VI.3, Appendix C). Naturally occurring isotopes Be-7 due to cosmic ray activity was detected in all samples and K-40 was detected in three samples. No other nuclides were detected and all required LLDs were met.

b. Airborne Iodine

Continuous air samples were collected from 10 locations (CL-01, CL-02, CL-03, CL-04, CL-06, CL-07, CL-08, CL-11, CL-15 and CL-94) and analyzed weekly for I-131 (Table C-VII.1, Appendix C). All results were less than the MDC and the required LLD was met.

2. Terrestrial

a. Milk

Samples were collected from CL-116 biweekly May through October and monthly November through April, to coincide with the grazing season. The following analyses were performed:

Iodine-131

Milk samples were analyzed for concentrations of I-131 (Table C–VIII.1, Appendix C). The required LLD was met.

Gamma Spectrometry

Each milk sample was analyzed for concentrations of gamma emitting nuclides (Table C–VIII.2, Appendix C). Naturally occurring K-40 activity was found in all samples. No other nuclides were detected and all required LLDs were met.

b. Food Products

Broadleaf vegetation samples were collected from four locations (CL-114, CL-115, CL-117 and CL-118) monthly June through September, to coincide with the harvest season. The following analyses were performed:

Gamma Spectrometry

Each food product sample, cabbage, swiss chard and lettuce, was analyzed for concentrations of gamma emitting nuclides (Table C–IX.1, Appendix C).

Naturally occurring Be–7 due to cosmic ray activity was detected in 44 of 48 samples. Naturally occurring K-40 activity was found in all samples. No other nuclides were detected and all required LLDs were met.

b. Grass

Samples were collected from four locations (CL-01, CL-02, CL-08, and CL-116) biweekly May through October. The following analyses were performed:

Gamma Spectrometry

Each grass sample was analyzed for concentrations of gamma emitting nuclides (Table C–IX.2, Appendix C).

Naturally occurring Be–7 due to cosmic ray activity was detected in all 52 samples. Naturally occurring K-40 activity was found in all 52 samples. No other nuclides were detected and all required LLDs were met.

C. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing Panasonic 814 ($CaSO_4$) thermoluminescent dosimeters. Fifty-four TLD locations were established around the site. Results of TLD measurements are listed in Tables C–X.1 to C–X.3, Appendix C.

A total of 216 TLD measurements were made in 2007. The average dose from the inner ring was 21.1 mR/quarter. The average dose from the outer ring was 21.2 mR/quarter. The average dose from the special interest group was 21.3 mR/quarter. The average dose from the supplemental group was 20.3 mR/quarter. The quarterly measurements ranged from 15.9 to 24.1 mR/quarter. The inner ring and outer ring measurements compared well to the control station, CL-11, which ranged from 18.2 mR/quarter to 20.7 mR/quarter with an average measurement of 19.9 mR/quarter. A comparison of the Inner Ring and Outer Ring data to the Control Location data indicate that the ambient gamma radiation levels from all the locations were comparable. The historical ambient gamma

radiation data from the control location were plotted along with similar data from the Inner and Outer Ring Locations (Figure C–2, Appendix C).

D. Land Use Survey

A Land Use Survey conducted during the July through October 2007 growing season around the Clinton Power Station (CPS) was performed by Environmental Inc. (Midwest Labs) for AmerGen to comply with Clinton's Offsite Dose Calculation Manual, section 5.2. The purpose of the survey was to document the nearest resident, milk producing animal and garden of greater than 538 $ft^2$ in each of the sixteen 22 ½ degree sectors around the site. The distance and direction of all locations from the CPS Station HVAC vent stack were positioned using Global Positioning System (GPS) technology. There were no changes required to the CPS REMP, as a result of this survey. The results of this survey are summarized below.

| Distance in Miles from the CPS Station HVAC Vent Stack | | | |
|---|---|---|---|
| Sector | Residence Miles | Garden Miles | Milk Farm Miles |
| 1 N | 0.9 | 0.9 | 0.9 |
| 2 NNE | 1.0 | 3.0 | 2.3 |
| 3 NE | 1.3 | 2.1 | >5.0 |
| 4 ENE | 1.8 | 2.6 | >5.0 |
| 5 E | 1.0 | 1.0 | >5.0 |
| 6 ESE | 3.2 | 3.2 | >5.0 |
| 7 SE | 2.8 | >5.0 | >5.0 |
| 8 SSE | 1.7 | >5.0 | >5.0 |
| 9 S | 3.0 | 3.0 | 4.1 |
| 10 SSW | 2.9 | >5.0 | 3.4 |
| 11 SW | 0.7 | >5.0 | 3.6 |
| 12 WSW | 1.6 | 2.3 | 2.8 |
| 13 W | 1.2 | 2.0 | >5.0 |
| 14 WNW | 1.6 | 1.6 | >5.0 |
| 15 NW | 1.6 | 2.8 | >5.0 |
| 16 NNW | 1.7 | 1.3 | 1.3 |

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 for 19 analytes (Appendix D). 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, NELAC, state specific PT program requirements or ERA's SOP for the Generation of Performance Acceptance Limits, as applicable. The acceptance limits are either determined by a regression equation specific to each analyte or a fixed percentage limit promulgated under the appropriate regulatory document.

3. DOE Evaluation Criteria

   MAPEP's evaluation report provides an acceptance range with associated flag values.

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

For the primary laboratory, 17 out of 19 analytes met the specified acceptance criteria. Two samples did not meet the specified acceptance criteria for the following reasons:

1. Teledyne Brown Engineering's Analytics March 2007 I-131 in charcoal result of 34.7 pCi was lower than the known value of 71.3, resulting in a found to known ratio of 0.49. A new technician counted the charcoal cartridge on the back rather than the face side. Due to decay of the I-131, recounting could not be performed. Counting the 2nd quarter Analytics charcoal cartridge on the face and the back resulted in approximately 220% more activity on the face of the cartridge. This indicates that TBE would have had acceptable results (ratio approximately 1.07) if the cartridge had

been counted on the face side. The investigation was documented by Nonconformance Report NCR 07-02.

2. Teledyne Brown Engineering's ERA July 2007 Cs-134 result of 57.6 pCi/L exceeded the lower acceptance limit of 60.2 pCi/L. The high activity of the sample resulted in the lower acceptance limit of 8.66, although the ratio of found to known was 83.6%, which is considered acceptable by TBE. The investigation was documented by Nonconformance Report NCR 07-07.

For the secondary laboratory, 18 out of 19 analytes met the specified acceptance criteria. One sample did not meet the specified acceptance criteria for the following reason:

1. Environmental Inc.'s ERA March 2007 air particulate Cs-137 result of 345.3 pCi/L exceeded the upper control limit of 336 pCi/L. The reported result was calculated using composite filter geometry rather than the single filter geometry. The recalculated result of 305.8 pCi/filter fell within the acceptance limits. This was entered into their June 2007 Program Deviation Report.

The Inter-Laboratory Comparison Program provides evidence of the counting systems and methods, and that the laboratories are producing accurate and reliable data.

## V. References


1. American National Standards Institute, Inc., "Performance, Testing and Procedural Specifications for Thermoluminescent Dosimetry," ANSI N545-1975.
2. Code of Federal Regulations, Title 10, Part 20 (Nuclear Regulatory Commission).
3. CPS 2001 Annual Radioactive Effluent Release Report.
4. "Environmental Radioactivity," M. Eisenbud, 1987 (E187).
5. "Natural Radon Exposure in the United States," Donald T. Oakley, U.S. Environmental Protection Agency. ORP/SID 72-1, June 1972.
6. Federal Radiation Council Report No. 1, "Background Material for the Development of Radiation Protection Standards," May 13, 1960.
7. International Commission on Radiation Protection, Publication 2, "Report of Committee II on Permissible Dose for Internal Radiation," (1959) with 1962 Supplement issued in ICRP Publication 6; Publication 9, "Recommendations on Radiation Exposure," (1965); ICRP Publication 7

(1965), amplifying specific recommendations of Publication 26 (1977).

8. International Commission on Radiation Protection, Publication No. 39 (1984), "Principles of Limiting Exposure to the Public to Natural Sources of Radiation".

9. "Radioactivity in the Environment: Sources, Distribution and Surveillance," Ronald L. Kathren, 1984.

10. National Council on Radiation Protection and Measurements, Report No. 22, "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and Water for Occupational Exposure," (Published as National Bureau of Standards Handbook 69, issued June 1959, superseding Handbook 52).

11. National Council on Radiation Protection and Measurements, Report No. 39, "Basic Radiation Protection Criteria," January 1971.

12. National Council on Radiation Protection and Measurements, Report No. 44, "Krypton-85 in the Atmosphere – Accumulation, Biological Significance, and Control Technology," July 1975.

13. National Council on Radiation Protection and Measurements, Report No. 91, "Recommendations on Limits for Exposure to Ionizing Radiation," June 1987.

14. National Council on Radiation Protection and Measurements, Report No. 93, "Ionizing Radiation Exposure of the Population of the United States," September 1987.

15. National Research Council, 1990, Committee on Biological Effects of Ionizing Radiation (BEIR V), Board on Radiation Effects Research on Life Sciences, "The Effects of Exposure to Low Levels of Ionizing Radiation".

16. United States Nuclear Regulatory Commission, Regulatory Guide 4.1, "Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants," Revision 1, April 1975.

17. United States Nuclear Regulatory Commission, Regulatory Guide 4.13, "Performance, Testing and Procedural Specifications for Thermoluminescence Dosimetry: Environmental Applications, "Revision 1, July 1977.

18. United States Nuclear Regulatory Commission, Regulatory Guide 1.109, "Calculation of Annual Dose to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR Part 50, Appendix I, "Revision 1, October 1977.

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

20. United States Nuclear Regulatory Commission, Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Norm Operations) – Effluent Streams and the Environment," Revision 1, February 1979.

21. Technical Specifications, Clinton Power Station, Unit No. 1, Docket No. 50-461, Office of Nuclear Reactor Regulation, 1986. Facility Operating License Number NPF-62.

22. Clinton Power Station, Updated Safety Analysis Report.

23. Clinton Power Station, Unit 1, Off-Site Dose Calculation Manual.

# APPENDIX A

# RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT SUMMARY

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
**Location of Facility:** DEWITT COUNTY IL **REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| SURFACE WATER (PCI/LITER) | I-131 | 12 | 1 | <LLD | NA | - | - | 0 |
| | H-3 | 16 | 2000 | <LLD | NA | - | - | 0 |
| | GAMMA | 48 | | | | | | |
| | MN-54 | | 15 | <LLD | NA | - | - | 0 |
| | CO-58 | | 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 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
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| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| SURFACE WATER (PCI/LITER) | ZR-95 | | 30 | <LLD | NA | - | - | 0 |
| | CS-134 | | 15 | <LLD | NA | - | - | 0 |
| | CS-137 | | 18 | <LLD | NA | - | - | 0 |
| | BA-140 | | 60 | <LLD | NA | - | - | 0 |
| | LA-140 | | 15 | <LLD | NA | - | - | 0 |
| | CE-144 | | NA | <LLD | NA | - | - | 0 |
| DRINKING WATER (PCI/LITER) | GR-B | 12 | 4 | 2.5 (4/11) (1.9/3.5) | NA | 2.5 (4/11) (1.9/3.5) | CL-14 INDICATOR STATION PLANT SERVICE BLDG ONSITE | 0 |
| | H-3 | 4 | 2000 | <LLD | NA | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

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**Location of Facility:** DEWITT COUNTY IL
**DOCKET NUMBER:** 50-461
**REPORTING PERIOD:** 2007

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|---|---|---|---|---|---|---|---|---|
| DRINKING WATER (PCI/LITER) | GAMMA MN-54 | 12 | 15 | <LLD | NA | - | - | 0 |
| | CO-58 | | 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 |
| | CS-134 | | 15 | <LLD | NA | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
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| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| DRINKING WATER (PCI/LITER) | CS-137 | | 18 | <LLD | NA | - | - | 0 |
| | BA-140 | | 60 | <LLD | NA | - | - | 0 |
| | LA-140 | | 15 | <LLD | NA | - | - | 0 |
| | CE-144 | | NA | <LLD | NA | - | - | 0 |
| GROUND WATER (PCI/LITER) | H-3 | 12 | 2000 | <LLD | NA | - | - | 0 |
| | GAMMA | 12 | | | | | | |
| | MN-54 | | 15 | <LLD | NA | - | - | 0 |
| | CO-58 | | 15 | <LLD | NA | - | - | 0 |
| | FE-59 | | 30 | <LLD | NA | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION
**Location of Facility:** DEWITT COUNTY IL
**DOCKET NUMBER:** 50-461
**REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| GROUND WATER (PCI/LITER) | CO-60 | | 15 | <LLD | NA | - | - | 0 |
| | ZN-65 | | 30 | <LLD | NA | - | - | 0 |
| | NB-95 | | 15 | <LLD | NA | - | - | 0 |
| | ZR-95 | | 30 | <LLD | NA | - | - | 0 |
| | CS-134 | | 15 | <LLD | NA | - | - | 0 |
| | CS-137 | | 18 | <LLD | NA | - | - | 0 |
| | BA-140 | | 60 | <LLD | NA | - | - | 0 |
| | LA-140 | | 15 | <LLD | NA | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
**Location of Facility:** DEWITT COUNTY IL **REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| GROUND WATER (PCI/LITER) | CE-144 | | NA | <LLD | NA | - | - | 0 |
| FISH (PCI/KG WET) | GAMMA | 16 | | | | | | |
| | BE-7 | | NA | <LLD | <LLD | - | - | 0 |
| | K-40 | | NA | 3001 (8/8) (1960/4260) | 2854 (8/8) (2200/3650) | 3001 (8/8) (1960/4260) | CL-19 INDICATOR END OF DISCHARGE FLUME 3.4 MILES E OF SITE | 0 |
| | MN-54 | | 130 | <LLD | <LLD | - | - | 0 |
| | CO-58 | | 130 | <LLD | <LLD | - | - | 0 |
| | FE-59 | | 260 | <LLD | <LLD | - | - | 0 |
| | CO-60 | | 130 | <LLD | <LLD | - | - | 0 |
| | ZN-65 | | 260 | <LLD | <LLD | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
**Location of Facility:** DEWITT COUNTY IL **REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| FISH (PCI/KG WET) | NB-95 | | NA | <LLD | <LLD | - | - | 0 |
| | ZR-95 | | NA | <LLD | <LLD | - | - | 0 |
| | CS-134 | | 100 | <LLD | <LLD | - | - | 0 |
| | CS-137 | | 100 | <LLD | <LLD | - | - | 0 |
| | BA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | LA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | CE-144 | | NA | <LLD | <LLD | - | - | 0 |
| SEDIMENT (PCI/KG DRY) | GAMMA BE-7 | 2 | NA | <LLD | NA | - | - | 0 |

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**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
**Location of Facility:** DEWITT COUNTY IL **REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| SEDIMENT (PCI/KG DRY) | K-40 | | NA | 7210 (2/2) (6600/7820) | NA | 7210 (2/2) (6600/7820) | CL-07B INDICATOR CLINTON LAKE 2.1 MILES SE OF SITE | 0 |
| | MN-54 | | NA | <LLD | NA | - | - | 0 |
| | CO-58 | | NA | <LLD | NA | - | - | 0 |
| | FE-59 | | NA | <LLD | NA | - | - | 0 |
| | CO-60 | | NA | <LLD | NA | - | - | 0 |
| | ZN-65 | | NA | <LLD | NA | - | - | 0 |
| | NB-95 | | NA | <LLD | NA | - | - | 0 |
| | ZR-95 | | NA | <LLD | NA | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
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| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| SEDIMENT (PCI/KG DRY) | CS-134 | | 150 | <LLD | NA | - | - | 0 |
| | CS-137 | | 180 | <LLD | NA | - | - | 0 |
| | BA-140 | | NA | <LLD | NA | - | - | 0 |
| | LA-140 | | NA | <LLD | NA | - | - | 0 |
| | CE-144 | | NA | <LLD | NA | - | - | 0 |
| AIR PARTICULATE (E-3 PCI/CU.METER) | GR-B | 519 | 10 | 22 (467/467) (7/45) | 22 (52/52) (8/39) | 23 (52/52) (10/44) | CL-02 INDICATOR CLINTON'S MAIN ACCESS ROAD 0.7 MILES NNE OF SITE | 0 |
| | GAMMA | 40 | | | | | | |
| | BE-7 | | NA | 80.3 (36/36) (41.2/134) | 93.5 (4/4) (44.5/146) | 95.1 (4/4) (65.6/134) | CL-08 INDICATOR DEWITT CEMETERY 2.2 MILES E OF SITE | 0 |
| | K-40 | | NA | 19.2 (1/36) | <LLD | 19.2 (1/4) | CL-07 INDICATOR MASCOUTIN RECREATON AREA 2.3 MILES SE OF SITE | 0 |

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|---|---|---|---|---|---|---|---|---|
| AIR PARTICULATE (E-3 PCI/CU.METER) | CO-60 | | NA | <LLD | <LLD | - | - | 0 |
| | NB-95 | | NA | <LLD | <LLD | - | - | 0 |
| | ZR-95 | | NA | <LLD | <LLD | - | - | 0 |
| | RU-103 | | NA | <LLD | <LLD | - | - | 0 |
| | RU-106 | | NA | <LLD | <LLD | - | - | 0 |
| | CS-134 | | 50 | <LLD | <LLD | - | - | 0 |
| | CS-137 | | 60 | <LLD | <LLD | - | - | 0 |
| | CE-141 | | NA | <LLD | <LLD | - | - | 0 |

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|---|---|---|---|---|---|---|---|---|
| AIR PARTICULATE (E-3 PCI/CU.METER) | CE-144 | | NA | <LLD | <LLD | - | - | 0 |
| AIR IODINE (E-3 PCI/CU.METER) | GAMMA I-131 | 519 | 70 | <LLD | <LLD | - | - | 0 |
| MILK (PCI/LITER) | I-131 | 19 | 1 | NA | <LLD | - | - | 0 |
| | GAMMA BE-7 | 19 | NA | NA | <LLD | - | - | 0 |
| | K-40 | | NA | NA | 1192 (19/19) (1050/1330) | 1192 (19/19) (1050/1330) | CL-116 CONTROL PASTURE IN RURAL KENNEY 14 MILES WSW OF SITE | 0 |
| | MN-54 | | NA | NA | <LLD | - | - | 0 |
| | CO-58 | | NA | NA | <LLD | - | - | 0 |
| | FE-59 | | NA | NA | <LLD | - | - | 0 |

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|---|---|---|---|---|---|---|---|---|
| MILK (PCI/LITER) | CO-60 | | NA | NA | <LLD | - | - | 0 |
| | ZN-65 | | NA | NA | <LLD | - | - | 0 |
| | NB-95 | | NA | NA | <LLD | - | - | 0 |
| | ZR-95 | | NA | NA | <LLD | - | - | 0 |
| | CS-134 | | 15 | NA | <LLD | - | - | 0 |
| | CS-137 | | 18 | NA | <LLD | - | - | 0 |
| | BA-140 | | 60 | NA | <LLD | - | - | 0 |
| | LA-140 | | 15 | NA | <LLD | - | - | 0 |

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|---|---|---|---|---|---|---|---|---|
| MILK (PCI/LITER) | CE-144 | | NA | NA | <LLD | - | - | 0 |
| VEGETATION (PCI/KG WET) | GAMMA | 48 | | | | | | |
| | MN-54 | | NA | <LLD | <LLD | - | - | 0 |
| | CO-58 | | NA | <LLD | <LLD | - | - | 0 |
| | FE-59 | | NA | <LLD | <LLD | - | - | 0 |
| | CO-60 | | NA | <LLD | <LLD | - | - | 0 |
| | ZN-65 | | NA | <LLD | <LLD | - | - | 0 |
| | NB-95 | | NA | <LLD | <LLD | - | - | 0 |
| | ZR-95 | | NA | <LLD | <LLD | - | - | 0 |

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|---|---|---|---|---|---|---|---|---|
| VEGETATION (PCI/KG WET) | I-131 | | 60 | <LLD | <LLD | - | - | 0 |
| | CS-134 | | 60 | <LLD | <LLD | - | - | 0 |
| | CS-137 | | 80 | <LLD | <LLD | - | - | 0 |
| | BA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | LA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | CE-144 | | NA | <LLD | <LLD | - | - | 0 |
| GRASS (PCI/KG WET) | GAMMA BE-7 | 52 | NA | 2668.7 (39/39) (527/7550) | 1842.7 (13/13) (505/3190) | 2982.3 (13/13) (1140/5740) | CL-02 INDICATOR CLINTON'S MAIN ACCESS ROAD 0.7 MILES NNE OF SITE | 0 |

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|---|---|---|---|---|---|---|---|---|
| GRASS (PCI/KG WET) | K-40 | | NA | 6496.7 (39/39) (2660/12800) | 6589.2 (13/13) (4710/8220) | 7920.8 (13/13) (5230/12800) | CL-08 INDICATOR DEWITT CEMETERY 2.2 MILES E OF SITE | 0 |
| | MN-54 | | NA | <LLD | <LLD | - | - | 0 |
| | CO-58 | | NA | <LLD | <LLD | - | - | 0 |
| | FE-59 | | NA | <LLD | <LLD | - | - | 0 |
| | CO-60 | | NA | <LLD | <LLD | - | - | 0 |
| | ZN-65 | | NA | <LLD | <LLD | - | - | 0 |
| | NB-95 | | NA | <LLD | <LLD | - | - | 0 |
| | ZR-95 | | NA | <LLD | <LLD | - | - | 0 |

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

## TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR THE CLINTON POWER STATION, 2007

**Name of Facility:** CLINTON POWER STATION **DOCKET NUMBER:** 50-461
**Location of Facility:** DEWITT COUNTY IL **REPORTING PERIOD:** 2007

| MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT) | TYPES OF ANALYSIS PERFORMED | NUMBER OF ANALYSIS PERFORMED | REQUIRED LOWER LIMIT OF DETECTION (LLD) | INDICATOR LOCATIONS MEAN (F) RANGE | CONTROL LOCATION MEAN (F) RANGE | LOCATION WITH HIGHEST ANNUAL MEAN MEAN (F) RANGE | STATION # NAME DISTANCE AND DIRECTION | NUMBER OF NONROUTINE REPORTED MEASUREMENTS |
|---|---|---|---|---|---|---|---|---|
| GRASS (PCI/KG WET) | I-131 | | 60 | <LLD | <LLD | - | - | 0 |
| | CS-134 | | 60 | <LLD | <LLD | - | - | 0 |
| | CS-137 | | 80 | <LLD | <LLD | - | - | 0 |
| | BA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | LA-140 | | NA | <LLD | <LLD | - | - | 0 |
| | CE-144 | | NA | <LLD | <LLD | - | - | 0 |
| DIRECT RADIATION (MILLI-ROENTGEN/QTR.) | TLD-QUARTERLY | 216 | NA | 20.9 (212/212) (15.9/24.1) | 19.9 (4/4) (18.2/20.7) | 22.1 (4/4) (20.0/23.9) | CL-51 INDICATOR 4.4 MILES NW | 0 |

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

# APPENDIX B

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

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Clinton Power Station, 2007

| Location | Location Description | Distance & Direction From Site |
|---|---|---|
| A. Surface Water | | |
| CI-13 | Salt Creek Bridge on Rt. 10 (indicator) | 3.6 miles SW |
| CL-90 | Discharge Flume (indicator) | 0.4 miles SE |
| CL-91 | Parnell Boat Access (control) | 6.1 miles ENE |
| CL-99 | North Fork Access (control) | 3.5 miles NNE |
| B. Drinking (Potable) Water | | |
| CL-14 | Station Plant Service Bldg (indicator) | onsite |
| C. Well Water | | |
| CL-07D | Mascoutin Recreation Area (indicator) | 2.3 miles ESE |
| CL-12T | DeWitt Pump House (indicator) | 1.6 miles E |
| CL-12R | DeWitt Pump House (indicator) | 1.6 miles E |
| D. Milk - bi-weekly / monthly | | |
| CL-116 | Dement Dairy (control) | 14 miles WSW |
| E. Air Particulates / Air Iodine | | |
| CL-01 | Camp Quest | 1.8 miles W |
| CL-02 | Clinton's Main Access Road | 0.7 miles NNE |
| CL-03 | Clinton's Secondary Access Road | 0.7 miles NE |
| CL-04 | Residence Near Recreation Area | 0.8 miles SW |
| CL-06 | Clinton's Recreation Area | 0.7 miles WSW |
| CL-07 | Mascoutin Recreation Area | 2.3 miles SE |
| CL-08 | DeWitt Cemetery | 2.2 miles E |
| CL-11 | Illinois Power Substation (Control) | 16 miles S |
| CL-15 | Rt. 900N Residence | 0.9 miles N |
| CL-94 | Old Clinton Road | 0.6 miles E |
| F. Fish | | |
| CL-19 | End of Discharge Flume (indicator) | 3.4 miles E |
| CL-105 | Lake Shelbyville (control) | 50 miles S |
| G. Shoreline Sediment | | |
| CL-07B | Clinton Lake (indicator) | 2.1miles SE |
| H. Food Products | | |
| CL-114 | Cisco (Control) | 12.5 miles SSE |
| CL-115 | Site's Secondary Access Road | 0.7 miles NE |
| CL-117 | Residence North of Site | 0.9 miles N |
| CL-118 | Site's Main Access Road | 0.7 miles NNE |
| I. Grass | | |
| CL-01 | Camp Quest | 1.8 miles W |
| CL-02 | Clinton's Main Access Road | 0.7 miles NNE |
| CL-08 | DeWitt Cemetery | 2.2 miles E |
| CL-116 | Pasture in Rural Kenney | 14 miles WSW |

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Clinton Power Station, 2007

| Location | Location Description | Distance & Direction From Site |
|---|---|---|
| J. | Environmental Dosimetry - TLD | |
| Inner Ring | | |
| CL-01 | | 1.8 miles W |
| CL-05 | | 0.7 miles NNE |
| CL-22 | | 0.6 miles NE |
| CL-23 | | 0.5 miles ENE |
| CL-24 | | 0.5 miles E |
| CL-34 | | 0.8 miles WNW |
| CL-35 | | 0.7 miles NW |
| CL-36 | | 0.6 miles N |
| CL-42 | | 2.8 miles ESE |
| CL-43 | | 2.8 miles SE |
| CL-44 | | 2.3 miles SSE |
| CL-45 | | 2.8 miles S |
| CL-46 | | 2.8 miles SSW |
| CL-47 | | 3.3 miles SW |
| CL-48 | | 2.3 miles WSW |
| CL-63 | | 1.3 miles NNW |
| Outer Ring | | |
| CL-51 | | 4.4 miles NW |
| CL-52 | | 4.3 miles NNW |
| CL-53 | | 4.3 miles E |
| CL-54 | | 4.6 miles ESE |
| CL-55 | | 4.1 miles SE |
| CL-56 | | 4.1 miles SSE |
| CL-57 | | 4.6 miles S |
| CL-58 | | 4.3 miles SSW |
| CL-60 | | 4.5 miles SW |
| CL-61 | | 4.5 miles WSW |
| CL-76 | | 4.6 miles N |
| CL-77 | | 4.5 miles NNE |
| CL-78 | | 4.8 miles NE |
| CL-79 | | 4.5 miles ENE |
| CL-80 | | 4.1 miles W |
| CL-81 | | 4.5 miles WNW |

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Clinton Power Station, 2007

| Location | Location Description | Distance & Direction From Site |
|---|---|---|
| Special Interest | | |
| CL-37 | | 3.4 miles N |
| CL-41 | | 2.4 miles E |
| CL-49 | | 3.5 miles W |
| CL-64 | | 2.1 miles WNW |
| CL-65 | | 2.6 miles ENE |
| CL-74 | | 1.9 miles W |
| CL-75 | | 0.9 miles N |
| Supplemental | | |
| CL-02 | | 0.7 miles NNE |
| CL-03 | | 0.7 miles NE |
| CL-04 | | 0.8 miles SW |
| CL-06 | | 0.8 miles WSW |
| CL-07 | | 2.3 miles SE |
| CL-08 | | 2.2 miles E |
| CL-15 | | 0.9 miles N |
| CL-33 | | 11.7 miles SW |
| CL-84 | | 0.6 miles E |
| CL-90 | | 0.4 miles SE |
| CL-91 | | 6.1 miles ENE |
| CL-97 | | 10.3 miles SW |
| CL-99 | | 3.5 miles NNE |
| CL-114 | | 12.5 miles SE |
| Control | | |
| CL-11 | | 16 miles S |

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Clinton Power Station, 2007

| Sample Medium | Analysis | Sampling Method | Analytical Procedure Number |
|---|---|---|---|
| Surface Water | Gamma Spectroscopy | Monthly composite from a continuous water compositor. | TBE, TBE-2007 Gamma emitting radioisotope analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| Surface Water | Tritium | Quarterly composite from a continuous water compositor. | TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation<br><br>Env. Inc., T-02 Determination of tritium in water (direct method) |
| Drinking Water | Gross Beta | Monthly composite from a continuous water compositor. | TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices<br><br>Env. Inc., W(DS)-01 Determination of gross alpha and/or gross beta in water (dissolved solids or total residue)<br><br>Env. Inc., W(SS)-02 Determination of gross alpha and/or gross beta in water (suspended solids) |
| Drinking Water | Gamma Spectroscopy | Monthly composite from a continuous water compositor. | TBE, TBE-2007 Gamma emitting radioisotope analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| Drinking Water | Tritium | Quarterly composite from a continuous water compositor. | TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation<br><br>Env. Inc., T-02 Determination of tritium in water (direct method) |
| Well Water | Gamma Spectroscopy | Quarterly composite from a continuous water compositor. | TBE, TBE-2007 Gamma emitting radioisotope analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| Well Water | Tritium | Quarterly composite from a continuous water compositor. | TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation<br><br>Env. Inc., T-02 Determination of tritium in water (direct method) |
| Fish | Gamma Spectroscopy | Semi-annual samples collected via electroshocking or other techniques | TBE-2007 Gamma emitting radioisotope analysis<br><br>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 | TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices<br><br>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-2007 Gamma emitting radioisotope analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| Air Iodine | Gamma Spectroscopy | One-week composite of continuous air sampling through charcoal filter | TBE, TBE-2007 Gamma emitting radioisotope analysis<br><br>Env. Inc., I-131-02 Determination of I-131 in charcoal canisters by gamma spectroscopy (batch method) |
| Milk | I-131 | Bi-weekly grab sample when cows are on pasture. Monthly all other times | TBE, TBE-2012 Radioiodine in various matrices<br><br>Env. Inc., I-131-01 Determination of I-131 in milk by anion exchange |

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Clinton Power Station, 2007

| Sample Medium | Analysis | Sampling Method | Analytical Procedure Number |
|---|---|---|---|
| Food Products | Gross Beta | Monthly grab June through September | TBE, TBE-2008 Gross Alpha and/or gross beta activity in various matrices<br><br>Env. Inc., EIML-AB-01 Gross alpha or gross beta in solid samples |
| Food Products | Gamma Spectroscopy | Monthly grab June through September | TBE, TBE-2007 Gamma emitting radioisotopes analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| Grass | Gamma Spectroscopy | Biweekly May through October | TBE, TBE-2007 Gamma emitting radioisotopes analysis<br><br>Env. Inc., GS-01 Determination of gamma emitters by gamma spectroscopy |
| TLD | Thermoluminescence Dosimetry | Quarterly TLDs comprised of two Global Dosimetry $CaF_2$ elements. | Global Dosimetry Quality Assurance Manual |

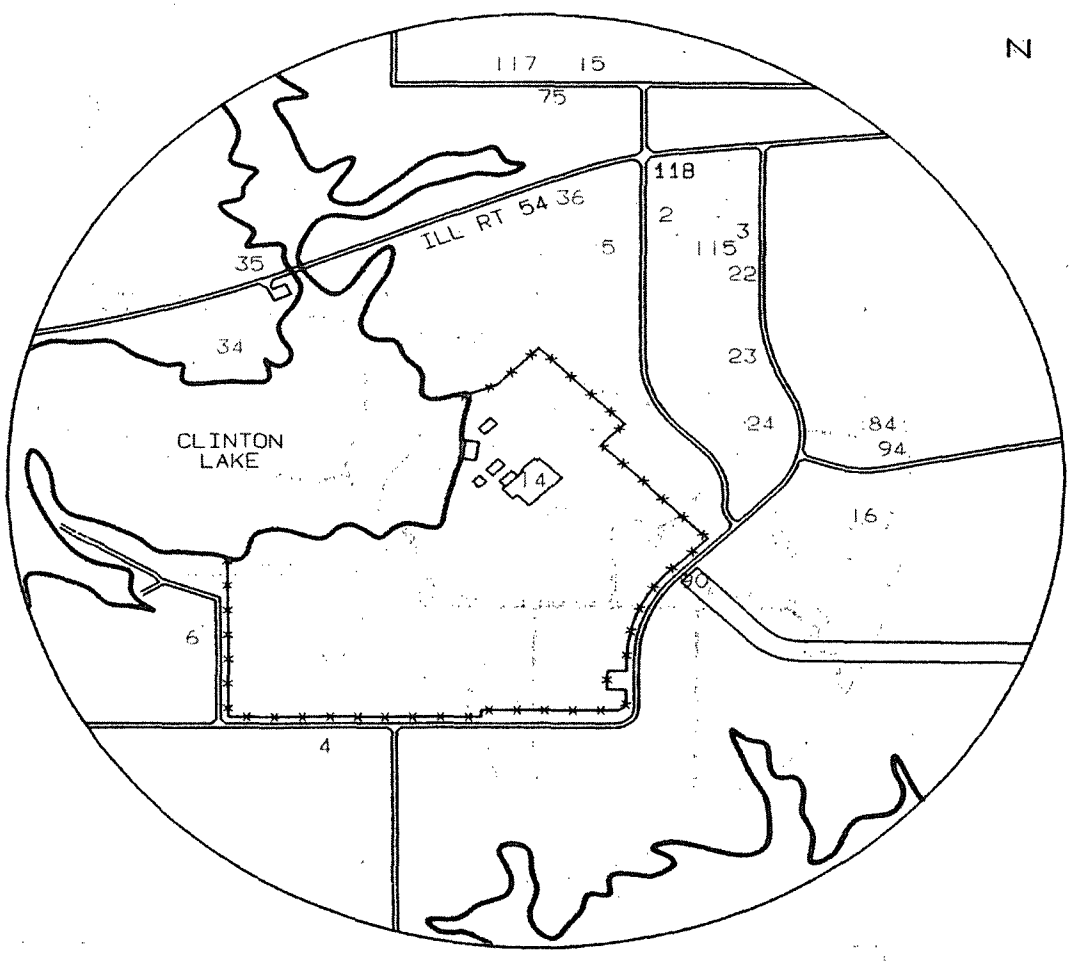



Figure B-1
Environmental Sampling Locations Within One Mile of the Clinton Power Station, 2007

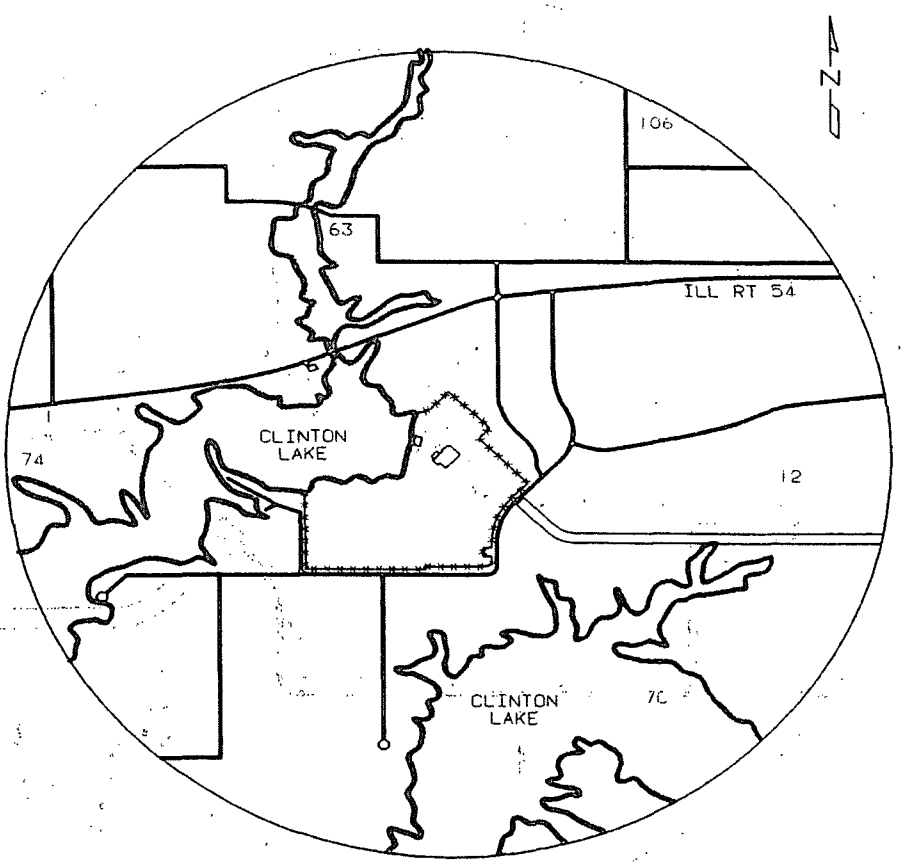



Figure B-2
Environmental Sampling Locations Between One and Two
Miles of the Clinton Power Station, 2007

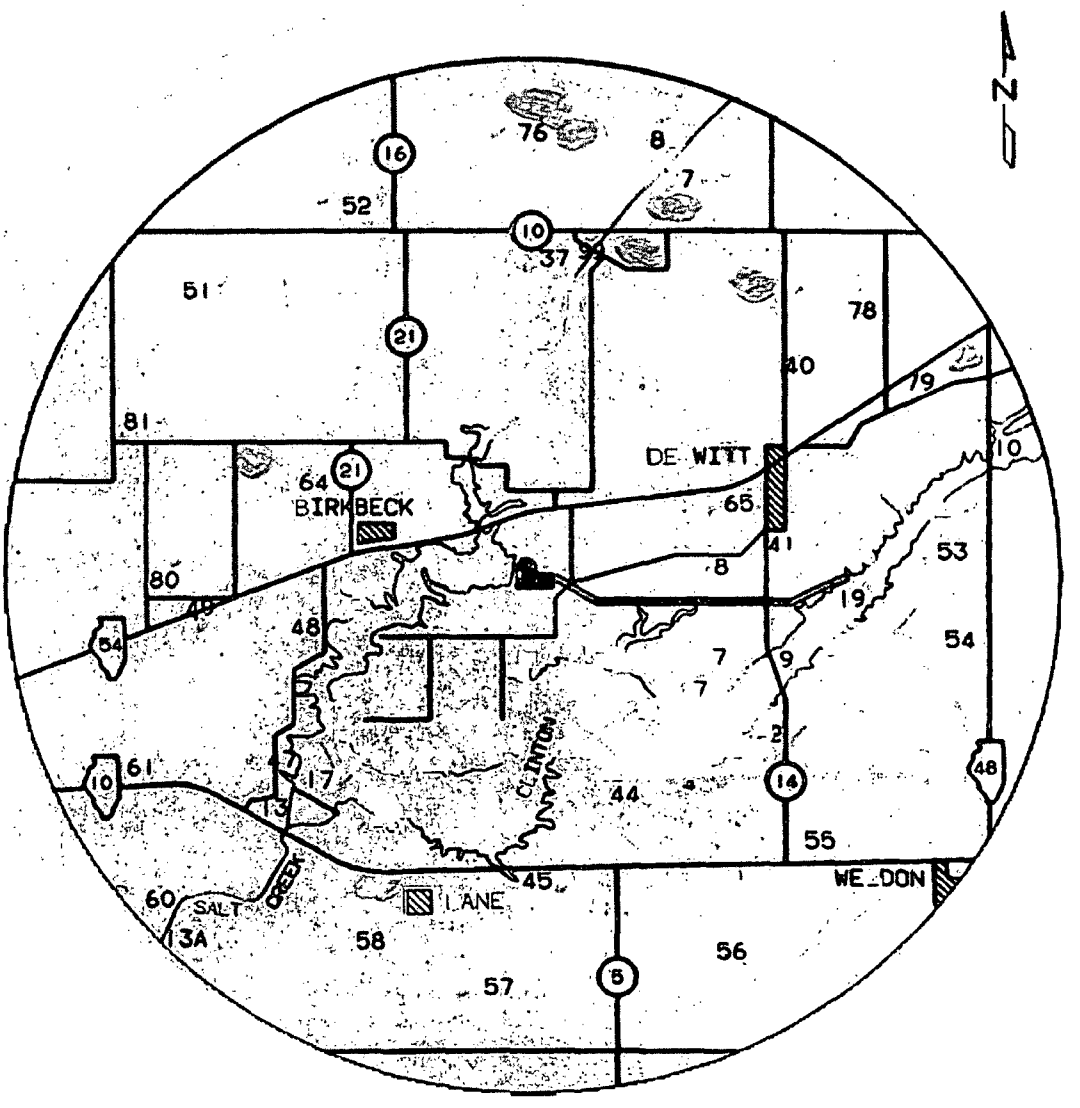



Figure B-3
Environmental Sampling Locations Between Two and Five
Miles of the Clinton Power Station, 2007

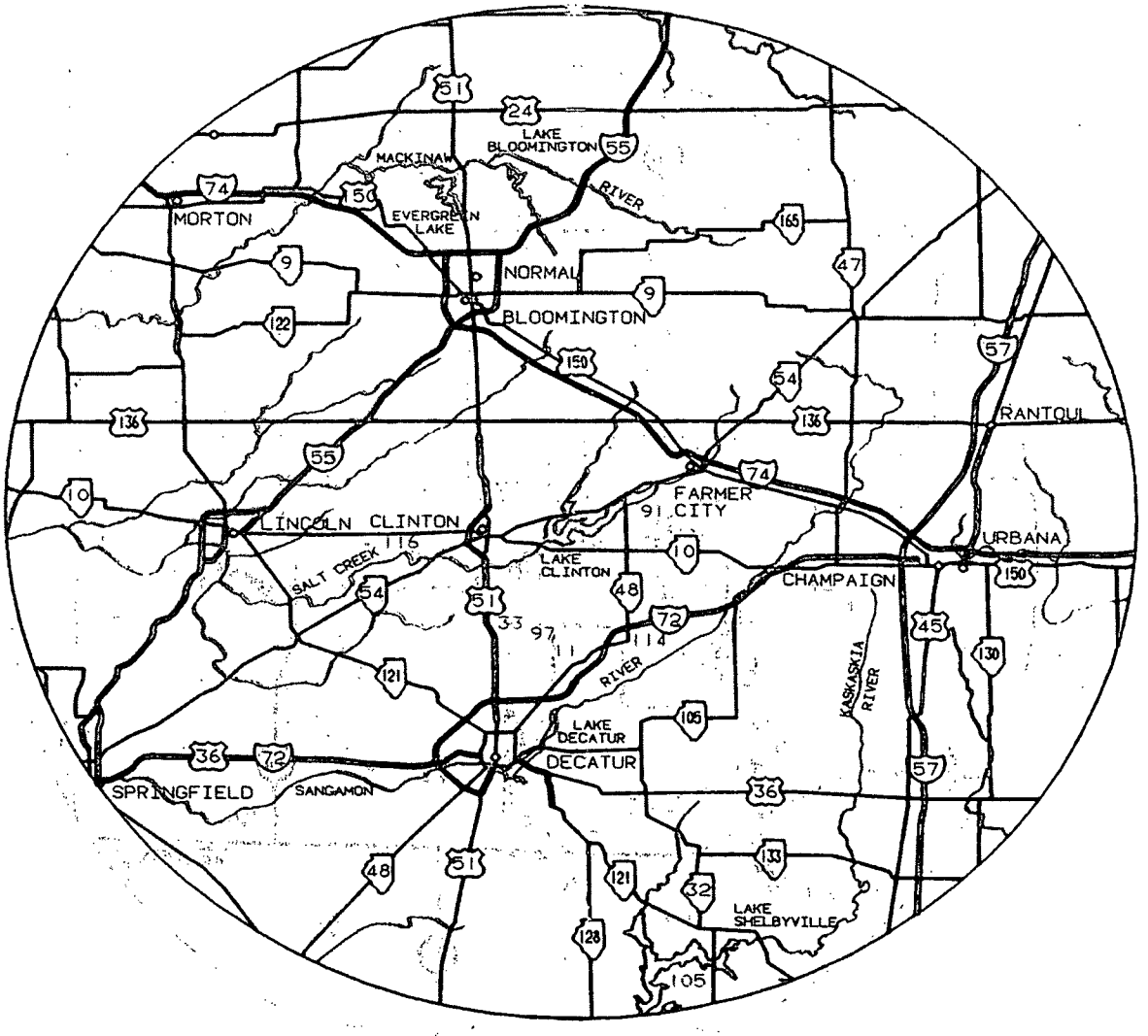



Figure B-4
Environmental Sampling Locations Greater Than Five
Miles of the Clinton Power Station, 2007

# APPENDIX C

# DATA TABLES AND FIGURES - PRIMARY LABORATORY

**TABLE C-I.1** **CONCENTRATIONS OF I-131 IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| COLLECTION PERIOD | CL-90 |
|---|---|
| 12/27/06 - 01/31/07 | < 0.7 |
| 01/31/07 - 02/28/07 | < 0.8 |
| 02/28/07 - 03/28/07 | < 0.6 |
| 03/28/07 - 04/25/07 | < 0.8 |
| 05/30/07 - 05/30/07 | < 0.7 |
| 05/30/07 - 06/27/07 | < 0.6 |
| 06/27/07 - 07/25/07 | < 0.7 |
| 07/25/07 - 08/29/07 | < 1.0 |
| 08/29/07 - 09/26/07 | < 0.6 |
| 09/26/07 - 10/31/07 | < 0.8 |
| 10/31/07 - 11/28/07 | < 0.6 |
| 11/28/07 - 12/26/07 | < 0.8 |
| MEAN | - |

**TABLE C-I.2** **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| COLLECTION PERIOD | CL-90 | CL-13 | CL-91 | CL-99 |
|---|---|---|---|---|
| 01/31/07 - 03/28/07 | < 162 | < 165 | < 167 | < 162 |
| 04/25/07 - 06/27/07 | < 159 | < 164 | < 164 | < 162 |
| 07/25/07 - 09/26/07 | < 182 | < 179 | < 183 | < 183 |
| 10/31/07 - 12/26/07 | < 170 | < 171 | < 172 | < 172 |
| MEAN | - | - | - | - |

**TABLE C-I.3** **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-13 | 01/31/07 | < 6 | < 6 | < 14 | < 6 | < 17 | < 7 | < 11 | < 8 | < 7 | < 29 | < 8 | < 50 |
| | 02/28/07 | < 5 | < 5 | < 11 | < 6 | < 11 | < 5 | < 11 | < 5 | < 6 | < 29 | < 10 | < 43 |
| | 03/28/07 | < 4 | < 4 | < 8 | < 4 | < 8 | < 4 | < 7 | < 4 | < 4 | < 22 | < 8 | < 30 |
| | 04/25/07 | < 5 | < 5 | < 10 | < 7 | < 12 | < 7 | < 12 | < 5 | < 5 | < 31 | < 14 | < 35 |
| | 05/30/07 | < 2 | < 2 | < 3 | < 2 | < 3 | < 2 | < 3 | < 2 | < 2 | < 11 | < 3 | < 13 |
| | 06/27/07 | < 5 | < 6 | < 9 | < 6 | < 11 | < 6 | < 11 | < 6 | < 6 | < 41 | < 9 | < 38 |
| | 07/25/07 | < 6 | < 7 | < 11 | < 6 | < 16 | < 7 | < 10 | < 9 | < 6 | < 29 | < 12 | < 48 |
| | 08/29/07 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 2 | < 2 | < 19 | < 6 | < 13 |
| | 09/26/07 | < 7 | < 8 | < 15 | < 7 | < 13 | < 6 | < 13 | < 7 | < 8 | < 41 | < 14 | < 48 |
| | 10/31/07 | < 2 | < 2 | < 6 | < 2 | < 5 | < 3 | < 5 | < 2 | < 2 | < 21 | < 7 | < 16 |
| | 11/28/07 | < 2 | < 3 | < 6 | < 3 | < 5 | < 3 | < 5 | < 2 | < 2 | < 18 | < 6 | < 15 |
| | 12/26/07 | < 3 | < 4 | < 8 | < 4 | < 7 | < 4 | < 8 | < 3 | < 4 | < 28 | < 5 | < 27 |
| | | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-90 | 12/27/06 - 01/31/07 | < 6 | < 6 | < 11 | < 5 | < 15 | < 7 | < 11 | < 8 | < 6 | < 27 | < 9 | < 49 |
| | 01/31/07 - 02/28/07 | < 5 | < 4 | < 8 | < 4 | < 9 | < 5 | < 8 | < 5 | < 5 | < 25 | < 9 | < 37 |
| | 02/28/07 - 03/28/07 | < 3 | < 3 | < 8 | < 4 | < 7 | < 4 | < 6 | < 3 | < 3 | < 20 | < 5 | < 26 |
| | 03/28/07 - 04/25/07 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 4 | < 2 | < 2 | < 13 | < 4 | < 14 |
| | 05/30/07 - 05/30/07 | < 1 | < 1 | < 3 | < 1 | < 3 | < 1 | < 2 | < 1 | < 1 | < 8 | < 3 | < 10 |
| | 05/30/07 - 06/27/07 | < 5 | < 5 | < 11 | < 4 | < 10 | < 5 | < 8 | < 5 | < 5 | < 26 | < 9 | < 30 |
| | 06/27/07 - 07/25/07 | < 5 | < 7 | < 14 | < 8 | < 11 | < 6 | < 9 | < 5 | < 5 | < 31 | < 12 | < 39 |
| | 07/25/07 - 08/29/07 | < 2 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 2 | < 2 | < 17 | < 6 | < 11 |
| | 08/29/07 - 09/26/07 | < 5 | < 5 | < 9 | < 5 | < 9 | < 5 | < 9 | < 5 | < 5 | < 24 | < 8 | < 36 |
| | 09/26/07 - 10/31/07 | < 2 | < 2 | < 5 | < 2 | < 5 | < 3 | < 4 | < 2 | < 2 | < 18 | < 6 | < 14 |
| | 10/31/07 - 11/28/07 | < 2 | < 2 | < 5 | < 2 | < 4 | < 3 | < 4 | < 2 | < 2 | < 18 | < 6 | < 17 |
| | 11/28/07 - 12/26/07 | < 4 | < 5 | < 9 | < 4 | < 9 | < 7 | < 7 | < 4 | < 4 | < 31 | < 12 | < 30 |
| | | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-I.3** **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-91 | 12/27/06 - 01/31/07 | < 7 | < 7 | < 16 | < 9 | < 17 | < 8 | < 12 | < # | < 8 | < 33 | < 11 | < 59 |
| | 01/31/07 - 02/28/07 | < 8 | < 6 | < 12 | < 7 | < 12 | < 7 | < 12 | < 6 | < 6 | < 33 | < 12 | < 50 |
| | 02/28/07 - 03/28/07 | < 4 | < 4 | < 8 | < 4 | < 8 | < 4 | < 8 | < 4 | < 4 | < 20 | < 6 | < 29 |
| | 03/28/07 - 04/25/07 | < 1 | < 1 | < 3 | < 1 | < 3 | < 2 | < 3 | < 1 | < 1 | < 10 | < 3 | < 11 |
| | 05/30/07 - 05/30/07 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 1 | < 2 | < 10 | < 3 | < 11 |
| | 05/30/07 - 06/27/07 | < 4 | < 5 | < 11 | < 5 | < 9 | < 5 | < 9 | < 4 | < 5 | < 32 | < 10 | < 34 |
| | 06/27/07 - 07/25/07 | < 7 | < 9 | < 20 | < 7 | < 19 | < 9 | < 15 | < 8 | < 9 | < 45 | < 13 | < 62 |
| | 07/25/07 - 08/29/07 | < 1 | < 2 | < 4 | < 1 | < 3 | < 2 | < 3 | < 1 | < 2 | < 15 | < 5 | < 12 |
| | 08/29/07 - 09/26/07 | < 5 | < 7 | < 16 | < 7 | < 14 | < 7 | < 12 | < 7 | < 7 | < 41 | < 14 | < 52 |
| | 09/26/07 - 10/31/07 | < 2 | < 3 | < 6 | < 2 | < 5 | < 3 | < 4 | < 2 | < 2 | < 21 | < 8 | < 16 |
| | 10/31/07 - 11/28/07 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 3 | < 2 | < 2 | < 17 | < 5 | < 13 |
| | 11/28/07 - 12/26/07 | < 4 | < 4 | < 9 | < 4 | < 7 | < 5 | < 7 | < 4 | < 4 | < 31 | < 10 | < 31 |
| | | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-99 | 12/27/06 - 01/31/07 | < 7 | < 8 | < 14 | < 7 | < 18 | < 9 | < 13 | < # | < 8 | < 33 | < 11 | < 56 |
| | 01/31/07 - 02/28/07 | < 6 | < 6 | < 11 | < 5 | < 10 | < 7 | < 12 | < 5 | < 7 | < 25 | < 9 | < 41 |
| | 02/28/07 - 03/28/07 | < 4 | < 4 | < 7 | < 4 | < 6 | < 4 | < 7 | < 4 | < 4 | < 20 | < 7 | < 27 |
| | 03/28/07 - 04/25/07 | < 2 | < 2 | < 6 | < 2 | < 4 | < 3 | < 4 | < 2 | < 2 | < 16 | < 5 | < 18 |
| | 05/30/07 - 05/30/07 | < 1 | < 1 | < 3 | < 1 | < 3 | < 1 | < 3 | < 1 | < 1 | < 10 | < 3 | < 10 |
| | 05/30/07 - 06/27/07 | < 4 | < 4 | < 9 | < 4 | < 7 | < 5 | < 7 | < 4 | < 4 | < 25 | < 7 | < 31 |
| | 07/04/07 - 07/25/07 | < 4 | < 4 | < 9 | < 4 | < 8 | < 4 | < 8 | < 4 | < 4 | < 29 | < 8 | < 26 |
| | 08/01/07 - 08/29/07 | < 1 | < 1 | < 3 | < 1 | < 3 | < 2 | < 3 | < 1 | < 1 | < 14 | < 5 | < 11 |
| | 09/05/07 - 09/26/07 | < 7 | < 6 | < 15 | < 8 | < 14 | < 7 | < 9 | < 6 | < 6 | < 26 | < 11 | < 42 |
| | 10/03/07 - 10/31/07 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 2 | < 2 | < 19 | < 6 | < 16 |
| | 10/31/07 - 11/28/07 | < 2 | < 3 | < 6 | < 3 | < 5 | < 3 | < 5 | < 2 | < 3 | < 17 | < 6 | < 15 |
| | 11/28/07 - 12/26/07 | < 4 | < 5 | < 10 | < 4 | < 9 | < 4 | < 8 | < 4 | < 4 | < 31 | < 10 | < 31 |
| | | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-II.1** **CONCENTRATIONS OF GROSS BETA IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| COLLECTION PERIOD | CL-14 |
|---|---|
| 12/27/06 - 01/31/07 | < 2.1 |
| 01/31/07 - 02/28/07 | 1.9 ± 1.3 |
| 02/28/07 - 03/28/07 | < 1.9 |
| 03/28/07 - 04/25/07 | < 2.1 |
| 05/30/07 - 05/30/07 | < 2.0 |
| 05/30/07 - 06/27/07 | < 2.1 |
| 06/27/07 - 07/25/07 | 2.3 ± 1.2 |
| 07/25/07 - 08/29/07 | 3.5 ± 1.7 |
| 08/29/07 - 09/26/07 | < 2.2 |
| 09/26/07 - 10/31/07 | < 2.4 |
| 10/31/07 - 11/28/07 | 2.4 ± 1.2 |
| 11/28/07 - 12/26/07 | < 2.3 |
| MEAN | 2.5 ± 1.4 |

**TABLE C-II.2** **CONCENTRATIONS OF TRITIUM IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| COLLECTION PERIOD | CL-14 |
|---|---|
| 12/27/06 - 03/28/07 | < 161 |
| 03/28/07 - 06/27/07 | < 163 |
| 06/27/07 - 09/26/07 | < 181 |
| 09/26/07 - 12/26/07 | < 174 |
| MEAN | - |

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

**TABLE C-II.3** **CONCENTRATIONS OF GAMMA EMITTERS IN DRINKING WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| STC | COLLECTION PERIOD | 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 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-14 | 12/27/06 - 01/31/07 | < 42 | < 51 | < 5 | < 5 | < 9 | < 5 | < 9 | < 5 | < 8 | < 7 | < 4 | < 5 | < 19 | < 7 | < 32 |
| | 01/31/07 - 02/28/07 | < 42 | 52 ± 51 | < 6 | < 5 | < 13 | < 5 | < 11 | < 5 | < 11 | < 12 | < 6 | < 6 | < 29 | < 9 | < 38 |
| | 02/28/07 - 03/28/07 | < 27 | < 68 | < 3 | < 3 | < 8 | < 4 | < 8 | < 3 | < 6 | < 7 | < 3 | < 4 | < 18 | < 6 | < 24 |
| | 03/28/07 - 04/25/07 | < 15 | < 27 | < 1 | < 1 | < 3 | < 1 | < 3 | < 2 | < 3 | < 5 | < 1 | < 2 | < 11 | < 3 | < 11 |
| | 04/25/07 - 05/30/07 | < 40 | < 39 | < 5 | < 5 | < 10 | < 4 | < 9 | < 5 | < 7 | < 14 | < 5 | < 4 | < 33 | < 10 | < 33 |
| | 05/30/07 - 06/27/07 | < 44 | 53 ± 45 | < 5 | < 4 | < 11 | < 5 | < 6 | < 5 | < 8 | < 13 | < 4 | < 5 | < 29 | < 10 | < 35 |
| | 06/27/07 - 07/25/07 | < 65 | < 117 | < 8 | < 7 | < 16 | < 7 | < 15 | < 7 | < 14 | < 14 | < 8 | < 7 | < 35 | < 11 | < 52 |
| | 07/25/07 - 08/29/07 | < 20 | < 17 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 12 | < 2 | < 2 | < 19 | < 6 | < 15 |
| | 08/29/07 - 09/26/07 | < 46 | 107 ± 51 | < 5 | < 4 | < 11 | < 5 | < 8 | < 5 | < 10 | < 11 | < 4 | < 4 | < 26 | < 8 | < 35 |
| | 09/26/07 - 10/31/07 | < 20 | < 41 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 9 | < 2 | < 2 | < 18 | < 6 | < 15 |
| | 10/31/07 - 11/28/07 | < 13 | 19 ± 18 | < 1 | < 2 | < 4 | < 1 | < 3 | < 2 | < 3 | < 6 | < 1 | < 1 | < 12 | < 4 | < 10 |
| | 11/28/07 - 12/26/07 | < 45 | 49 ± 44 | < 5 | < 4 | < 11 | < 6 | < 10 | < 6 | < 8 | < 15 | < 4 | < 4 | < 35 | < 13 | < 29 |
| | MEAN | - | 56 ± 63 | - | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-III.1** **CONCENTRATIONS OF TRITIUM IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| COLLECTION PERIOD | CL-07D | CL-12R | CL-12T |
|---|---|---|---|
| 03/28/07 - 03/28/07 | < 166 | < 189 | < 185 |
| 06/27/07 - 06/27/07 | < 154 | < 165 | < 167 |
| 09/26/07 - 09/26/07 | < 178 | < 187 | < 191 |
| 12/26/07 - 12/26/07 | < 189 | < 181 | < 195 |
| MEAN | - | - | - |

**TABLE C-III.2** **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND WATER SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-07D | 03/28/07 | < 2 | < 2 | < 3 | < 2 | < 3 | < 2 | < 3 | < 1 | < 2 | < 8 | < 3 | < 11 |
| | 06/27/07 | < 5 | < 5 | < 10 | < 4 | < 9 | < 3 | < 6 | < 4 | < 5 | < 30 | < 7 | < 31 |
| | 09/26/07 | < 4 | < 5 | < 9 | < 4 | < 11 | < 5 | < 9 | < 5 | < 6 | < 28 | < 8 | < 43 |
| | 12/26/07 | < 1 | < 2 | < 4 | < 1 | < 3 | < 2 | < 3 | < 1 | < 2 | < 10 | < 3 | < 11 |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-12R | 03/28/07 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 3 | < 2 | < 2 | < 9 | < 3 | < 13 |
| | 06/27/07 | < 5 | < 6 | < 14 | < 6 | < 13 | < 6 | < 11 | < 5 | < 5 | < 34 | < 13 | < 40 |
| | 09/26/07 | < 5 | < 5 | < 8 | < 4 | < 9 | < 5 | < 9 | < 4 | < 4 | < 23 | < 7 | < 32 |
| | 12/26/07 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 2 | < 2 | < 13 | < 4 | < 15 |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-12T | 03/28/07 | < 1 | < 2 | < 3 | < 2 | < 3 | < 1 | < 3 | < 1 | < 2 | < 8 | < 3 | < 11 |
| | 06/27/07 | < 4 | < 4 | < 11 | < 4 | < 9 | < 6 | < 9 | < 5 | < 4 | < 33 | < 10 | < 44 |
| | 09/26/07 | < 4 | < 5 | < 10 | < 5 | < 10 | < 6 | < 9 | < 4 | < 4 | < 23 | < 9 | < 40 |
| | 12/26/07 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 4 | < 2 | < 2 | < 13 | < 5 | < 13 |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE C-IV.1** **CONCENTRATIONS OF GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± SIGMA

| STC | COLLECTION PERIOD | BE-7 | K-40 | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-105 | | | | | | | | | | | | | | | |
| Crappie | 04/16/07 | < 646 | 3650 ± 1070 | < 78 | < 57 | < 145 | < 76 | < 131 | < 82 | < 98 | < 50 | < 75 | < 416 | < 88 | < 367 |
| Largemouth Bass | 04/16/07 | < 391 | 3650 ± 659 | < 45 | < 41 | < 89 | < 41 | < 81 | < 46 | < 82 | < 36 | < 46 | < 294 | < 101 | < 232 |
| Carp | 04/16/07 | < 375 | 2740 ± 683 | < 45 | < 50 | < 102 | < 45 | < 104 | < 50 | < 87 | < 38 | < 40 | < 285 | < 104 | < 232 |
| Bluegill | 04/16/07 | < 349 | 2500 ± 657 | < 34 | < 34 | < 76 | < 42 | < 72 | < 43 | < 74 | < 35 | < 45 | < 242 | < 73 | < 192 |
| Bluegill | 10/09/07 | < 876 | 2210 ± 1100 | < 54 | < 109 | < 180 | < 56 | < 205 | < 109 | < 177 | < 76 | < 71 | < 1380 | < 302 | < 521 |
| Carp | 10/09/07 | < 770 | 2200 ± 817 | < 68 | < 78 | < 208 | < 62 | < 149 | < 56 | < 153 | < 60 | < 63 | < 1080 | < 354 | < 414 |
| Crappie | 10/09/07 | < 732 | 2980 ± 923 | < 62 | < 97 | < 219 | < 86 | < 205 | < 120 | < 154 | < 63 | < 69 | < 1050 | < 384 | < 702 |
| Largemouth Bass | 10/09/07 | < 857 | 2900 ± 934 | < 76 | < 93 | < 214 | < 73 | < 158 | < 116 | < 154 | < 68 | < 92 | < 1290 | < 1080 | < 674 |
| | MEAN | - | 2854 ± 1138 | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-19 | | | | | | | | | | | | | | | |
| Carp | 04/16/07 | < 357 | 3080 ± 683 | < 32 | < 38 | < 91 | < 32 | < 100 | < 40 | < 74 | < 39 | < 41 | < 288 | < 92 | < 219 |
| Channel Catfish | 04/16/07 | < 358 | 4260 ± 805 | < 51 | < 49 | < 117 | < 41 | < 103 | < 55 | < 86 | < 46 | < 49 | < 306 | < 104 | < 223 |
| Bluegill | 04/16/07 | < 279 | 2780 ± 508 | < 30 | < 27 | < 75 | < 30 | < 65 | < 34 | < 49 | < 29 | < 30 | < 167 | < 79 | < 157 |
| Largemouth Bass | 04/16/07 | < 308 | 3380 ± 611 | < 36 | < 37 | < 81 | < 34 | < 77 | < 36 | < 69 | < 31 | < 39 | < 227 | < 56 | < 185 |
| Bluegill | 10/09/07 | < 725 | 1960 ± 968 | < 77 | < 104 | < 232 | < 96 | < 138 | < 112 | < 177 | < 79 | < 79 | < 2270 | < 553 | < 459 |
| Carp | 10/09/07 | < 714 | 3770 ± 928 | < 57 | < 72 | < 138 | < 56 | < 133 | < 100 | < 135 | < 44 | < 45 | < 1450 | < 524 | < 386 |
| Largemouth Bass | 10/09/07 | < 446 | 2590 ± 860 | < 30 | < 33 | < 94 | < 31 | < 63 | < 39 | < 105 | < 28 | < 11 | < 1120 | < 335 | < 175 |
| Channel Catfish | 10/24/07 | < 742 | 2190 ± 972 | < 86 | < 93 | < 226 | < 111 | < 120 | < 82 | < 183 | < 71 | < 88 | < 944 | < 367 | < 629 |
| | MEAN | - | 3001 ± 1565 | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE C-V.1** **CONCENTRATIONS OF GAMMA EMITTERS IN SEDIMENT SAMPLES**
***COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007***

RESULTS IN UNITS OF PCI/KG DRY ± SIGMA

| STC | COLLECTION PERIOD | BE-7 | K-40 | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-07B | 04/16/07 | < 144 | 6600 ± 363 | < 14 | < 17 | < 44 | < 17 | < 35 | < 19 | < 33 | < 13 | < 14 | < 203 | < 60 | < 71 |
| | 10/09/07 | < 315 | 7820 ± 1020 | < 49 | < 49 | < 123 | < 43 | < 90 | < 49 | < 81 | < 34 | < 40 | < 357 | < 40 | < 229 |
| | MEAN | - | 7210 ± 1725 | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE C-VI.1** **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

| COLLECTION PERIOD | GROUP I | | | | | |
|---|---|---|---|---|---|---|
| | CL-02 | CL-03 | CL-04 | CL-06 | CL-15 | CL-94 |
| 01/03/07 - 01/10/07 | 15 ± 4 | 14 ± 4 | 16 ± 4 | 12 ± 4 | 19 ± 5 | 19 ± 5 |
| 01/10/07 - 01/17/07 | 17 ± 4 | 14 ± 4 | 16 ± 4 | 14 ± 4 | 14 ± 4 | 13 ± 4 |
| 01/17/07 - 01/24/07 | 38 ± 5 | 28 ± 5 | 33 ± 5 | 30 ± 5 | 31 ± 5 | 29 ± 5 |
| 01/24/07 - 01/31/07 | 27 ± 5 | 26 ± 5 | 30 ± 5 | 25 ± 5 | 26 ± 5 | 25 ± 5 |
| 01/31/07 - 02/07/07 | 23 ± 5 | 19 ± 5 | 18 ± 5 | 18 ± 5 | 14 ± 4 | 23 ± 5 |
| 02/07/07 - 02/14/07 | 20 ± 4 | 18 ± 4 | 23 ± 5 | 24 ± 5 | 25 ± 5 | 21 ± 4 |
| 02/14/07 - 02/21/07 | 30 ± 5 | 22 ± 5 | 24 ± 5 | 26 ± 5 | 24 ± 5 | 23 ± 5 |
| 02/21/07 - 02/28/07 | 18 ± 4 | 14 ± 4 | 18 ± 4 | 16 ± 4 | 18 ± 4 | 15 ± 4 |
| 02/28/07 - 03/07/07 | 22 ± 5 | 18 ± 4 | 19 ± 5 | 23 ± 5 | 21 ± 5 | 24 ± 5 |
| 03/07/07 - 03/14/07 | 22 ± 5 | 21 ± 5 | 20 ± 5 | 19 ± 4 | 20 ± 5 | 21 ± 5 |
| 03/14/07 - 03/21/07 | 18 ± 4 | 18 ± 4 | 18 ± 4 | 14 ± 4 | 19 ± 4 | 20 ± 4 |
| 03/21/07 - 03/28/07 | 17 ± 4 | 18 ± 4 | 17 ± 4 | 15 ± 4 | 19 ± 4 | 16 ± 4 |
| 03/28/07 - 04/04/07 | 17 ± 4 | 17 ± 4 | 18 ± 4 | 16 ± 4 | 20 ± 4 | 16 ± 4 |
| 04/04/07 - 04/11/07 | 20 ± 4 | 18 ± 4 | 21 ± 4 | 19 ± 4 | 21 ± 4 | 16 ± 4 |
| 04/11/07 - 04/18/07 | 20 ± 4 | 15 ± 4 | 20 ± 5 | 20 ± 5 | 20 ± 5 | 19 ± 4 |
| 04/18/07 - 04/25/07 | 15 ± 4 | 12 ± 4 | 12 ± 4 | 14 ± 4 | 15 ± 4 | 11 ± 4 |
| 04/25/07 - 05/02/07 | 17 ± 4 | 16 ± 4 | 16 ± 4 | 17 ± 4 | 14 ± 4 | 15 ± 4 |
| 05/02/07 - 05/09/07 | 19 ± 4 | 18 ± 4 | 21 ± 4 | 20 ± 4 | 19 ± 4 | 17 ± 4 |
| 05/09/07 - 05/16/07 | 22 ± 5 | 22 ± 5 | 19 ± 4 | 18 ± 4 | 20 ± 4 | 19 ± 4 |
| 05/16/07 - 05/23/07 | 27 ± 5 | 17 ± 4 | 17 ± 4 | 17 ± 4 | 19 ± 5 | 18 ± 5 |
| 05/23/07 - 05/30/07 | 27 ± 5 | 22 ± 4 | 24 ± 4 | 22 ± 4 | 24 ± 4 | 20 ± 4 |
| 05/30/07 - 06/06/07 | 26 ± 5 | 20 ± 4 | 18 ± 4 | 19 ± 4 | 19 ± 4 | 16 ± 4 |
| 06/06/07 - 06/13/07 | 22 ± 5 | 19 ± 5 | 20 ± 5 | 18 ± 5 | 21 ± 5 | 18 ± 5 |
| 06/13/07 - 06/20/07 | 28 ± 5 | 27 ± 5 | 29 ± 5 | 29 ± 5 | 22 ± 5 | 29 ± 5 |
| 06/20/07 - 06/27/07 | 19 ± 4 | 15 ± 4 | 21 ± 4 | 14 ± 4 | 16 ± 4 | 15 ± 4 |
| 06/27/07 - 07/04/07 | 13 ± 4 | 12 ± 4 | 14 ± 4 | 12 ± 4 | 13 ± 4 | 10 ± 4 |
| 07/04/07 - 07/11/07 | 21 ± 5 | 16 ± 5 | 20 ± 5 | 19 ± 5 | 21 ± 5 | 16 ± 5 |
| 07/11/07 - 07/18/07 | 10 ± 5 | 8 ± 4 | 8 ± 4 | 10 ± 4 | 10 ± 5 | 7 ± 4 |
| 07/18/07 - 07/25/07 | 20 ± 4 | 15 ± 4 | 16 ± 4 | 18 ± 4 | 15 ± 4 | 16 ± 4 |
| 07/25/07 - 08/01/07 | 25 ± 5 | 30 ± 5 | 26 ± 5 | 27 ± 5 | 22 ± 4 | 27 ± 5 |
| 08/01/07 - 08/08/07 | 26 ± 5 | 26 ± 5 | 24 ± 5 | 24 ± 5 | 23 ± 5 | 27 ± 5 |
| 08/08/07 - 08/15/07 | 26 ± 5 | 26 ± 5 | 27 ± 5 | 26 ± 5 | 28 ± 5 | 32 ± 5 |
| 08/15/07 - 08/22/07 | 26 ± 5 | 29 ± 5 | 29 ± 5 | 29 ± 5 | 27 ± 5 | 26 ± 5 |
| 08/22/07 - 08/29/07 | 22 ± 4 | 24 ± 5 | 27 ± 5 | 31 ± 6 | 20 ± 4 | 24 ± 5 |
| 08/29/07 - 09/05/07 | 27 ± 5 | 29 ± 5 | 24 ± 5 | 26 ± 5 | 22 ± 5 | 27 ± 5 |
| 09/05/07 - 09/12/07 | 20 ± 4 | 25 ± 5 | 19 ± 4 | 17 ± 4 | 16 ± 4 | 21 ± 5 |
| 09/12/07 - 09/19/07 | 24 ± 5 | 20 ± 5 | 18 ± 5 | 18 ± 5 | 14 ± 4 | 12 ± 4 |
| 09/19/07 - 09/26/07 | 34 ± 5 | 26 ± 5 | 29 ± 5 | 27 ± 5 | 30 ± 5 | 20 ± 4 |
| 09/26/07 - 10/03/07 | 35 ± 5 | 33 ± 5 | 28 ± 5 | 19 ± 5 | 27 ± 5 | 36 ± 5 |
| 10/03/07 - 10/10/07 | 13 ± 5 | 13 ± 5 | 13 ± 5 | 11 ± 4 | 14 ± 5 | 12 ± 4 |
| 10/10/07 - 10/17/07 | 20 ± 5 | 18 ± 5 | 20 ± 5 | 23 ± 5 | 22 ± 5 | 16 ± 5 |
| 10/17/07 - 10/24/07 | 17 ± 4 | 19 ± 4 | 20 ± 4 | 20 ± 4 | 20 ± 4 | 21 ± 5 |
| 10/24/07 - 10/31/07 | 22 ± 4 | 21 ± 4 | 18 ± 4 | 24 ± 5 | 17 ± 4 | 20 ± 4 |
| 10/31/07 - 11/07/07 | 17 ± 4 | 16 ± 4 | 19 ± 4 | 15 ± 4 | 16 ± 4 | 22 ± 5 |
| 11/07/07 - 11/14/07 | 32 ± 5 | 26 ± 5 | 35 ± 6 | 37 ± 5 | 32 ± 5 | 38 ± 5 |
| 11/14/07 - 11/21/07 | 23 ± 4 | 24 ± 5 | 23 ± 5 | 22 ± 5 | 26 ± 5 | 21 ± 4 |
| 11/21/07 - 11/28/07 | 28 ± 5 | 24 ± 4 | 27 ± 5 | 27 ± 5 | 25 ± 5 | 25 ± 5 |
| 11/28/07 - 12/05/07 | 29 ± 5 | 28 ± 5 | 22 ± 4 | (1) | 23 ± 5 | 25 ± 5 |
| 12/05/07 - 12/12/07 | 23 ± 5 | 28 ± 5 | 25 ± 5 | 26 ± 5 | 23 ± 5 | 24 ± 5 |
| 12/12/07 - 12/19/07 | 42 ± 6 | 43 ± 6 | 45 ± 6 | 43 ± 5 | 44 ± 6 | 38 ± 6 |
| 12/19/07 - 12/26/07 | 38 ± 5 | 45 ± 6 | 40 ± 6 | 38 ± 5 | 36 ± 5 | 43 ± 6 |
| 12/26/07 - 01/02/08 | 44 ± 6 | 37 ± 5 | 37 ± 5 | 38 ± 6 | 37 ± 6 | 41 ± 6 |
| MEAN | 23 ± 15 | 22 ± 15 | 22 ± 14 | 22 ± 15 | 21 ± 13 | 22 ± 16 |

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

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

**TABLE C-VI.1** **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

| COLLECTION PERIOD | GROUP II | | | GROUP III |
|---|---|---|---|---|
| | CL-01 | CL-07 | CL-08 | CL-11 |
| 01/03/07 - 01/10/07 | 15 ± 4 | 14 ± 4 | 11 ± 4 | 15 ± 4 |
| 01/10/07 - 01/17/07 | 17 ± 4 | 15 ± 4 | 14 ± 4 | 18 ± 4 |
| 01/17/07 - 01/24/07 | 26 ± 4 | 30 ± 5 | 28 ± 5 | 28 ± 5 |
| 01/24/07 - 01/31/07 | 24 ± 5 | 26 ± 5 | 31 ± 5 | 24 ± 5 |
| 01/31/07 - 02/07/07 | 17 ± 5 | 21 ± 5 | 17 ± 5 | 17 ± 5 |
| 02/07/07 - 02/14/07 | 25 ± 5 | 18 ± 4 | 22 ± 4 | 21 ± 4 |
| 02/14/07 - 02/21/07 | 25 ± 5 | 24 ± 5 | 23 ± 5 | 25 ± 5 |
| 02/21/07 - 02/28/07 | 17 ± 4 | 12 ± 4 | 13 ± 4 | 17 ± 4 |
| 02/28/07 - 03/07/07 | 22 ± 5 | 17 ± 4 | 18 ± 4 | 19 ± 5 |
| 03/07/07 - 03/14/07 | 17 ± 4 | 21 ± 5 | 18 ± 4 | 16 ± 4 |
| 03/14/07 - 03/21/07 | 15 ± 4 | 14 ± 4 | 15 ± 4 | 21 ± 4 |
| 03/21/07 - 03/28/07 | 15 ± 4 | 15 ± 4 | 19 ± 4 | 20 ± 4 |
| 03/28/07 - 04/04/07 | 14 ± 4 | 19 ± 4 | 18 ± 4 | 18 ± 4 |
| 04/04/07 - 04/11/07 | 20 ± 4 | 16 ± 4 | 18 ± 4 | 18 ± 4 |
| 04/11/07 - 04/18/07 | 21 ± 5 | 17 ± 4 | 16 ± 4 | 18 ± 4 |
| 04/18/07 - 04/25/07 | 14 ± 4 | 12 ± 4 | 17 ± 4 | 14 ± 4 |
| 04/25/07 - 05/02/07 | 19 ± 4 | 18 ± 4 | 17 ± 4 | 16 ± 4 |
| 05/02/07 - 05/09/07 | 15 ± 4 | 18 ± 4 | 17 ± 4 | 18 ± 4 |
| 05/09/07 - 05/16/07 | 20 ± 4 | 19 ± 4 | 16 ± 4 | 18 ± 4 |
| 05/16/07 - 05/23/07 | 18 ± 5 | 17 ± 4 | 20 ± 5 | 21 ± 5 |
| 05/23/07 - 05/30/07 | 25 ± 5 | 19 ± 4 | 21 ± 4 | 25 ± 5 |
| 05/30/07 - 06/06/07 | 21 ± 4 | 16 ± 4 | 19 ± 4 | 19 ± 4 |
| 06/06/07 - 06/13/07 | 17 ± 4 | 20 ± 5 | 21 ± 5 | 24 ± 5 |
| 06/13/07 - 06/20/07 | 21 ± 4 | 23 ± 5 | 24 ± 5 | 26 ± 5 |
| 06/20/07 - 06/27/07 | 17 ± 4 | 14 ± 4 | 18 ± 4 | 20 ± 4 |
| 06/27/07 - 07/04/07 | 11 ± 4 | 14 ± 4 | 15 ± 4 | 8 ± 4 |
| 07/04/07 - 07/11/07 | 18 ± 5 | 21 ± 5 | 14 ± 5 | 18 ± 5 |
| 07/11/07 - 07/18/07 | 9 ± 4 | 10 ± 5 | 12 ± 5 | 11 ± 5 |
| 07/18/07 - 07/25/07 | 16 ± 4 | 18 ± 4 | 16 ± 4 | 20 ± 4 |
| 07/25/07 - 08/01/07 | 28 ± 5 | 27 ± 5 | 29 ± 5 | 31 ± 5 |
| 08/01/07 - 08/08/07 | 30 ± 5 | 24 ± 5 | 30 ± 5 | 28 ± 5 |
| 08/08/07 - 08/15/07 | 24 ± 5 | 20 ± 4 | 20 ± 4 | 29 ± 5 |
| 08/15/07 - 08/22/07 | 30 ± 5 | 31 ± 5 | 26 ± 5 | 32 ± 5 |
| 08/22/07 - 08/29/07 | 20 ± 4 | 24 ± 5 | 23 ± 4 | 19 ± 4 |
| 08/29/07 - 09/05/07 | 25 ± 5 | 25 ± 5 | 31 ± 5 | 24 ± 5 |
| 09/05/07 - 09/12/07 | 17 ± 4 | 18 ± 4 | 14 ± 4 | 21 ± 5 |
| 09/12/07 - 09/19/07 | 15 ± 4 | 26 ± 5 | 22 ± 5 | 20 ± 5 |
| 09/19/07 - 09/26/07 | 30 ± 5 | 31 ± 5 | 27 ± 5 | 28 ± 5 |
| 09/26/07 - 10/03/07 | 28 ± 5 | 29 ± 5 | 31 ± 5 | 32 ± 5 |
| 10/03/07 - 10/10/07 | 13 ± 4 | 13 ± 4 | 11 ± 4 | 12 ± 4 |
| 10/10/07 - 10/17/07 | 18 ± 5 | 13 ± 4 | 20 ± 5 | 19 ± 5 |
| 10/17/07 - 10/24/07 | 18 ± 4 | 21 ± 4 | 20 ± 4 | 21 ± 4 |
| 10/24/07 - 10/31/07 | 19 ± 4 | 22 ± 4 | 21 ± 4 | 18 ± 4 |
| 10/31/07 - 11/07/07 | 20 ± 4 | 19 ± 4 | 16 ± 4 | 20 ± 4 |
| 11/07/07 - 11/14/07 | 33 ± 5 | 37 ± 5 | 32 ± 5 | 37 ± 5 |
| 11/14/07 - 11/21/07 | 22 ± 4 | 22 ± 4 | 24 ± 5 | 21 ± 4 |
| 11/21/07 - 11/28/07 | 30 ± 5 | 26 ± 5 | 26 ± 5 | 30 ± 5 |
| 11/28/07 - 12/05/07 | 31 ± 5 | 26 ± 5 | 30 ± 5 | 22 ± 5 |
| 12/05/07 - 12/12/07 | 27 ± 5 | 23 ± 5 | 23 ± 5 | 24 ± 5 |
| 12/12/07 - 12/19/07 | 38 ± 5 | 42 ± 6 | 45 ± 6 | 39 ± 6 |
| 12/19/07 - 12/26/07 | 36 ± 5 | 39 ± 6 | 39 ± 6 | 39 ± 5 |
| 12/26/07 - 01/02/08 | 41 ± 6 | 43 ± 6 | 43 ± 6 | 37 ± 5 |
| MEAN | 22 ± 14 | 21 ± 15 | 22 ± 15 | 22 ± 14 |

**TABLE C-VI.2 MONTHLY AND YEARLY MEAN VALUES OF GROSS BETA CONCENTRATIONS (E-3 PCI/CU METER) IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

| 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 |
| 01/03/07 - 01/31/07 | 12 | 38 | 22 ± 15 | 01/03/07 - 01/31/07 | 11 | 31 | 21 ± 14 | 01/03/07 - 01/31/07 | 15 | 28 | 21 ± 12 |
| 01/31/07 - 02/28/07 | 14 | 30 | 20 ± 8 | 01/31/07 - 02/28/07 | 12 | 25 | 19 ± 9 | 01/31/07 - 02/28/07 | 17 | 25 | 20 ± 8 |
| 02/28/07 - 03/28/07 | 14 | 24 | 19 ± 5 | 02/28/07 - 03/28/07 | 14 | 22 | 17 ± 5 | 02/28/07 - 03/28/07 | 16 | 21 | 19 ± 4 |
| 03/28/07 - 05/02/07 | 11 | 21 | 17 ± 5 | 03/28/07 - 05/02/07 | 12 | 21 | 17 ± 5 | 03/28/07 - 05/02/07 | 14 | 18 | 17 ± 4 |
| 05/02/07 - 05/30/07 | 17 | 27 | 20 ± 6 | 05/02/07 - 05/30/07 | 15 | 25 | 19 ± 5 | 05/02/07 - 05/30/07 | 18 | 25 | 21 ± 7 |
| 05/30/07 - 06/27/07 | 14 | 29 | 21 ± 10 | 05/30/07 - 06/27/07 | 14 | 24 | 19 ± 6 | 05/30/07 - 06/27/07 | 19 | 26 | 22 ± 7 |
| 06/27/07 - 08/01/07 | 7 | 30 | 17 ± 12 | 06/27/07 - 08/01/07 | 9 | 29 | 17 ± 13 | 06/27/07 - 08/01/07 | 8 | 31 | 18 ± 18 |
| 08/01/07 - 08/29/07 | 20 | 32 | 26 ± 6 | 08/01/07 - 08/29/07 | 20 | 31 | 25 ± 8 | 08/01/07 - 08/29/07 | 19 | 32 | 27 ± 11 |
| 08/29/07 - 10/03/07 | 12 | 36 | 24 ± 12 | 08/29/07 - 10/03/07 | 14 | 31 | 25 ± 12 | 08/29/07 - 10/03/07 | 20 | 32 | 25 ± 10 |
| 10/03/07 - 10/31/07 | 11 | 24 | 18 ± 7 | 10/03/07 - 10/31/07 | 11 | 22 | 17 ± 8 | 10/03/07 - 10/31/07 | 12 | 21 | 18 ± 8 |
| 10/31/07 - 11/28/07 | 15 | 38 | 25 ± 13 | 10/31/07 - 11/28/07 | 16 | 37 | 25 ± 13 | 10/31/07 - 11/28/07 | 20 | 37 | 27 ± 15 |
| 11/28/07 - 01/02/08 | 22 | 45 | 35 ± 16 | 11/28/07 - 01/02/08 | 23 | 45 | 35 ± 15 | 11/28/07 - 01/02/08 | 22 | 39 | 32 ± 17 |
| 01/03/07 - 01/02/08 | 22 | 45 | 22 ± 10 | 01/03/07 - 01/02/08 | 9 | 45 | 21 ± 11 | 01/03/07 - 01/02/08 | 8 | 39 | 22 ± 10 |

* GROUP I LOCATIONS WITHIN 1 MILES OF CPS
** GROUP II LOCATIONS WITHIN 1-5 MILES OF CPS
*** GROUP III LOCATIONS GREATER THAN 5 MILES OF CPS

**TABLE C-VI.3** **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

| STC | COLLECTION PERIOD | BE-7 | K-40 | CO-60 | NB-95 | ZR-95 | RU-103 | RU-106 | CS-134 | CS-137 | CE-141 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-01 | 01/03/07 - 04/04/07 | 52 ± 17 | < 16 | < 2 | < 2 | < 3 | < 2 | < 11 | < 2 | < 1 | < 3 | < 6 |
| | 04/04/07 - 07/04/07 | 88 ± 26 | < 38 | < 3 | < 4 | < 7 | < 6 | < 22 | < 3 | < 2 | < 8 | < 11 |
| | 07/04/07 - 10/03/07 | 88 ± 27 | < 46 | < 3 | < 6 | < 7 | < 6 | < 29 | < 4 | < 3 | < 9 | < 11 |
| | 10/03/07 - 01/02/08 | 71 ± 22 | < 31 | < 2 | < 4 | < 6 | < 3 | < 21 | < 2 | < 2 | < 5 | < 11 |
| | MEAN | 75 ± 34 | - | - | - | - | - | - | - | - | - | - |
| CL-02 | 01/03/07 - 04/04/07 | 59 ± 21 | < 39 | < 2 | < 3 | < 4 | < 3 | < 20 | < 2 | < 2 | < 4 | < 8 |
| | 04/04/07 - 07/04/07 | 80 ± 44 | < 60 | < 3 | < 5 | < 9 | < 7 | < 31 | < 4 | < 3 | < 12 | < 15 |
| | 07/04/07 - 10/03/07 | 92 ± 30 | < 18 | < 3 | < 5 | < 7 | < 7 | < 23 | < 3 | < 3 | < 10 | < 13 |
| | 10/03/07 - 01/02/08 | 48 ± 17 | < 52 | < 4 | < 3 | < 3 | < 5 | < 25 | < 3 | < 3 | < 7 | < 16 |
| | MEAN | 70 ± 40 | - | - | - | - | - | - | - | - | - | - |
| CL-03 | 01/03/07 - 04/04/07 | 69 ± 14 | < 27 | < 2 | < 2 | < 4 | < 2 | < 13 | < 2 | < 2 | < 3 | < 6 |
| | 04/04/07 - 07/04/07 | 112 ± 32 | < 34 | < 2 | < 5 | < 8 | < 6 | < 21 | < 2 | < 3 | < 9 | < 12 |
| | 07/04/07 - 10/03/07 | 84 ± 39 | < 50 | < 5 | < 6 | < 8 | < 9 | < 29 | < 4 | < 3 | < 13 | < 13 |
| | 10/03/07 - 01/02/08 | 41 ± 22 | < 42 | < 3 | < 4 | < 6 | < 3 | < 25 | < 4 | < 2 | < 5 | < 11 |
| | MEAN | 76 ± 59 | - | - | - | - | - | - | - | - | - | - |
| CL-04 | 01/03/07 - 04/04/07 | 74 ± 23 | < 37 | < 3 | < 3 | < 5 | < 3 | < 16 | < 2 | < 2 | < 4 | < 9 |
| | 04/04/07 - 07/04/07 | 103 ± 44 | < 44 | < 3 | < 6 | < 10 | < 7 | < 23 | < 3 | < 3 | < 11 | < 14 |
| | 07/04/07 - 10/03/07 | 78 ± 31 | < 60 | < 4 | < 5 | < 9 | < 8 | < 20 | < 5 | < 4 | < 11 | < 14 |
| | 10/03/07 - 01/02/08 | 66 ± 26 | < 60 | < 3 | < 3 | < 7 | < 4 | < 25 | < 3 | < 3 | < 6 | < 12 |
| | MEAN | 80 ± 32 | - | - | - | - | - | - | - | - | - | - |
| CL-06 | 01/03/07 - 04/04/07 | 66 ± 23 | < 22 | < 2 | < 3 | < 5 | < 3 | < 20 | < 2 | < 2 | < 4 | < 8 |
| | 04/04/07 - 07/04/07 | 97 ± 31 | < 43 | < 3 | < 4 | < 7 | < 5 | < 23 | < 3 | < 2 | < 8 | < 10 |
| | 07/04/07 - 10/03/07 | 113 ± 31 | < 58 | < 3 | < 6 | < 10 | < 7 | < 26 | < 3 | < 3 | < 9 | < 12 |
| | 10/03/07 - 01/02/08 | 74 ± 26 | < 50 | < 4 | < 5 | < 6 | < 5 | < 30 | < 4 | < 3 | < 7 | < 14 |
| | MEAN | 87 ± 43 | - | - | - | - | - | - | - | - | - | - |

**TABLE C-VI.3** **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

| STC | COLLECTION PERIOD | BE-7 | K-40 | CO-60 | NB-95 | ZR-95 | RU-103 | RU-106 | CS-134 | CS-137 | CE-141 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-07 | 01/03/07 - 04/04/07 | 50 ± 27 | < 45 | < 3 | < 4 | < 8 | < 4 | < 29 | < 3 | < 3 | < 6 | < 13 |
| | 04/04/07 - 07/04/07 | 97 ± 39 | < 66 | < 3 | < 7 | < 12 | < 6 | < 29 | < 3 | < 4 | < 12 | < 14 |
| | 07/04/07 - 10/03/07 | 85 ± 29 | 19 ± 17 | < 2 | < 4 | < 7 | < 6 | < 20 | < 3 | < 2 | < 8 | < 11 |
| | 10/03/07 - 01/02/08 | 52 ± 25 | < 37 | < 3 | < 3 | < 6 | < 3 | < 22 | < 3 | < 2 | < 5 | < 10 |
| | MEAN | 71 ± 47 | 19 ± 0 | - | - | - | - | - | - | - | - | - |
| CL-08 | 01/03/07 - 04/04/07 | 75 ± 20 | < 31 | < 3 | < 3 | < 5 | < 3 | < 20 | < 2 | < 2 | < 4 | < 9 |
| | 04/04/07 - 07/04/07 | 134 ± 43 | < 58 | < 4 | < 6 | < 13 | < 9 | < 28 | < 3 | < 4 | < 13 | < 17 |
| | 07/04/07 - 10/03/07 | 106 ± 47 | < 51 | < 1 | < 4 | < 9 | < 8 | < 25 | < 3 | < 3 | < 11 | < 16 |
| | 10/03/07 - 01/02/08 | 66 ± 28 | < 43 | < 2 | < 3 | < 5 | < 4 | < 25 | < 3 | < 3 | < 6 | < 13 |
| | MEAN | 95 ± 62 | - | - | - | - | - | - | - | - | - | - |
| CL-11 | 01/03/07 - 04/04/07 | 97 ± 30 | < 51 | < 4 | < 5 | < 7 | < 5 | < 29 | < 3 | < 3 | < 8 | < 17 |
| | 04/04/07 - 07/04/07 | 146 ± 38 | < 47 | < 3 | < 5 | < 9 | < 9 | < 28 | < 4 | < 2 | < 15 | < 20 |
| | 07/04/07 - 10/03/07 | 87 ± 23 | < 42 | < 2 | < 4 | < 7 | < 5 | < 24 | < 3 | < 2 | < 8 | < 10 |
| | 10/03/07 - 01/02/08 | 45 ± 37 | < 53 | < 4 | < 5 | < 8 | < 6 | < 29 | < 4 | < 4 | < 6 | < 14 |
| | MEAN | 94 ± 83 | - | - | - | - | - | - | - | - | - | - |
| CL-15 | 01/03/07 - 04/04/07 | 85 ± 41 | < 18 | < 5 | < 3 | < 8 | < 5 | < 29 | < 4 | < 4 | < 8 | < 18 |
| | 04/04/07 - 07/04/07 | 103 ± 31 | < 42 | < 2 | < 4 | < 8 | < 6 | < 20 | < 2 | < 2 | < 9 | < 13 |
| | 07/04/07 - 10/03/07 | 88 ± 43 | < 44 | < 3 | < 5 | < 10 | < 8 | < 33 | < 4 | < 3 | < 10 | < 14 |
| | 10/03/07 - 01/02/08 | 47 ± 34 | < 58 | < 4 | < 4 | < 7 | < 5 | < 25 | < 4 | < 3 | < 7 | < 15 |
| | MEAN | 81 ± 48 | - | - | - | - | - | - | - | - | - | - |
| CL-94 | 01/03/07 - 04/04/07 | 89 ± 39 | < 39 | < 3 | < 4 | < 6 | < 4 | < 22 | < 3 | < 3 | < 8 | < 17 |
| | 04/04/07 - 07/04/07 | 97 ± 43 | < 60 | < 4 | < 6 | < 12 | < 8 | < 33 | < 4 | < 3 | < 13 | < 17 |
| | 07/04/07 - 10/03/07 | 115 ± 50 | < 57 | < 3 | < 7 | < 9 | < 7 | < 31 | < 4 | < 3 | < 11 | < 15 |
| | 10/03/07 - 01/02/08 | 52 ± 25 | < 14 | < 1 | < 3 | < 5 | < 3 | < 16 | < 2 | < 2 | < 5 | < 10 |
| | MEAN | 88 ± 53 | - | - | - | - | - | - | - | - | - | - |

**TABLE C-VII.1** **CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

| COLLECTION PERIOD | GROUP I | | | | | |
|---|---|---|---|---|---|---|
| | CL-02 | CL-03 | CL-04 | CL-06 | CL-15 | CL-94 |
| 01/03/07 - 01/10/07 | < 40 | < 40 | < 40 | < 24 | < 39 | < 20 |
| 01/10/07 - 01/17/07 | < 38 | < 38 | < 38 | < 21 | < 28 | < 15 |
| 01/17/07 - 01/24/07 | < 22 | < 22 | < 22 | < 22 | < 35 | < 35 |
| 01/24/07 - 01/31/07 | < 27 | < 27 | < 27 | < 27 | < 26 | < 25 |
| 01/31/07 - 02/07/07 | < 31 | < 41 | < 41 | < 41 | < 46 | < 46 |
| 02/07/07 - 02/14/07 | < 36 | < 36 | < 36 | < 36 | < 45 | < 45 |
| 02/14/07 - 02/21/07 | < 25 | < 40 | < 40 | < 40 | < 36 | < 36 |
| 02/21/07 - 02/28/07 | < 46 | < 46 | < 35 | < 46 | < 44 | < 44 |
| 02/28/07 - 03/07/07 | < 40 | < 40 | < 40 | < 24 | < 49 | < 27 |
| 03/07/07 - 03/14/07 | < 22 | < 22 | < 23 | < 13 | < 21 | < 17 |
| 03/14/07 - 03/21/07 | < 57 | < 57 | < 57 | < 34 | < 55 | < 55 |
| 03/21/07 - 03/28/07 | < 35 | < 35 | < 35 | < 26 | < 35 | < 35 |
| 03/28/07 - 04/04/07 | < 36 | < 36 | < 36 | < 20 | < 37 | < 30 |
| 04/04/07 - 04/11/07 | < 40 | < 40 | < 40 | < 22 | < 38 | < 37 |
| 04/11/07 - 04/18/07 | < 31 | < 31 | < 31 | < 17 | < 68 | < 37 |
| 04/18/07 - 04/25/07 | < 18 | < 18 | < 18 | < 11 | < 39 | < 39 |
| 04/25/07 - 05/02/07 | < 33 | < 33 | < 33 | < 18 | < 31 | < 23 |
| 05/02/07 - 05/09/07 | < 37 | < 37 | < 37 | < 20 | < 18 | < 33 |
| 05/09/07 - 05/16/07 | < 49 | < 49 | < 49 | < 39 | < 63 | < 42 |
| 05/16/07 - 05/23/07 | < 42 | < 42 | < 42 | < 23 | < 42 | < 33 |
| 05/23/07 - 05/30/07 | < 40 | < 39 | < 39 | < 24 | < 38 | < 30 |
| 05/30/07 - 06/06/07 | < 27 | < 27 | < 27 | < 16 | < 23 | < 14 |
| 06/06/07 - 06/13/07 | < 10 | < 10 | < 10 | < 6 | < 10 | < 6 |
| 06/13/07 - 06/20/07 | < 30 | < 30 | < 30 | < 16 | < 34 | < 14 |
| 06/20/07 - 06/27/07 | < 41 | < 40 | < 43 | < 22 | < 39 | < 22 |
| 06/27/07 - 07/04/07 | < 39 | < 38 | < 39 | < 23 | < 38 | < 23 |
| 07/04/07 - 07/11/07 | < 45 | < 44 | < 44 | < 24 | < 59 | < 32 |
| 07/11/07 - 07/18/07 | < 56 | < 56 | < 56 | < 56 | < 55 | < 23 |
| 07/18/07 - 07/25/07 | < 38 | < 38 | < 38 | < 25 | < 43 | < 23 |
| 07/25/07 - 08/01/07 | < 63 (1) | < 63 (1) | < 42 | < 56 | < 53 | < 30 |
| 08/01/07 - 08/08/07 | < 50 | < 25 | < 49 | < 50 | < 40 | < 40 |
| 08/08/07 - 08/15/07 | < 40 | < 40 | < 40 | < 26 | < 43 | < 26 |
| 08/15/07 - 08/22/07 | < 35 | < 53 | < 53 | < 53 | < 65 | < 65 |
| 08/22/07 - 08/29/07 | < 63 | < 67 | < 64 | < 60 | < 62 | < 34 |
| 08/29/07 - 09/05/07 | < 60 | < 61 | < 61 | < 38 | < 64 | < 67 |
| 09/05/07 - 09/12/07 | < 50 | < 52 | < 51 | < 53 | < 36 | < 37 |
| 09/12/07 - 09/19/07 | < 54 | < 55 | < 56 | < 55 | < 56 | < 57 |
| 09/19/07 - 09/26/07 | < 46 | < 47 | < 47 | < 46 | < 33 | < 32 |
| 09/26/07 - 10/03/07 | < 30 | < 30 | < 31 | < 19 | < 23 | < 14 |
| 10/03/07 - 10/10/07 | < 67 | < 66 | < 66 | < 66 | < 66 | < 66 |
| 10/10/07 - 10/17/07 | < 47 | < 47 | < 48 | < 46 | < 42 | < 41 |
| 10/17/07 - 10/24/07 | < 47 | < 48 | < 48 | < 47 | < 68 | < 68 |
| 10/24/07 - 10/31/07 | < 60 | < 60 | < 64 | < 60 | < 35 | < 35 |
| 10/31/07 - 11/07/07 | < 24 | < 26 | < 25 | < 23 | < 25 | < 26 |
| 11/07/07 - 11/14/07 | < 64 | < 65 | < 67 | < 65 | < 68 | < 66 |
| 11/14/07 - 11/21/07 | < 45 | < 46 | < 46 | < 29 | < 27 | < 31 |
| 11/21/07 - 11/28/07 | < 30 | < 31 | < 31 | < 30 | < 40 | < 21 |
| 11/28/07 - 12/05/07 | < 52 | < 52 | < 52 | (1) | < 48 | < 45 |
| 12/05/07 - 12/12/07 | < 18 | < 19 | < 18 | < 19 | < 23 | < 23 |
| 12/12/07 - 12/19/07 | < 61 | < 26 | < 61 | < 56 | < 65 | < 64 |
| 12/19/07 - 12/26/07 | < 26 | < 46 | < 48 | < 46 | < 48 | < 47 |
| 12/26/07 - 01/02/08 | < 36 | < 34 | < 36 | < 36 | < 28 | < 27 |
| MEAN | - | - | - | - | - | - |

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

**TABLE C-VII.1** **CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

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

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

* INDICATES CONTROL STATION

**TABLE C-VIII.1 CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| | CONTROL FARM |
|---|---|
| COLLECTION PERIOD | CL-116 |
| 01/31/07 | < 0.4 |
| 02/28/07 | < 0.6 |
| 03/28/07 | < 0.8 |
| 04/25/07 | < 0.9 |
| 05/09/07 | < 0.6 |
| 05/23/07 | < 0.8 |
| 06/06/07 | < 0.8 |
| 06/20/07 | < 0.7 |
| 07/04/07 | < 0.6 |
| 07/18/07 | < 0.6 |
| 08/01/07 | < 0.8 |
| 08/15/07 | < 0.8 |
| 08/29/07 | < 0.6 |
| 09/12/07 | < 0.7 |
| 09/26/07 | < 0.6 |
| 10/10/07 | < 0.8 |
| 10/24/07 | < 0.7 |
| 11/28/07 | < 0.6 |
| 12/26/07 | < 0.9 |
| MEAN | - |

**TABLE C-VIII.2 CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/LITER ± SIGMA

| STC | COLLECTION PERIOD | BE-7 | K-40 | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-116 * | 01/31/07 | < 36 | 1210 ± 115 | < 4 | < 4 | < 10 | < 5 | < 11 | < 5 | < 6 | < 4 | < 5 | < 19 | < 6 | < 30 |
| | 02/28/07 | < 44 | 1300 ± 124 | < 5 | < 5 | < 11 | < 5 | < 12 | < 6 | < 8 | < 5 | < 6 | < 24 | < 9 | < 33 |
| | 03/28/07 | < 39 | 1300 ± 103 | < 4 | < 4 | < 10 | < 5 | < 9 | < 4 | < 8 | < 4 | < 5 | < 23 | < 6 | < 29 |
| | 04/25/07 | < 55 | 1290 ± 138 | < 6 | < 7 | < 17 | < 5 | < 14 | < 6 | < 11 | < 5 | < 6 | < 40 | < 11 | < 40 |
| | 05/09/07 | < 46 | 1070 ± 109 | < 5 | < 5 | < 11 | < 5 | < 10 | < 5 | < 9 | < 4 | < 5 | < 32 | < 8 | < 34 |
| | 05/23/07 | < 34 | 1210 ± 112 | < 4 | < 4 | < 10 | < 5 | < 11 | < 4 | < 9 | < 4 | < 4 | < 27 | < 6 | < 31 |
| | 06/06/07 | < 41 | 1180 ± 110 | < 5 | < 5 | < 11 | < 5 | < 10 | < 4 | < 9 | < 3 | < 4 | < 26 | < 10 | < 29 |
| | 06/20/07 | < 32 | 1250 ± 100 | < 4 | < 4 | < 11 | < 4 | < 9 | < 5 | < 8 | < 3 | < 4 | < 33 | < 8 | < 32 |
| | 07/04/07 | < 53 | 1330 ± 117 | < 5 | < 5 | < 14 | < 5 | < 14 | < 6 | < 10 | < 5 | < 6 | < 40 | < 11 | < 42 |
| | 07/18/07 | < 46 | 1100 ± 110 | < 5 | < 5 | < 12 | < 5 | < 11 | < 5 | < 8 | < 4 | < 5 | < 25 | < 8 | < 34 |
| | 08/01/07 | < 43 | 1200 ± 123 | < 6 | < 5 | < 14 | < 6 | < 15 | < 5 | < 10 | < 5 | < 6 | < 26 | < 7 | < 44 |
| | 08/15/07 | < 50 | 1050 ± 113 | < 5 | < 6 | < 17 | < 5 | < 13 | < 6 | < 12 | < 5 | < 5 | < 48 | < 11 | < 45 |
| | 08/29/07 | < 24 | 1060 ± 65 | < 3 | < 3 | < 7 | < 3 | < 6 | < 3 | < 5 | < 3 | < 3 | < 19 | < 5 | < 19 |
| | 09/12/07 | < 74 | 1240 ± 188 | < 7 | < 10 | < 19 | < 9 | < 18 | < 9 | < 15 | < 7 | < 8 | < 43 | < 13 | < 54 |
| | 09/26/07 | < 41 | 1250 ± 121 | < 5 | < 5 | < 12 | < 5 | < 12 | < 5 | < 9 | < 4 | < 5 | < 23 | < 7 | < 31 |
| | 10/10/07 | < 44 | 1180 ± 130 | < 6 | < 5 | < 13 | < 4 | < 12 | < 7 | < 8 | < 5 | < 6 | < 34 | < 10 | < 36 |
| | 10/24/07 | < 57 | 1210 ± 133 | < 7 | < 7 | < 18 | < 8 | < 16 | < 8 | < 12 | < 6 | < 7 | < 47 | < 14 | < 35 |
| | 11/28/07 | < 61 | 1090 ± 172 | < 6 | < 8 | < 16 | < 7 | < 17 | < 9 | < 13 | < 7 | < 8 | < 29 | < 12 | < 48 |
| | 12/26/07 | < 39 | 1120 ± 109 | < 4 | < 5 | < 12 | < 5 | < 13 | < 7 | < 9 | < 4 | < 5 | < 32 | < 11 | < 32 |
| | MEAN | - | 1192 ± 176 | - | - | - | - | - | - | - | - | - | - | - | - |

* INDICATES CONTROL STATION

**TABLE C-IX.1** **CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | I-131 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-114 | 06/27/07 | < 10 | < 11 | < 25 | < 11 | < 23 | < 10 | < 17 | < 13 | < 10 | < 11 | < 44 | < 11 | < 67 |
| Cabbage | 06/27/07 | < 13 | < 13 | < 32 | < 16 | < 33 | < 14 | < 25 | < 19 | < 11 | < 15 | < 53 | < 16 | < 88 |
| Lettuce | 06/27/07 | < 13 | < 13 | < 31 | < 14 | < 33 | < 13 | < 21 | < 19 | < 12 | < 15 | < 51 | < 15 | < 72 |
| Swiss Chard | 07/25/07 | < 3 | < 3 | < 8 | < 3 | < 7 | < 4 | < 6 | < 13 | < 3 | < 3 | < 27 | < 7 | < 20 |
| Cabbage | 07/25/07 | < 6 | < 6 | < 15 | < 6 | < 15 | < 7 | < 11 | < 24 | < 5 | < 6 | < 49 | < 12 | < 37 |
| Lettuce | 07/25/07 | < 4 | < 4 | < 13 | < 5 | < 11 | < 5 | < 8 | < 16 | < 4 | < 4 | < 32 | < 8 | < 23 |
| Swiss Chard | 08/29/07 | < 10 | < 13 | < 33 | < 12 | < 31 | < 14 | < 25 | < 59 | < 11 | < 15 | < 119 | < 21 | < 69 |
| Cabbage | 08/29/07 | < 12 | < 12 | < 30 | < 11 | < 27 | < 14 | < 23 | < 56 | < 11 | < 12 | < 108 | < 28 | < 83 |
| Lettuce + Swiss Chard | 08/29/07 | < 10 | < 11 | < 29 | < 11 | < 26 | < 11 | < 20 | < 48 | < 8 | < 9 | < 88 | < 25 | < 63 |
| Swiss Chard | 09/26/07 | < 10 | < 10 | < 27 | < 10 | < 21 | < 14 | < 20 | < 52 | < 8 | < 9 | < 83 | < 30 | < 65 |
| Cabbage | 09/26/07 | < 10 | < 11 | < 27 | < 13 | < 23 | < 11 | < 20 | < 57 | < 9 | < 11 | < 102 | < 25 | < 61 |
| Lettuce | 09/26/07 | < 10 | < 12 | < 33 | < 10 | < 27 | < 11 | < 21 | < 57 | < 10 | < 9 | < 105 | < 20 | < 70 |
| Swiss Chard | | | | | | | | | | | | | | |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-IX.1**

**CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | I-131 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-115 Cabbage | 06/27/07 | < 12 | < 11 | < 23 | < 11 | < 27 | < 12 | < 21 | < 16 | < 11 | < 14 | < 52 | < 19 | < 74 |
| Lettuce | 06/27/07 | < 22 | < 19 | < 47 | < 20 | < 53 | < 24 | < 33 | < 31 | < 18 | < 25 | < 88 | < 23 | < 132 |
| Swiss Chard | 06/27/07 | < 12 | < 11 | < 28 | < 12 | < 28 | < 11 | < 19 | < 17 | < 10 | < 13 | < 48 | < 14 | < 69 |
| Cabbage | 07/25/07 | < 7 | < 7 | < 20 | < 7 | < 16 | < 8 | < 13 | < 26 | < 6 | < 7 | < 53 | < 15 | < 38 |
| Lettuce | 07/25/07 | < 7 | < 8 | < 20 | < 7 | < 18 | < 8 | < 14 | < 27 | < 6 | < 7 | < 58 | < 16 | < 43 |
| Swiss Chard | 07/25/07 | < 10 | < 11 | < 28 | < 10 | < 24 | < 11 | < 17 | < 40 | < 9 | < 10 | < 82 | < 17 | < 65 |
| Cabbage | 08/29/07 | < 13 | < 16 | < 33 | < 13 | < 34 | < 16 | < 26 | < 60 | < 11 | < 14 | < 117 | < 16 | < 77 |
| Lettuce + Swiss Chard | 08/29/07 | < 7 | < 9 | < 22 | < 8 | < 19 | < 9 | < 15 | < 41 | < 6 | < 7 | < 74 | < 21 | < 48 |
| Swiss Chard | 08/29/07 | < 4 | < 4 | < 12 | < 5 | < 10 | < 4 | < 8 | < 22 | < 3 | < 4 | < 39 | < 11 | < 24 |
| *Pig Weed (for Lettuce)* | 09/26/07 | < 11 | < 11 | < 29 | < 11 | < 26 | < 13 | < 21 | < 53 | < 10 | < 10 | < 98 | < 27 | < 71 |
| Swiss Chard (for Cabbage) | 09/26/07 | < 11 | < 13 | < 29 | < 12 | < 27 | < 12 | < 24 | < 57 | < 10 | < 10 | < 96 | < 30 | < 71 |
| Swiss Chard | 09/26/07 | < 10 | < 10 | < 28 | < 12 | < 27 | < 12 | < 21 | < 58 | < 9 | < 9 | < 98 | < 27 | < 78 |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE C-IX.1**

**CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | I-131 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-117 | 06/27/07 | < 10 | < 9 | < 25 | < 11 | < 26 | < 11 | < 17 | < 15 | < 9 | < 10 | < 42 | < 9 | < 71 |
| Cabbage | 06/27/07 | < 27 | < 26 | < 58 | < 25 | < 67 | < 28 | < 50 | < 44 | < 25 | < 33 | < 131 | < 36 | < 153 |
| Lettuce | 06/27/07 | < 11 | < 11 | < 28 | < 11 | < 27 | < 10 | < 20 | < 15 | < 9 | < 12 | < 51 | < 14 | < 63 |
| Swiss Chard | 07/25/07 | < 4 | < 4 | < 10 | < 4 | < 9 | < 4 | < 7 | < 18 | < 4 | < 4 | < 34 | < 9 | < 27 |
| Cabbage | 07/25/07 | < 6 | < 6 | < 15 | < 6 | < 14 | < 7 | < 11 | < 27 | < 5 | < 6 | < 51 | < 11 | < 43 |
| Lettuce | 07/25/07 | < 6 | < 7 | < 19 | < 7 | < 17 | < 7 | < 12 | < 26 | < 5 | < 6 | < 51 | < 13 | < 36 |
| Swiss Chard | 08/29/07 | < 10 | < 10 | < 28 | < 11 | < 24 | < 12 | < 19 | < 43 | < 8 | < 10 | < 84 | < 30 | < 61 |
| Cabbage | 08/29/07 | < 14 | < 15 | < 38 | < 15 | < 34 | < 16 | < 26 | < 58 | < 12 | < 13 | < 112 | < 30 | < 73 |
| Lettuce + Swiss Chard | 08/29/07 | < 12 | < 14 | < 35 | < 12 | < 33 | < 15 | < 24 | < 59 | < 10 | < 11 | < 123 | < 24 | < 71 |
| Swiss Chard | 09/26/07 | < 14 | < 13 | < 34 | < 12 | < 29 | < 14 | < 24 | < 55 | < 10 | < 13 | < 106 | < 25 | < 78 |
| Cabbage | 09/26/07 | < 9 | < 10 | < 23 | < 8 | < 19 | < 10 | < 16 | < 49 | < 8 | < 9 | < 81 | < 20 | < 56 |
| Lettuce | 09/26/07 | < 8 | < 8 | < 23 | < 7 | < 20 | < 9 | < 14 | < 38 | < 7 | < 7 | < 68 | < 19 | < 48 |
| Swiss Chard | | | | | | | | | | | | | | |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-IX.1**

**CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | MN-54 | CO-58 | FE-59 | CO-60 | ZN-65 | NB-95 | ZR-95 | I-131 | CS-134 | CS-137 | BA-140 | LA-140 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-118 | 06/27/07 | < 16 | < 21 | < 50 | < 22 | < 57 | < 25 | < 47 | < 35 | < 21 | < 23 | < 97 | < 21 | < 141 |
| Cabbage | | | | | | | | | | | | | | |
| | 06/27/07 | < 20 | < 21 | < 46 | < 23 | < 36 | < 24 | < 25 | < 25 | < 20 | < 23 | < 89 | < 27 | < 104 |
| Lettuce | | | | | | | | | | | | | | |
| | 06/27/07 | < 20 | < 19 | < 48 | < 22 | < 43 | < 22 | < 38 | < 32 | < 17 | < 23 | < 83 | < 24 | < 112 |
| Swiss Chard | | | | | | | | | | | | | | |
| | 07/25/07 | < 13 | < 12 | < 30 | < 11 | < 31 | < 14 | < 24 | < 55 | < 10 | < 13 | < 100 | < 29 | < 64 |
| Cabbage | | | | | | | | | | | | | | |
| | 07/25/07 | < 11 | < 11 | < 28 | < 10 | < 23 | < 12 | < 20 | < 53 | < 10 | < 12 | < 101 | < 27 | < 74 |
| Lettuce | | | | | | | | | | | | | | |
| | 07/25/07 | < 12 | < 12 | < 30 | < 11 | < 25 | < 12 | < 19 | < 48 | < 10 | < 10 | < 91 | < 26 | < 70 |
| Swiss Chard | | | | | | | | | | | | | | |
| | 08/29/07 | < 5 | < 6 | < 15 | < 5 | < 12 | < 6 | < 9 | < 27 | < 4 | < 5 | < 48 | < 16 | < 31 |
| Swiss Chard | | | | | | | | | | | | | | |
| | 08/29/07 | < 6 | < 7 | < 20 | < 7 | < 17 | < 8 | < 14 | < 33 | < 5 | < 7 | < 63 | < 19 | < 35 |
| Lettuce + Swiss Chard | | | | | | | | | | | | | | |
| | 08/29/07 | < 11 | < 12 | < 31 | < 11 | < 26 | < 12 | < 21 | < 40 | < 9 | < 11 | < 81 | < 22 | < 50 |
| Pig Weed + Cabbage | | | | | | | | | | | | | | |
| | 09/26/07 | < 10 | < 12 | < 29 | < 8 | < 25 | < 12 | < 23 | < 50 | < 10 | < 11 | < 88 | < 19 | < 65 |
| Cabbage | | | | | | | | | | | | | | |
| | 09/26/07 | < 11 | < 14 | < 34 | < 12 | < 30 | < 14 | < 22 | < 59 | < 10 | < 10 | < 98 | < 25 | < 80 |
| Swiss Chard | | | | | | | | | | | | | | |
| | 09/26/07 | < 11 | < 13 | < 29 | < 11 | < 27 | < 11 | < 23 | < 51 | < 10 | < 10 | < 98 | < 24 | < 68 |
| Swiss Chard subsitituted for lettuce | | | | | | | | | | | | | | |
| | MEAN | - | - | - | - | - | - | - | - | - | - | - | - | - |

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

**TABLE C-IX.2 CONCENTRATIONS OF GAMMA EMITTERS IN GRASS SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | 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 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-01 | 05/09/07 | 1780 ± 112 | 5850 ± 225 | < 9 | < 9 | < 23 | < 10 | < 22 | < 10 | < 17 | < 23 | < 8 | < 9 | < 54 | < 16 | < 57 |
| | 05/23/07 | 1480 ± 133 | 6040 ± 256 | < 9 | < 10 | < 27 | < 9 | < 25 | < 10 | < 19 | < 55 | < 9 | < 9 | < 91 | < 24 | < 62 |
| | 06/06/07 | 1370 ± 94 | 6380 ± 201 | < 7 | < 7 | < 19 | < 9 | < 18 | < 8 | < 14 | < 21 | < 6 | < 7 | < 49 | < 14 | < 42 |
| | 06/20/07 | 1290 ± 147 | 6000 ± 365 | < 14 | < 15 | < 34 | < 16 | < 30 | < 14 | < 30 | < 35 | < 12 | < 16 | < 82 | < 23 | < 80 |
| | 07/04/07 | 3990 ± 411 | 2660 ± 515 | < 19 | < 25 | < 51 | < 15 | < 58 | < 23 | < 43 | < 42 | < 22 | < 20 | < 82 | < 24 | < 178 |
| | 07/18/07 | 4560 ± 275 | 4540 ± 374 | < 16 | < 17 | < 37 | < 18 | < 37 | < 19 | < 31 | < 50 | < 17 | < 18 | < 112 | < 30 | < 110 |
| | 08/01/07 | 1300 ± 300 | 5310 ± 575 | < 28 | < 27 | < 60 | < 31 | < 61 | < 25 | < 37 | < 51 | < 23 | < 28 | < 129 | < 38 | < 156 |
| | 08/15/07 | 1040 ± 66 | 6570 ± 170 | < 9 | < 10 | < 26 | < 9 | < 23 | < 10 | < 18 | < 57 | < 9 | < 8 | < 96 | < 24 | < 51 |
| | 08/29/07 | 2950 ± 158 | 6670 ± 268 | < 11 | < 12 | < 31 | < 11 | < 26 | < 13 | < 21 | < 51 | < 10 | < 12 | < 98 | < 26 | < 75 |
| | 09/12/07 | 1810 ± 406 | 5070 ± 806 | < 33 | < 35 | < 90 | < 37 | < 77 | < 38 | < 65 | < 43 | < 35 | < 33 | < 138 | < 42 | < 186 |
| | 09/26/07 | 1900 ± 228 | 4340 ± 427 | < 18 | < 20 | < 45 | < 19 | < 40 | < 21 | < 34 | < 59 | < 17 | < 19 | < 121 | < 38 | < 124 |
| | 10/10/07 | 2520 ± 251 | 5470 ± 457 | < 18 | < 19 | < 45 | < 16 | < 38 | < 18 | < 31 | < 56 | < 14 | < 14 | < 124 | < 39 | < 108 |
| | 10/24/07 | 3650 ± 294 | 3730 ± 399 | < 15 | < 20 | < 43 | < 21 | < 43 | < 24 | < 33 | < 59 | < 15 | < 20 | < 115 | < 38 | < 132 |
| | MEAN | 2280 ± 2314 | 5279 ± 2381 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-02 | 05/09/07 | 1220 ± 102 | 6400 ± 242 | < 10 | < 11 | < 25 | < 10 | < 24 | < 11 | < 18 | < 27 | < 9 | < 10 | < 64 | < 18 | < 59 |
| | 05/23/07 | 1360 ± 107 | 7350 ± 229 | < 8 | < 9 | < 23 | < 9 | < 19 | < 8 | < 15 | < 49 | < 7 | < 8 | < 80 | < 19 | < 47 |
| | 06/06/07 | 1140 ± 65 | 5940 ± 165 | < 6 | < 6 | < 15 | < 6 | < 15 | < 6 | < 11 | < 18 | < 5 | < 6 | < 40 | < 11 | < 35 |
| | 06/20/07 | 5550 ± 328 | 5900 ± 522 | < 22 | < 21 | < 52 | < 22 | < 40 | < 19 | < 39 | < 45 | < 14 | < 18 | < 116 | < 36 | < 125 |
| | 07/04/07 | 3760 ± 342 | 4130 ± 586 | < 24 | < 23 | < 56 | < 21 | < 56 | < 23 | < 34 | < 42 | < 20 | < 25 | < 95 | < 31 | < 153 |
| | 07/18/07 | 5740 ± 141 | 5990 ± 203 | < 9 | < 9 | < 19 | < 8 | < 19 | < 9 | < 15 | < 24 | < 8 | < 8 | < 54 | < 14 | < 63 |
| | 08/01/07 | 2100 ± 263 | 7440 ± 614 | < 27 | < 31 | < 69 | < 30 | < 66 | < 35 | < 49 | < 49 | < 26 | < 29 | < 147 | < 44 | < 138 |
| | 08/15/07 | 1530 ± 89 | 6120 ± 175 | < 6 | < 7 | < 18 | < 6 | < 15 | < 7 | < 13 | < 51 | < 5 | < 6 | < 79 | < 21 | < 39 |
| | 08/29/07 | 4170 ± 157 | 6110 ± 228 | < 9 | < 10 | < 24 | < 9 | < 21 | < 11 | < 19 | < 47 | < 9 | < 9 | < 85 | < 24 | < 60 |
| | 09/12/07 | 2200 ± 373 | 6950 ± 811 | < 40 | < 35 | < 77 | < 35 | < 87 | < 37 | < 54 | < 39 | < 32 | < 34 | < 139 | < 45 | < 206 |
| | 09/26/07 | 2430 ± 150 | 5830 ± 284 | < 11 | < 11 | < 27 | < 14 | < 25 | < 13 | < 22 | < 36 | < 11 | < 13 | < 79 | < 23 | < 75 |
| | 10/10/07 | 2750 ± 354 | 7790 ± 783 | < 14 | < 14 | < 35 | < 16 | < 33 | < 16 | < 26 | < 60 | < 15 | < 17 | < 127 | < 27 | < 118 |
| | 10/24/07 | 4820 ± 158 | 5820 ± 240 | < 12 | < 12 | < 29 | < 13 | < 29 | < 12 | < 22 | < 37 | < 11 | < 12 | < 78 | < 26 | < 61 |
| | MEAN | 2982 ± 3295 | 6290 ± 1886 | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE C-IX.2 CONCENTRATIONS OF GAMMA EMITTERS IN GRASS SAMPLES COLLECTED IN THE VICINITY OF CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

| STC | COLLECTION PERIOD | 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 | CE-144 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CL-08 | 05/09/07 | 570 ± 167 | 5770 ± 506 | < 19 | < 20 | < 48 | < 25 | < 47 | < 21 | < 39 | < 57 | < 17 | < 20 | < 129 | < 36 | < 114 |
| | 05/23/07 | 774 ± 81 | 8910 ± 198 | < 6 | < 7 | < 20 | < 7 | < 16 | < 7 | < 13 | < 42 | < 6 | < 6 | < 69 | < 19 | < 41 |
| | 06/06/07 | 527 ± 79 | 10200 ± 252 | < 8 | < 8 | < 21 | < 8 | < 20 | < 9 | < 15 | < 22 | < 7 | < 8 | < 52 | < 14 | < 45 |
| | 06/20/07 | 938 ± 179 | 8020 ± 454 | < 18 | < 20 | < 46 | < 20 | < 46 | < 21 | < 34 | < 52 | < 18 | < 19 | < 125 | < 36 | < 110 |
| | 07/04/07 | 2190 ± 339 | 6220 ± 637 | < 25 | < 26 | < 63 | < 31 | < 58 | < 32 | < 57 | < 48 | < 25 | < 28 | < 134 | < 37 | < 175 |
| | 07/18/07 | 2850 ± 136 | 9270 ± 277 | < 10 | < 10 | < 26 | < 11 | < 24 | < 11 | < 18 | < 26 | < 8 | < 10 | < 65 | < 15 | < 63 |
| | 08/01/07 | 4340 ± 280 | 12800 ± 556 | < 28 | < 28 | < 55 | < 25 | < 58 | < 30 | < 46 | < 53 | < 27 | < 28 | < 146 | < 39 | < 196 |
| | 08/15/07 | 1380 ± 85 | 11100 ± 220 | < 7 | < 7 | < 20 | < 7 | < 17 | < 8 | < 14 | < 52 | < 6 | < 6 | < 79 | < 19 | < 38 |
| | 08/29/07 | 3280 ± 163 | 8210 ± 277 | < 10 | < 11 | < 27 | < 10 | < 23 | < 12 | < 18 | < 48 | < 9 | < 10 | < 88 | < 22 | < 63 |
| | 09/12/07 | 3970 ± 539 | 6090 ± 888 | < 38 | < 36 | < 72 | < 31 | < 87 | < 45 | < 74 | < 57 | < 39 | < 34 | < 168 | < 37 | < 238 |
| | 09/26/07 | 2470 ± 112 | 5620 ± 208 | < 9 | < 9 | < 21 | < 9 | < 21 | < 10 | < 16 | < 26 | < 8 | < 8 | < 60 | < 16 | < 62 |
| | 10/10/07 | 4830 ± 398 | 5530 ± 511 | < 15 | < 16 | < 50 | < 19 | < 40 | < 19 | < 28 | < 60 | < 14 | < 16 | < 131 | < 25 | < 106 |
| | 10/24/07 | 7550 ± 183 | 5230 ± 204 | < 10 | < 11 | < 23 | < 10 | < 23 | < 11 | < 19 | < 36 | < 9 | < 10 | < 73 | < 19 | < 62 |
| | MEAN | 2744 ± 4116 | 7921 ± 4869 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CL-116 | 05/09/07 | 1150 ± 178 | 5820 ± 429 | < 17 | < 20 | < 47 | < 20 | < 42 | < 15 | < 33 | < 46 | < 14 | < 17 | < 106 | < 35 | < 87 |
| | 05/23/07 | 505 ± 76 | 7250 ± 207 | < 7 | < 8 | < 21 | < 7 | < 19 | < 9 | < 15 | < 55 | < 7 | < 7 | < 85 | < 22 | < 52 |
| | 06/06/07 | 1320 ± 79 | 6470 ± 183 | < 7 | < 7 | < 16 | < 7 | < 16 | < 8 | < 13 | < 21 | < 6 | < 7 | < 47 | < 12 | < 44 |
| | 06/20/07 | 1010 ± 127 | 6090 ± 359 | < 13 | < 14 | < 32 | < 15 | < 33 | < 14 | < 23 | < 37 | < 11 | < 13 | < 74 | < 24 | < 76 |
| | 07/04/07 | 2190 ± 305 | 4710 ± 561 | < 21 | < 22 | < 58 | < 21 | < 53 | < 20 | < 34 | < 34 | < 21 | < 22 | < 99 | < 25 | < 151 |
| | 07/18/07 | 2420 ± 137 | 7160 ± 275 | < 12 | < 12 | < 28 | < 11 | < 27 | < 13 | < 22 | < 31 | < 11 | < 12 | < 74 | < 21 | < 72 |
| | 08/01/07 | 2010 ± 351 | 7170 ± 628 | < 27 | < 25 | < 61 | < 27 | < 61 | < 26 | < 47 | < 55 | < 24 | < 27 | < 145 | < 29 | < 172 |
| | 08/15/07 | 1220 ± 75 | 5890 ± 158 | < 6 | < 6 | < 16 | < 5 | < 13 | < 6 | < 11 | < 33 | < 5 | < 5 | < 59 | < 13 | < 35 |
| | 08/29/07 | 2650 ± 131 | 7440 ± 261 | < 9 | < 11 | < 25 | < 9 | < 21 | < 12 | < 19 | < 45 | < 9 | < 9 | < 83 | < 20 | < 63 |
| | 09/12/07 | 1680 ± 363 | 8220 ± 1070 | < 39 | < 38 | < 103 | < 40 | < 94 | < 35 | < 70 | < 47 | < 34 | < 50 | < 194 | < 51 | < 212 |
| | 09/26/07 | 2520 ± 118 | 6700 ± 222 | < 8 | < 9 | < 20 | < 9 | < 20 | < 10 | < 16 | < 26 | < 8 | < 8 | < 60 | < 14 | < 54 |
| | 10/10/07 | 2090 ± 199 | 6560 ± 333 | < 12 | < 13 | < 35 | < 13 | < 31 | < 16 | < 25 | < 60 | < 11 | < 13 | < 116 | < 32 | < 89 |
| | 10/24/07 | 3190 ± 251 | 6180 ± 419 | < 19 | < 19 | < 48 | < 21 | < 42 | < 22 | < 35 | < 60 | < 17 | < 19 | < 131 | < 40 | < 119 |
| | MEAN | 1843 ± 1540 | 6589 ± 1783 | - | - | - | - | - | - | - | - | - | - | - | - | - |

## TABLE C-X.1 QUARTERLY TLD RESULTS FOR CLINTON POWER STATION, 2007

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER ± 2 STANDARD DEVIATIONS

| STATION CODE | MEAN ± 2 S.D. | 12/28/06 - 03/29/07 | 03/29/07 - 06/28/07 | 06/28/07 - 09/27/07 | 09/27/07 - 12/27/07 |
|---|---|---|---|---|---|
| CL-01 | 20.4 ± 0.5 | 20.1 ± 1.0 | 20.3 ± 4.8 | 20.5 ± 1.9 | 20.7 ± 1.7 |
| CL-02 | 21.8 ± 3.4 | 20.4 ± 1.5 | 20.3 ± 2.4 | 22.9 ± 1.2 | 23.6 ± 1.4 |
| CL-03 | 21.1 ± 1.6 | 21.3 ± 0.9 | 19.9 ± 1.4 | 21.6 ± 0.8 | 21.6 ± 1.2 |
| CL-04 | 21.0 ± 1.5 | 20.8 ± 1.0 | 20.0 ± 2.2 | 21.3 ± 2.2 | 21.8 ± 1.0 |
| CL-05 | 21.9 ± 3.4 | 22.2 ± 1.8 | 19.6 ± 1.3 | 22.2 ± 1.6 | 23.7 ± 1.7 |
| CL-06 | 19.0 ± 3.0 | 19.5 ± 2.0 | 16.9 ± 1.5 | 19.2 ± 0.9 | 20.5 ± 1.5 |
| CL-07 | 20.3 ± 2.2 | 20.0 ± 1.2 | 18.9 ± 1.3 | 20.7 ± 0.7 | 21.5 ± 1.3 |
| CL-08 | 20.4 ± 1.7 | 20.2 ± 1.3 | 19.4 ± 2.2 | 20.6 ± 1.3 | 21.5 ± 1.3 |
| CL-11 | 19.9 ± 2.3 | 20.6 ± 1.0 | 18.2 ± 1.8 | 20.0 ± 2.1 | 20.7 ± 3.4 |
| CL-15 | 19.1 ± 3.2 | 20.2 ± 1.3 | 16.8 ± 1.7 | 20.2 ± 2.1 | 19.0 ± 1.3 |
| CL-22 | 21.0 ± 4.2 | 19.0 ± 0.6 | 19.4 ± 1.2 | 22.9 ± 2.3 | 22.8 ± 2.1 |
| CL-23 | 21.0 ± 2.7 | 19.9 ± 1.3 | 19.7 ± 2.0 | 22.1 ± 2.5 | 22.1 ± 1.5 |
| CL-24 | 21.8 ± 4.7 | 21.5 ± 3.3 | 18.7 ± 1.4 | 24.0 ± 1.8 | 23.1 ± 0.7 |
| CL-33 | 21.4 ± 3.0 | 20.9 ± 1.7 | 19.6 ± 1.5 | 22.1 ± 1.7 | 23.1 ± 1.9 |
| CL-34 | 21.8 ± 3.1 | 21.0 ± 1.5 | 20.0 ± 1.7 | 22.9 ± 1.8 | 23.2 ± 2.4 |
| CL-35 | 20.7 ± 3.0 | 20.6 ± 1.8 | 18.9 ± 1.3 | 20.7 ± 1.5 | 22.6 ± 0.7 |
| CL-36 | 21.1 ± 3.2 | 20.2 ± 2.7 | 19.7 ± 3.7 | 21.1 ± 1.1 | 23.3 ± 2.7 |
| CL-37 | 20.9 ± 1.5 | 21.2 ± 1.8 | 19.8 ± 1.9 | 21.4 ± 1.6 | 21.3 ± 2.0 |
| CL-41 | 21.9 ± 3.7 | 21.5 ± 3.4 | 19.5 ± 1.9 | 23.5 ± 2.2 | 23.2 ± 1.9 |
| CL-42 | 21.1 ± 2.7 | 20.2 ± 1.3 | 19.7 ± 2.5 | 22.1 ± 2.3 | 22.4 ± 1.1 |
| CL-43 | 21.9 ± 3.0 | 21.5 ± 1.2 | 19.9 ± 1.0 | 23.0 ± 2.2 | 23.0 ± 1.1 |
| CL-44 | 21.9 ± 2.0 | 21.8 ± 0.8 | 20.6 ± 3.7 | 22.0 ± 1.3 | 23.1 ± 1.8 |
| CL-45 | 21.9 ± 1.8 | 21.6 ± 2.8 | 20.7 ± 1.7 | 22.3 ± 1.5 | 22.8 ± 1.8 |
| CL-46 | 19.3 ± 1.9 | 19.2 ± 0.7 | 18.1 ± 1.8 | 20.4 ± 1.5 | 19.5 ± 0.6 |
| CL-47 | 21.5 ± 3.4 | 20.6 ± 0.7 | 19.8 ± 1.5 | 22.0 ± 2.7 | 23.7 ± 1.2 |
| CL-48 | 20.6 ± 2.2 | 20.0 ± 1.8 | 19.3 ± 1.1 | 21.3 ± 1.4 | 21.6 ± 1.4 |
| CL-49 | 21.8 ± 2.5 | 20.9 ± 2.2 | 20.5 ± 1.9 | 22.9 ± 1.4 | 22.7 ± 0.8 |
| CL-51 | 22.1 ± 3.2 | 22.0 ± 1.4 | 20.0 ± 0.3 | 23.9 ± 1.5 | 22.5 ± 1.7 |
| CL-52 | 21.5 ± 2.5 | 21.7 ± 2.2 | 19.8 ± 1.9 | 22.8 ± 2.3 | 21.8 ± 0.8 |
| CL-53 | 20.6 ± 2.7 | 19.9 ± 2.8 | 19.2 ± 1.1 | 21.1 ± 2.0 | 22.3 ± 3.2 |
| CL-54 | 20.9 ± 2.2 | 20.0 ± 1.1 | 19.9 ± 1.2 | 22.1 ± 1.0 | 21.4 ± 1.4 |
| CL-55 | 21.6 ± 2.6 | 21.2 ± 1.0 | 19.9 ± 1.6 | 22.7 ± 1.0 | 22.4 ± 2.4 |
| CL-56 | 21.9 ± 2.8 | 20.7 ± 1.5 | 20.7 ± 1.1 | 23.2 ± 1.3 | 23.1 ± 1.6 |
| CL-57 | 21.7 ± 3.6 | 19.9 ± 1.0 | 20.8 ± 0.9 | 24.1 ± 1.3 | 22.0 ± 2.2 |
| CL-58 | 21.2 ± 3.2 | 20.2 ± 1.1 | 19.4 ± 1.4 | 22.6 ± 2.0 | 22.4 ± 1.2 |
| CL-60 | 21.1 ± 3.4 | 20.3 ± 0.7 | 19.1 ± 0.8 | 22.9 ± 2.3 | 22.1 ± 2.5 |
| CL-61 | 20.9 ± 2.9 | 19.6 ± 1.4 | 19.7 ± 1.8 | 21.8 ± 2.6 | 22.5 ± 2.3 |
| CL-63 | 19.2 ± 2.7 | 19.4 ± 2.3 | 17.4 ± 0.8 | 19.4 ± 1.6 | 20.7 ± 1.2 |
| CL-64 | 22.0 ± 3.1 | 21.4 ± 1.6 | 20.4 ± 1.6 | 22.1 ± 3.5 | 24.1 ± 4.3 |
| CL-65 | 22.0 ± 2.7 | 21.3 ± 0.8 | 20.4 ± 1.7 | 22.7 ± 1.3 | 23.4 ± 2.0 |
| CL-74 | 19.3 ± 2.9 | 19.2 ± 1.7 | 17.4 ± 1.3 | 19.9 ± 1.7 | 20.8 ± 1.4 |
| CL-75 | 21.1 ± 2.8 | 20.4 ± 1.2 | 19.5 ± 1.6 | 22.3 ± 0.9 | 22.2 ± 1.2 |
| CL-76 | 20.9 ± 2.1 | 20.2 ± 1.3 | 19.9 ± 1.8 | 22.2 ± 1.7 | 21.4 ± 0.9 |
| CL-77 | 20.2 ± 2.7 | 19.6 ± 2.1 | 18.5 ± 0.6 | 21.4 ± 1.8 | 21.1 ± 1.5 |
| CL-78 | 21.4 ± 2.2 | 21.0 ± 1.4 | 20.1 ± 1.8 | 21.9 ± 1.8 | 22.7 ± 1.8 |
| CL-79 | 20.8 ± 2.3 | 20.3 ± 1.0 | 19.4 ± 1.2 | 21.2 ± 1.8 | 22.1 ± 1.4 |
| CL-80 | 21.2 ± 3.6 | 19.9 ± 0.7 | 19.3 ± 1.4 | 22.9 ± 1.5 | 22.5 ± 2.5 |
| CL-81 | 21.1 ± 4.3 | 20.2 ± 2.0 | 18.5 ± 1.3 | 23.3 ± 3.4 | 22.2 ± 1.1 |
| CL-84 | 20.8 ± 2.0 | 20.1 ± 0.9 | 19.7 ± 0.7 | 21.6 ± 1.7 | 21.6 ± 2.1 |
| CL-90 | 18.8 ± 4.2 | 18.8 ± 1.1 | 15.9 ± 1.2 | 20.7 ± 1.4 | 19.9 ± 1.8 |
| CL-91 | 20.5 ± 2.9 | 19.8 ± 0.7 | 18.8 ± 3.0 | 21.2 ± 1.5 | 22.0 ± 0.9 |
| CL-97 | 22.0 ± 2.9 | 22.1 ± 0.6 | 19.9 ± 0.8 | 23.2 ± 1.2 | 22.7 ± 2.4 |
| CL-99 | 18.1 ± 2.1 | 18.3 ± 1.7 | 16.6 ± 1.2 | 18.8 ± 1.2 | 18.8 ± 1.8 |
| CL-114 | 19.9 ± 2.1 | 19.4 ± 1.6 | 18.6 ± 1.4 | 20.9 ± 1.5 | 20.6 ± 1.5 |

**TABLE C-X.2** **MEAN QUARTLY TLD RESULTS FOR THE INNER RING, OUTER RING, SPECIAL INTEREST, SUPPLEMENTAL AND CONTROL LOCATIONS FOR CLINTON POWER STATION, 2007**

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

| COLLECTION PERIOD | INNER RING ± 2 S.D. | OUTER RING ± 2 S.D. | SPECIAL INTEREST ± 2 S.D. | SUPPLEMENTAL ± 2 S.D. | CONTROL ± 2 S.D. |
|---|---|---|---|---|---|
| JAN-MAR | 20.6 ± 1.9 | 20.4 ± 1.4 | 20.8 ± 1.6 | 20.1 ± 2.0 | 20.6 ± 1.0 |
| APR-JUN | 19.5 ± 1.7 | 19.6 ± 1.3 | 19.6 ± 2.2 | 18.7 ± 3.0 | 18.2 ± 1.8 |
| JUL-SEP | 21.8 ± 2.4 | 22.5 ± 1.8 | 22.1 ± 2.4 | 21.1 ± 2.5 | 20.0 ± 2.1 |
| OCT-DEC | 22.4 ± 2.4 | 22.2 ± 1.0 | 22.5 ± 2.4 | 21.3 ± 2.8 | 20.7 ± 3.4 |

**TABLE C-X.3** **SUMMARY OF THE AMBIENT DOSIMETRY PROGRAM FOR CLINTON POWER STATION, 2007**

RESULTS IN UNITS OF MILLI-ROENTGEN/QUARTER

| LOCATION | SAMPLES ANALYZED | PERIOD MINIMUM | PERIOD MAXIMUM | PERIOD MEAN ± 2 S.D. | PRE-OP MEAN, ± 2 S.D., ALL LOCATIONS |
|---|---|---|---|---|---|
| INNER RING | 64 | 17.4 | 24.0 | 21.1 ± 3.1 | |
| OUTER RING | 64 | 18.5 | 24.1 | 21.2 ± 2.8 | 18 ± 2.4 |
| SPECIAL INTEREST | 28 | 17.4 | 24.1 | 21.3 ± 3.1 | |
| SUPPLEMENTAL | 56 | 15.9 | 23.6 | 20.3 ± 3.3 | |
| CONTROL | 4 | 18.2 | 20.7 | 19.9 ± 2.3 | |

INNER RING STATIONS - CL-01,CL-05,CL-22,CL-23,CL-24,CL-34,CL-35,CL-36,CL-42, CL-43,CL-44,CL-45,CL-46,CL-47,CL-48,CL-63

OUTER RING STATIONS - CL-51,CL-52,CL-53,CL-54,CL-55,CL-56,CL-57,CL-58,CL-60, CL-61,CL-76,CL-77,CL-78,CL-79,CL-80,CL-81

SPECIAL INTEREST STATIONS - CL-37,CL-41,CL-49,CL-64,CL-65,CL-74,CL-75

SUPPLEMENTAL STATIONS - CL-02,CL-03,CL-04,CL-06,CL-07,CL-08,CL-114,CL-15,CL-33, CL-84,CL-90,CL-91,CL-97,CL-99

CONTROL STATIONS - CL-11

**FIGURE C-1**
**MEAN MONTHLY GROSS BETA CONCENTRATION IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF CPS, 2007**

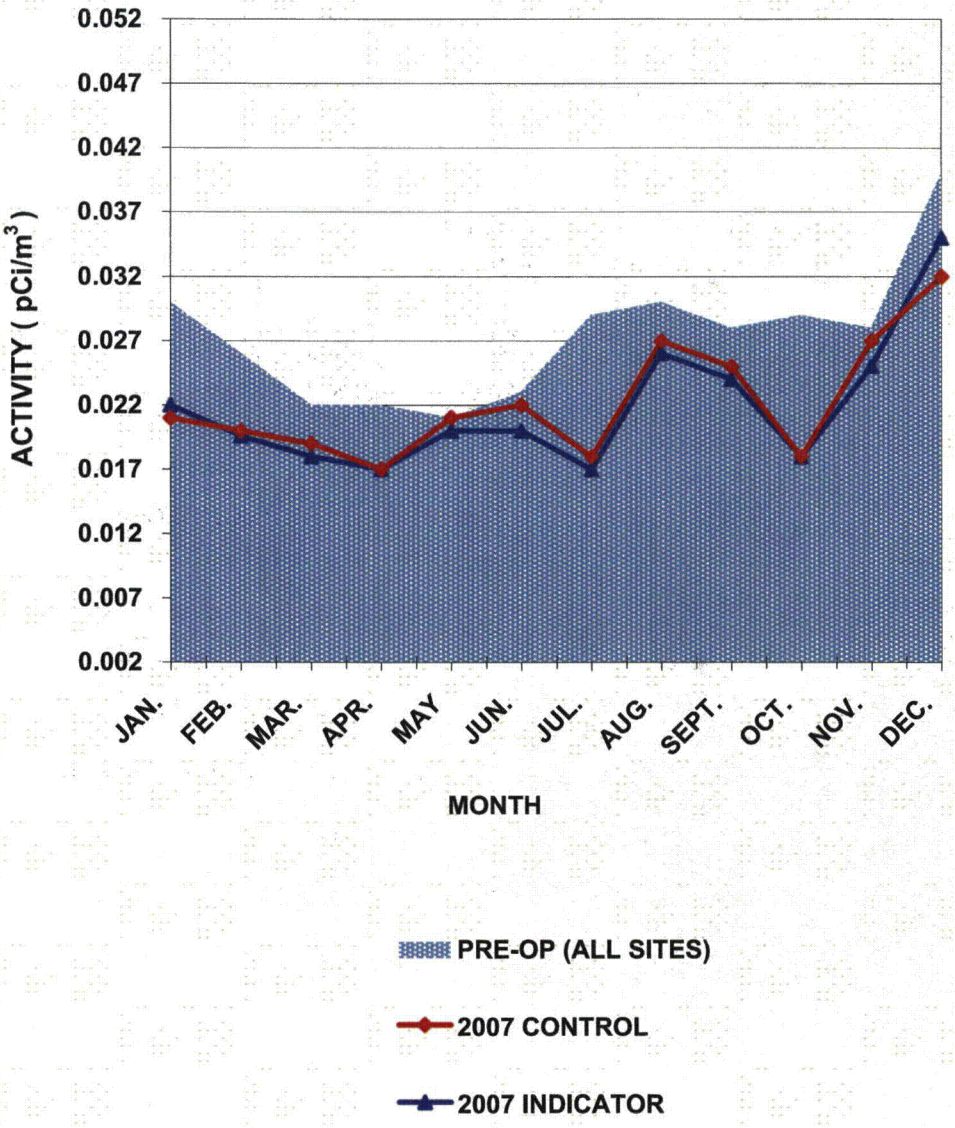
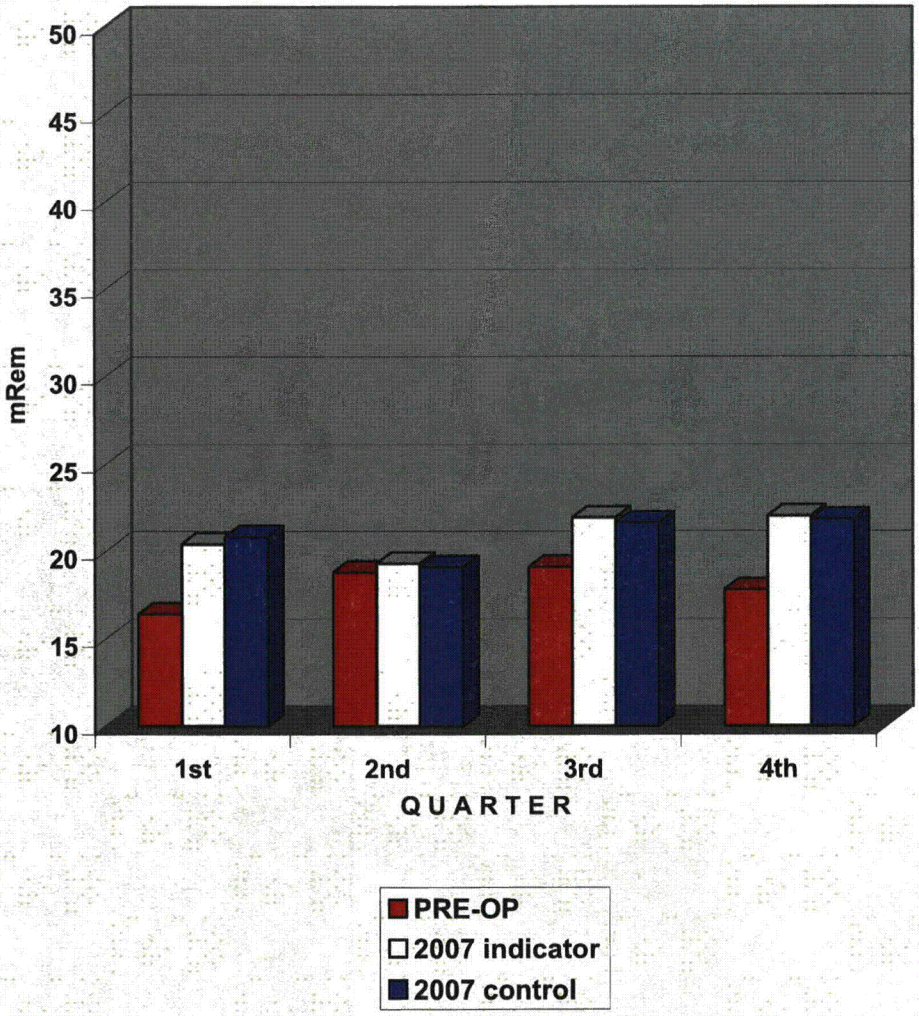


FIGURE C-2
MEAN QUARTERLY AMBIENT GAMMA RADIATION LEVELS (TLD) IN THE VICINITY OF CPS, 2007



# APPENDIX D

# INTER-LABORATORY COMPARISON PROGRAM

**TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
**TELEDYNE BROWN ENGINEERING, 2007**
**(PAGE 1 OF 3)**

| Month/Year | Identification Number | Matrix | Nuclide | Units | Reported Value (a) | Known Value (b) | Ratio (c) TBE/Analytics | Evaluation (d) |
|---|---|---|---|---|---|---|---|---|
| March 2007 | E5255-396 | Milk | Sr-89 | pCi/L | 125 | 137 | 0.91 | A |
| | | | Sr-90 | pCi/L | 10.8 | 10 | 1.08 | A |
| | E5256-396 | Milk | I-131 | pCi/L | 107 | 85.2 | 1.26 | W |
| | | | Ce-141 | pCi/L | 269 | 297 | 0.91 | A |
| | | | Cr-51 | pCi/L | 244 | 245 | 1.00 | A |
| | | | Cs-134 | pCi/L | 98.1 | 112 | 0.88 | A |
| | | | Cs-137 | pCi/L | 227 | 234 | 0.97 | A |
| | | | Co-58 | pCi/L | 92.5 | 98.8 | 0.94 | A |
| | | | Mn-54 | pCi/L | 182.0 | 182 | 1.00 | A |
| | | | Fe-59 | pCi/L | 108.0 | 106 | 1.02 | A |
| | | | Zn-65 | pCi/L | 985 | 1000 | 0.99 | A |
| | | | Co-60 | pCi/L | 143 | 152 | 0.94 | A |
| | E5258-396 | AP | Ce-141 | pCi | 252 | 245 | 1.03 | A |
| | | | Cr-51 | pCi | 204 | 202 | 1.01 | A |
| | | | Cs-134 | pCi | 74.9 | 92.3 | 0.81 | A |
| | | | Cs-137 | pCi | 190.0 | 197.0 | 0.96 | A |
| | | | Co-58 | pCi | 79.7 | 81.6 | 0.98 | A |
| | | | Mn-54 | pCi | 156 | 151 | 1.03 | A |
| | | | Fe-59 | pCi | 99.1 | 87.2 | 1.14 | A |
| | | | Zn-65 | pCi | 894 | 826 | 1.08 | A |
| | | | Co-60 | pCi | 122 | 126 | 0.97 | A |
| | E5257-396 | Charcoal | I-131 | pCi | 34.7 | 71.3 | 0.49 | N (1) |
| June 2007 | E5384-396 | Milk | Sr-89 | pCi/L | 98.3 | 95.2 | 1.03 | A |
| | | | Sr-90 | pCi/L | 16.1 | 12.9 | 1.25 | W |
| | E5385-396 | Milk | I-131 | pCi/L | 71.0 | 70.1 | 1.01 | A |
| | | | Ce-141 | pCi/L | 176 | 200 | 0.88 | A |
| | | | Cr-51 | pCi/L | 459 | 512 | 0.90 | A |
| | | | Cs-134 | pCi/L | 197 | 242 | 0.81 | A |
| | | | Cs-137 | pCi/L | 158 | 169 | 0.93 | A |
| | | | Co-58 | pCi/L | 180 | 198 | 0.91 | A |
| | | | Mn-54 | pCi/L | 163 | 166 | 0.98 | A |
| | | | Fe-59 | pCi/L | 158 | 167 | 0.95 | A |
| | | | Zn-65 | pCi/L | 318 | 334 | 0.95 | A |
| | | | Co-60 | pCi/L | 212 | 238 | 0.89 | A |
| | E5387-396 | AP | Ce-141 | pCi | 87.5 | 105 | 0.83 | A |
| | | | Cr-51 | pCi | 232 | 268 | 0.87 | A |
| | | | Cs-134 | pCi | 101 | 127 | 0.80 | A |
| | | | Cs-137 | pCi | 78.9 | 88.5 | 0.89 | A |
| | | | Co-58 | pCi | 91.8 | 104.0 | 0.88 | A |
| | | | Mn-54 | pCi | 85.6 | 87 | 0.99 | A |
| | | | Fe-59 | pCi | 89.8 | 87.3 | 1.03 | A |
| | | | Zn-65 | pCi | 178 | 175 | 1.02 | A |
| | | | Co-60 | pCi | 111 | 125 | 0.89 | A |
| | E5386-396 | Charcoal | I-131 | pCi | 79.3 | 79.1 | 1.00 | A |

**TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
**TELEDYNE BROWN ENGINEERING, 2007**
**(PAGE 2 OF 3)**

| Month/Year | Identification Number | Matrix | Nuclide | Units | Reported Value (a) | Known Value (b) | Ratio (c) TBE/Analytics | Evaluation (d) |
|---|---|---|---|---|---|---|---|---|
| September 2007 | E5492-396 | Milk | Sr-89 | pCi/L | 99.0 | 94.9 | 1.04 | A |
| | | | Sr-90 | pCi/L | 13.9 | 13.1 | 1.06 | A |
| | E5493-396 | Milk | I-131 | pCi/L | 81.9 | 85.2 | 0.96 | A |
| | | | Ce-141 | pCi/L | 200 | 211 | 0.95 | A |
| | | | Cr-51 | pCi/L | 271 | 289 | 0.94 | A |
| | | | Cs-134 | pCi/L | 131 | 147 | 0.89 | A |
| | | | Cs-137 | pCi/L | 131 | 131 | 1.00 | A |
| | | | Co-58 | pCi/L | 114 | 114 | 1.00 | A |
| | | | Mn-54 | pCi/L | 171 | 168 | 1.02 | A |
| | | | Fe-59 | pCi/L | 117 | 111 | 1.05 | A |
| | | | Zn-65 | pCi/L | 212 | 202 | 1.05 | A |
| | | | Co-60 | pCi/L | 143 | 148 | 0.97 | A |
| | E5495-396 | AP | Ce-141 | pCi | 128 | 136 | 0.94 | A |
| | | | Cr-51 | pCi | 181 | 186 | 0.97 | A |
| | | | Cs-134 | pCi | 85.9 | 94.7 | 0.91 | A |
| | | | Cs-137 | pCi | 83.2 | 83.9 | 0.99 | A |
| | | | Co-58 | pCi | 69.4 | 73.3 | 0.95 | A |
| | | | Mn-54 | pCi | 112 | 108 | 1.04 | A |
| | | | Fe-59 | pCi | 79.6 | 71.1 | 1.12 | A |
| | | | Zn-65 | pCi | 159 | 130 | 1.22 | W |
| | | | Co-60 | pCi | 92.0 | 95.2 | 0.97 | A |
| | E5494-396 | Charcoal | I-131 | pCi | 70.8 | 69.5 | 1.02 | A |
| December 2007 | E5749-396 | Milk | Sr-89 | pCi/L | 87.6 | 93.7 | 0.93 | A |
| | | | Sr-90 | pCi/L | 15.5 | 15.2 | 1.02 | A |
| | E5750-396 | Milk | I-131 | pCi/L | 60.6 | 60.8 | 1.00 | A |
| | | | Ce-141 | pCi/L | 137 | 141 | 0.97 | A |
| | | | Cr-51 | pCi/L | 497 | 512 | 0.97 | A |
| | | | Cs-134 | pCi/L | 117 | 137 | 0.85 | A |
| | | | Cs-137 | pCi/L | 166 | 166 | 1.00 | A |
| | | | Co-58 | pCi/L | 159 | 174 | 0.91 | A |
| | | | Mn-54 | pCi/L | 190 | 190 | 1.00 | A |
| | | | Fe-59 | pCi/L | 149 | 148 | 1.01 | A |
| | | | Zn-65 | pCi/L | 231 | 234 | 0.99 | A |
| | | | Co-60 | pCi/L | 198 | 211 | 0.94 | A |
| | E5752-396 | AP | Ce-141 | pCi | 88.6 | 93.4 | 0.95 | A |
| | | | Cr-51 | pCi | 352 | 340 | 1.04 | A |
| | | | Cs-134 | pCi | 84.6 | 91.2 | 0.93 | A |
| | | | Cs-137 | pCi | 111 | 110.0 | 1.01 | A |
| | | | Co-58 | pCi | 114 | 116.0 | 0.98 | A |
| | | | Mn-54 | pCi | 135 | 126 | 1.07 | A |
| | | | Fe-59 | pCi | 119 | 98.5 | 1.21 | W |
| | | | Zn-65 | pCi | 172 | 155 | 1.11 | A |
| | | | Co-60 | pCi | 137 | 141 | 0.97 | A |

**TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
**TELEDYNE BROWN ENGINEERING, 2007**
**(PAGE 3 OF 3)**

| Month/Year | Identification Number | Matrix | Nuclide | Units | Reported Value (a) | Known Value (b) | Ratio (c) TBE/Analytics | Evaluation (d) |
|---|---|---|---|---|---|---|---|---|
| December 2007 | E5751-396 | Charcoal | I-131 | pCi | 65.8 | 74.1 | 0.89 | A |

*(1) New technician counted charcoal cartridge on the back rather than the face, resulting in low activity. If the charcoal cartridge had been counted on the face, the ratio would have been approximately 1.07, which is acceptable. NCR 07-02*

*(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 D-2** **ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM**
**TELEDYNE BROWN ENGINEERING, 2007**



| Month/Year | Identification Number | Media | Nuclide | Units | Reported Value (a) | Known Value (b) | Control Limits | Evaluation (c) |
|---|---|---|---|---|---|---|---|---|
| July 2007 | Rad 70 | Water | Sr-89 | pCi/L | 58.6 | 58.2 | 49.5 - 66.9 | A |
| | | | Sr-90 | pCi/L | 18.7 | 19.0 | 10.3 - 27.7 | A |
| | | | Ba-133 | pCi/L | 18.6 | 19.4 | 10.7 - 28.1 | A |
| | | | Cs-134 | pCi/L | 57.6 | 68.9 | 60.2 - 77.6 | N (1) |
| | | | Cs-137 | pCi/L | 55.4 | 61.3 | 52.6 - 70.0 | A |
| | | | Co-60 | pCi/L | 31.3 | 33.5 | 24.8 - 42.2 | A |
| | | | Zn-65 | pCi/L | 49.0 | 54.6 | 45.2 - 64.0 | A |
| | | | Gr-A | pCi/L | 26.8 | 27.1 | 15.4 - 38.8 | A |
| | | | Gr-B | pCi/L | 12 | 11.5 | 2.84 - 20.2 | A |
| | | | I-131 | pCi/L | 31.1 | 26.5 | 21.3 - 31.7 | A |
| | | | H-3 | pCi/L | 1700 | 1770 | 1180 - 2360 | A |
| October 2007 | RAD 71 | Water | Sr-89 | pCi/L | 27.07 | 27.4 | 19.3 - 33.9 | A |
| | | | Sr-90 | pCi/L | 17.40 | 18.2 | 12.9 - 21.6 | A |
| | | | Ba-133 | pCi/L | 12.57 | 12.6 | 8.64 - 15.5 | A |
| | | | Cs-134 | pCi/L | 63.33 | 71.1 | 58.0 - 78.2 | A |
| | | | Cs-137 | pCi/L | 168 | 180 | 162 - 200 | A |
| | | | Co-60 | pCi/L | 21.93 | 23.2 | 19.9 - 28.3 | A |
| | | | Zn-65 | pCi/L | 245.33 | 251 | 226 - 294 | A |
| | | | Gr-A | pCi/L | 55.60 | 58.6 | 30.6 - 72.9 | A |
| | | | Gr-B | pCi/L | 15.23 | 9.73 | 4.26 - 18.2 | A |
| | | | I-131 | pCi/L | 27.43 | 28.9 | 24.0 - 33.8 | A |
| | | | H-3 | pCi/L | 9263.3 | 9700 | 8430 - 10700 | A |

*(1) The Cs-134 TBE found/ERA known ratio is 83.6%, which TBE considers acceptable. NCR 07-07*

*(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. N=not acceptable. Reported result falls outside of the Control Limits. CE=check for Error. Reported result falls within the Control Limits and outside of the Warning Limit.*

**TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)**
**TELEDYNE BROWN ENGINEERING, 2007**
**(PAGE 1 OF 1)**

| Month/Year | Identification Number | Media | Nuclide | Units | Reported Value (a) | Known Value (b) | Acceptance Range | Evaluation (c) |
|---|---|---|---|---|---|---|---|---|
| February 2007 | 07-MaW17 | Water | Cs-134 | Bq/L | 74.5 | 83.5 | 58.5 - 108.6 | A |
| | | | Cs-137 | Bq/L | 162 | 163.0 | 114-1 - 211.9 | A |
| | | | Co-57 | Bq/L | 140 | 143.7 | 100.6 - 186.8 | A |
| | | | Co-60 | Bq/L | 27.9 | 26.9 | 18.8 - 35.0 | A |
| | | | H-3 | Bq/L | 346 | 283.0 | 198.1 - 367.9 | W |
| | | | Mn-54 | Bq/L | 125 | 123.8 | 86.7 - 160.9 | A |
| | | | Sr-90 | Bq/L | 8.90 | 8.87 | 6.21- 11.53 | A |
| | | | Zn-65 | Bq/L | 117 | 114.8 | 80.4 - 149.2 | A |
| | 07-GrW17 | Water | Gr-A | Bq/L | 0.502 | 0.327 | >0.0 - 0.654 | A |
| | | | Gr-B | Bq/L | 0.975 | 0.851 | 0.426 - 1.277 | A |
| | 07-MaS17 | Soil | Cs-134 | Bq/kg | 322 | 327.4 | 229.2 - 425.6 | A |
| | | | Cs-137 | Bq/kg | 893 | 799.7 | 559.8 - 1039.6 | A |
| | | | Co-57 | Bq/kg | 508.3 | 471.2 | 329.8 - 612.6 | A |
| | | | Co-60 | Bq/kg | 300.3 | 274.7 | 192.3 - 357.1 | A |
| | | | Mn-54 | Bq/kg | 779 | 685.2 | 479.6 - 890.8 | A |
| | | | K-40 | Bq/kg | 682 | 602 | 421 - 783 | A |
| | | | Sr-90 | Bq/kg | 293 | 319.0 | 223.3 - 414.7 | A |
| | | | Zn-65 | Bq/kg | 618.7 | 536.8 | 375.8 - 697.8 | A |
| | 07-RdF17 | AP | Cs-134 | Bq/sample | 3.230 | 1.4960 | 2.9372 - 5.4548 | W |
| | | | Cs-137 | Bq/sample | 2.453 | 2.5693 | 1.7985 - 3.3401 | A |
| | | | Co-57 | Bq/sample | 3.067 | 2.8876 | 2.0213 - 3.7539 | A |
| | | | Co-60 | Bq/sample | 2.767 | 2.9054 | 2.0338 - 3.7770 | A |
| | | | Mn-54 | Bq/sample | 3.557 | 3.5185 | 2.4630 - 4.5741 | A |
| | | | Sr-90 | Bq/sample | 0.584 | 0.6074 | 0.4252 - 0.7896 | A |
| | | | Zn-65 | Bq/sample | 2.463 | 2.6828 | 1.8780 - 3.4876 | A |
| | 07-GrF17 | AP | Gr-A | Bq/sample | 0.353 | 0.601 | >0.0 - 1.202 | A |
| | | | Gr-B | Bq/sample | 0.500 | 0.441 | 0.221 - 0.662 | A |
| February 2007 | 07-RdV17 | Vegetation | Cs-134 | Bq/sample | 6.207 | 6.2101 | 4.3471 - 8.0731 | A |
| | | | Cs-137 | Bq/sample | 7.80 | 6.9949 | 4.8964 - 9.0934 | A |
| | | | Co-57 | Bq/sample | 8.64 | 8.1878 | 5.7315 - 10.6441 | A |
| | | | Co-60 | Bq/sample | 6.10 | 5.8215 | 4.0751 - 7.5680 | A |
| | | | Mn-54 | Bq/sample | 9.41 | 8.4492 | 5.9144 - 10.9840 | A |
| | | | K-40 | Bq/sample | 63.5 | Not evaluated by MAPEP | | |
| | | | Sr-90 | Bq/sample | 1.51 | 1.5351 | 1.0746 - 1.9956 | A |
| | | | Zn-65 | Bq/sample | 7.15 | 5.6991 | 3.9894 - 7.4088 | W |

*(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 D-4 ERA[a] STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2007**



| Lab Code * | Date | Analysis | Concentration (pCi/L) Laboratory Result[b] | ERA Result[c] | Control Limits | Acceptance |
|---|---|---|---|---|---|---|
| STAP-1116 | 03/19/07 | Gr. Alpha | 34.64 ± 2.56 | 25.8 | 12.4 - 39 | Pass |
| STAP-1116 | 03/19/07 | Gr. Beta | 93.41 ± 3.20 | 79.5 | 48.8 - 116 | Pass |
| STAP-1117 | 03/19/07 | Co-60 | 1610.00 ± 8.40 | 1300.0 | 1010.0 - 1620 | Pass |
| STAP-1117 | 03/19/07 | Cs-134 | 1340.40 ± 48.84 | 1120.0 | 732.0 - 1380 | Pass |
| STAP-1117 [e] | 03/19/07 | Cs-137 | 345.30 ± 8.20 | 255.0 | 192.0 - 336 | Fail |
| STAP-1117 [f] | 03/19/07 | Mn-54 | < 5.0 | 0.0 | | Pass |
| STAP-1117 | 03/19/07 | Sr-90 | 156.10 ± 6.60 | 156.0 | 66.6 - 246 | Pass |
| STAP-1117 | 03/19/07 | Zn-65 | 363.80 ± 11.90 | 245.0 | 208.0 - 412 | Pass |
| STSO-1118 | 03/19/07 | Ac-228 | 3097.77 ± 94.96 | 2790.0 | 1790.0 - 3930 | Pass |
| STSO-1118 | 03/19/07 | Bi-212 | 2467.87 ± 114.33 | 2500.0 | 658.0 - 3730 | Pass |
| STSO-1118 | 03/19/07 | Co-60 | 7847.40 ± 86.60 | 7330.0 | 5340.0 - 9820 | Pass |
| STSO-1118 | 03/19/07 | Cs-134 | 7910.60 ± 356.88 | 7560.0 | 4850.0 - 9070 | Pass |
| STSO-1118 | 03/19/07 | Cs-137 | 4635.00 ± 99.10 | 4300.0 | 3290.0 - 5580 | Pass |
| STSO-1118 | 03/19/07 | K-40 | 12201.60 ± 423.20 | 11100.0 | 8050.0 - 15000 | Pass |
| STSO-1118 [f] | 03/19/07 | Mn-54 | < 34.0 | 0.0 | | Pass |
| STSO-1118 | 03/19/07 | Pb-212 | 2046.80 ± 127.20 | 1730.0 | 1120.0 - 2430 | Pass |
| STSO-1118 | 03/19/07 | Pb-214 | 4142.80 ± 110.40 | 3330.0 | 1980.0 - 4980 | Pass |
| STSO-1118 | 03/19/07 | Sr-90 | 6163.30 ± 791.60 | 7500.0 | 2610.0 - 12400 | Pass |
| STSO-1118 | 03/19/07 | Th-234 | 4329.40 ± 569.10 | 3590.0 | 2190.0 - 4560 | Pass |
| STSO-1118 [f] | 03/19/07 | Zn-65 | 0.00 ± 0.00 | 0.0 | 0.0 - 0 | Pass |
| STVE-1119 | 03/19/07 | Co-60 | 2827.90 ± 62.40 | 2600.0 | 1760.0 - 3720 | Pass |
| STVE-1119 | 03/19/07 | Cs-134 | 654.80 ± 48.40 | 579.0 | 308.0 - 822 | Pass |
| STVE-1119 | 03/19/07 | Cs-137 | 3307.30 ± 58.80 | 2920.0 | 2150.0 - 4060 | Pass |
| STVE-1119 | 03/19/07 | K-40 | 40814.20 ± 618.80 | 37900.0 | 27200.0 - 53600 | Pass |
| STVE-1119 [f] | 03/19/07 | Mn-54 | < 27.6 | 0.0 | | Pass |
| STVE-1119 | 03/19/07 | Sr-90 | 8999.70 ± 580.90 | 8890.0 | 4900.0 - 11800 | Pass |
| STVE-1119 | 03/19/07 | Zn-65 | 474.30 ± 45.70 | 366.0 | 267.0 - 500 | Pass |
| STW-1120 | 03/19/07 | Co-60 | 541.40 ± 9.00 | 536.0 | 467.0 - 631 | Pass |
| STW-1120 | 03/19/07 | Cs-134 | 1623.80 ± 66.10 | 1750.0 | 1290.0 - 2020 | Pass |
| STW-1120 | 03/19/07 | Cs-137 | 1839.10 ± 17.90 | 1850.0 | 1570.0 - 2220 | Pass |
| STW-1120 [f] | 03/19/07 | Mn-54 | < 8.1 | 0.0 | | Pass |
| STW-1120 | 03/19/07 | Sr-90 | 949.40 ± 16.70 | 989.0 | 630.0 - 1320 | Pass |
| STW-1120 | 03/19/07 | Zn-65 | 2009.00 ± 36.40 | 1910.0 | 1600.0 - 2410 | Pass |
| STW-1121 | 04/09/07 | Sr-89 | 30.7 ± 4.3 | 35.4 | 26.7 - 44.1 | Pass |
| STW-1121 | 04/09/07 | Sr-90 | 39.3 ± 1.8 | 42.1 | 33.4 - 50.8 | Pass |

**TABLE D-4** **ERA[a] STATISTICAL SUMMARY PROFICIENCY TESTING PROGRAM ENVIRONMENTAL, INC., 2007**



| Lab Code * | Date | Analysis | Concentration (pCi/L) Laboratory Result[b] | ERA Result[c] | Control Limits | Acceptance |
|---|---|---|---|---|---|---|
| STW-1122 | 04/09/07 | Ba-133 | 30.0 ± 2.4 | 29.3 | 20.6 - 38.0 | Pass |
| STW-1122 | 04/09/07 | Co-60 | 118.5 ± 3.9 | 119.0 | 109.0 - 129.0 | Pass |
| STW-1122 | 04/09/07 | Cs-134 | 52.6 ± 2.3 | 54.3 | 45.6 - 63.0 | Pass |
| STW-1122 | 04/09/07 | Cs-137 | 49.5 ± 3.8 | 50.3 | 41.6 - 59.0 | Pass |
| STW-1122 | 04/09/07 | Zn-65 | 91.7 ± 6.3 | 88.6 | 73.3 - 104.0 | Pass |
| STW-1123 | 04/09/07 | Gr. Alpha | 33.8 ± 3.5 | 56.5 | 32.0 - 81.0 | Pass |
| STW-1123 | 04/09/07 | Gr. Beta | 24.2 ± 2.3 | 25.3 | 16.6 - 34.0 | Pass |
| STW-1124 | 04/09/07 | I-131 | 19.2 ± 1.2 | 18.9 | 13.7 - 24.1 | Pass |
| STW-1125 | 04/09/07 | H-3 | 7540.0 ± 255.0 | 8060.0 | 6660.0 - 9450.0 | Pass |
| STW-1127 | 07/09/07 | Sr-89 | 51.7 ± 5.0 | 58.2 | 49.5 - 66.9 | Pass |
| STW-1127 | 07/09/07 | Sr-90 | 21.4 ± 2.3 | 19.0 | 10.3 - 27.7 | Pass |
| STW-1128 | 07/09/07 | Ba-133 | 19.4 ± 2.2 | 19.4 | 10.7 - 28.1 | Pass |
| STW-1128 | 07/09/07 | Co-60 | 32.8 ± 2.0 | 33.5 | 24.8 - 42.2 | Pass |
| STW-1128 | 07/09/07 | Cs-134 | 67.0 ± 2.9 | 68.9 | 60.2 - 77.6 | Pass |
| STW-1128 | 07/09/07 | Cs-137 | 61.6 ± 3.8 | 61.3 | 52.6 - 70.0 | Pass |
| STW-1128 | 07/09/07 | Zn-65 | 55.6 ± 7.5 | 54.6 | 45.2 - 64.0 | Pass |
| STW-1129 | 07/09/07 | Gr. Alpha | 19.2 ± 1.6 | 27.1 | 15.4 - 38.8 | Pass |
| STW-1129 | 07/09/07 | Gr. Beta | 9.1 ± 0.9 | 11.5 | 2.8 - 20.2 | Pass |
| STW-1131 | 10/05/07 | Sr-89 | 27.3 ± 3.3 | 27.4 | 19.3 - 33.9 | Pass |
| STW-1131 | 10/05/07 | Sr-90 | 17.7 ± 1.2 | 18.2 | 12.9 - 21.6 | Pass |
| STW-1132 | 10/05/07 | Ba-133 | 12.2 ± 3.3 | 12.6 | 8.6 - 15.5 | Pass |
| STW-1132 | 10/05/07 | Co-60 | 23.8 ± 1.4 | 23.2 | 19.9 - 28.3 | Pass |
| STW-1132 | 10/05/07 | Cs-134 | 70.5 ± 4.2 | 71.1 | 58.0 - 78.2 | Pass |
| STW-1132 | 10/05/07 | Cs-137 | 178.2 ± 3.3 | 180.0 | 162.0 - 200.0 | Pass |
| STW-1132 | 10/05/07 | Zn-65 | 263.9 ± 6.9 | 251.0 | 226.0 - 294.0 | Pass |
| STW-1133 | 10/05/07 | Gr. Alpha | 54.7 ± 2.1 | 58.6 | 30.6 - 72.9 | Pass |
| STW-1133 | 10/05/07 | Gr. Beta | 11.9 ± 0.9 | 9.7 | 4.3 - 18.2 | Pass |
| STW-1134 | 10/05/07 | I-131 | 33.0 ± 1.5 | 28.9 | 24.0 - 33.8 | Pass |
| STW-1135 | 10/05/07 | H-3 | 9965.0 ± 250.0 | 9700.0 | 8430.0 - 10700.0 | Pass |

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

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurements Laboratory Quality Assessment Program (EML).

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

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

[e] A high bias (~ 20%) was observed in gamma results for air filters. A composite filter geometry was used in the calculations vs. a single filter geometry. Result of recalculation. Cs-137, 305.8 ± 6.0 pCi/filter.

[f] Included in the testing series as a "false positive". No activity expected.

## TABLE D-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)[a] ENVIRONMENTAL, INC., 2007



| | | Concentration[b] | | | | |
|---|---|---|---|---|---|---|
| Lab Code[c] | Date | Analysis | Laboratory result | Known Activity | Control Limits[d] | Acceptance |
| STW-1110 | 01/01/07 | Gr. Alpha | 0.45 ± 0.08 | 0.33 | 0.00 - 0.65 | Pass |
| STW-1110 | 01/01/07 | Gr. Beta | 0.90 ± 0.14 | 0.85 | 0.43 - 1.28 | Pass |
| STW-1111 | 01/01/07 | Co-57 | 151.60 ± 10.00 | 143.70 | 100.60 - 186.80 | Pass |
| STW-1111 | 01/01/07 | Cs-134 | 79.20 ± 8.00 | 83.50 | 58.50 - 108.60 | Pass |
| STW-1111 | 01/01/07 | Cs-137 | 168.70 ± 12.10 | 163.00 | 114.10 - 211.90 | Pass |
| STW-1111 | 01/01/07 | H-3 | 262.20 ± 9.10 | 283.00 | 198.10 - 367.90 | Pass |
| STW-1111 | 01/01/07 | Mn-54 | 130.60 ± 11.50 | 123.80 | 86.70 - 160.90 | Pass |
| STW-1111 | 01/01/07 | Sr-90 | 9.60 ± 1.40 | 8.87 | 6.21 - 11.53 | Pass |
| STW-1111 | 01/01/07 | Zn-65 | 123.70 ± 17.00 | 114.80 | 80.40 - 149.20 | Pass |
| STSO-1112 | 01/01/07 | Co-57 | 501.20 ± 2.90 | 471.20 | 329.80 - 612.60 | Pass |
| STSO-1112 | 01/01/07 | Co-60 | 285.90 ± 2.10 | 274.70 | 192.30 - 357.10 | Pass |
| STSO-1112 | 01/01/07 | Cs-134 | 325.90 ± 7.40 | 327.40 | 229.20 - 425.60 | Pass |
| STSO-1112 | 01/01/07 | Cs-137 | 855.70 ± 4.60 | 799.70 | 559.80 - 1039.60 | Pass |
| STSO-1112 | 01/01/07 | Mn-54 | 750.90 ± 4.70 | 685.20 | 479.60 - 890.80 | Pass |
| STAP-1113 | 01/01/07 | Gr. Alpha | 0.27 ± 0.04 | 0.60 | 0.00 - 1.20 | Pass |
| STAP-1113 | 01/01/07 | Gr. Beta | 0.57 ± 0.05 | 0.44 | 0.22 - 0.66 | Pass |
| STAP-1114 | 01/01/07 | Co-57 | 3.51 ± 0.07 | 2.89 | 2.02 - 3.75 | Pass |
| STAP-1114 | 01/01/07 | Co-60 | 2.98 ± 0.10 | 2.91 | 2.03 - 3.78 | Pass |
| STAP-1114 | 01/01/07 | Cs-134 | 4.02 ± 0.16 | 4.20 | 2.94 - 5.45 | Pass |
| STAP-1114 | 01/01/07 | Cs-137 | 2.75 ± 0.12 | 2.57 | 1.80 - 3.34 | Pass |
| STAP-1114 | 01/01/07 | Mn-54 | 3.94 ± 0.12 | 3.52 | 2.46 - 4.57 | Pass |
| STAP-1114 | 01/01/07 | Sr-90 | 0.58 ± 0.18 | 0.61 | 0.43 - 0.79 | Pass |
| STAP-1114 | 01/01/07 | Zn-65 | 2.70 ± 0.10 | 2.68 | 1.88 - 3.49 | Pass |
| STVE-1115 | 01/01/07 | Co-57 | 8.90 ± 0.20 | 8.19 | 5.73 - 10.64 | Pass |
| STVE-1115 | 01/01/07 | Co-60 | 6.50 ± 0.20 | 5.82 | 4.08 - 7.57 | Pass |
| STVE-1115 | 01/01/07 | Cs-134 | 6.90 ± 0.30 | 6.21 | 4.35 - 8.07 | Pass |
| STVE-1115 | 01/01/07 | Cs-137 | 8.20 ± 0.30 | 6.99 | 4.90 - 9.09 | Pass |
| STVE-1115 | 01/01/07 | Mn-54 | 10.10 ± 0.30 | 8.46 | 5.91 - 10.98 | Pass |

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

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

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

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

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# APPENDIX E

# ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

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