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BRAIDWOOD STATION
UNITS 1 and 2

Annual Radiological
Environmental Operating Report

1 January through 31 December 2014

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Appendices

I. Summary and Conclusions

This report on the Radiological Environmental Monitoring Program (REMP) conducted for Exelon's Braidwood Station covers the period January 1, 2014 through December 31, 2014. During that time period 1,574 analyses were performed on 1,347 samples. In assessing all the data gathered for this report and comparing these results with preoperational data, it was concluded that the operation of Braidwood Station had no adverse radiological impact on the environment.

Surface, public, and ground/well water samples were analyzed for concentrations of tritium and gamma emitting nuclides. Surface water and public water samples were also analyzed for concentrations of gross beta. Gross beta and tritium activities detected were consistent with those detected in previous years. No fission or activation products were detected. As part of an effort to implement industry best practices, both gaseous and liquid station effluents were evaluated for all 10CFR61 required nuclides. Nuclides exceeding 1% relative abundance in the waste stream were added to the list of nuclides that Teledyne Brown evaluates in potentially impacted REMP matrices. For Braidwood Station, Ni-63 exceeds 1% relative abundance in the radwaste resins. Occasionally, Ni-63 is observed in liquid release tank quarterly composites, therefore, beginning in the fall of 2013 the station requested that Ni-63 be evaluated in the downstream surface water, sediment, and fish analyses. Ni-63 has not been observed in downstream surface water.

Fish (commercially and/or recreationally important species) and sediment samples were analyzed for concentrations of gamma emitting nuclides. No fission or activation products were detected in fish. Nickel-63 was not detected in any fish or sediment samples analyzed. Two sediment samples had Cs-137. The concentration was consistent with levels observed during the preoperational years. No plant produced fission or activation products were found in sediment.

Air particulate samples were analyzed for concentrations of gross beta and gamma emitting nuclides**.** No fission or activation products were detected.

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

Cow milk samples were analyzed for concentrations of I-131 and gamma emitting nuclides. Iodine-131 was not detected in any milk samples. Concentrations of naturally occurring K-40 were detected. No fission or activation products were found and all required LLDs (Lower Limit of Detection) were met.

Food Product samples were analyzed for concentrations of gamma emitting nuclides. No plant produced fission or activation products were detected.

Environmental gamma radiation measurements were performed quarterly using

Optically Stimulated Luminescence Dosimeters (OSLD). Beginning in 2012, Exelon changed the type of dosimetry used for the Radiological Environmental Monitoring Program (REMP). Optically Stimulated Luminescent Dosimetry were deployed and Thermo-luminescent Dosimetry (TLD) were discontinued. This change may result in a step change in readings, up or down, depending on site characteristics. The relative comparison to control locations remains valid. OSLD technology is different than that used in a TLD but has the same purpose (to measure direct radiation).

II. Introduction

The Braidwood Station, consisting of two 3,587 MWt pressurized water reactors owned and operated by Exelon Corporation is located in Will County, Illinois. Unit No. 1 went critical on May 29, 1987. Unit No. 2 went critical on March 08, 1988. The site is located in northeastern Illinois, 15 miles south-southwest of Joliet, Illinois, 60 miles southwest of Chicago and southwest of the Kankakee River.

This report covers those analyses performed by Teledyne Brown Engineering (TBE), Landauer Technologies and Environmental Inc. (Midwest Labs) on samples collected during the period January 1, 2014 through December 31, 2014.

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

Samples for the Braidwood Station REMP were collected for Exelon Nuclear by Environmental Inc. (Midwest Labs). This section describes the

general collection methods used by Environmental Inc. (Midwest Labs) to obtain environmental samples for the Braidwood Station REMP in 2014. Sample locations and descriptions can be found in Table B–1 and Figures B–1 through B–3, Appendix B. The sampling methods used by Environmental Inc. are listed in Table B-2.

Aquatic Environment

The aquatic environment was evaluated by performing radiological analyses on samples of surface water, public water, well water, fish, and sediment. Two gallon water samples were collected weekly from six surface water locations (BD-10, BD-25 [control], BD-38, BD-40, BD-55 and BD-56), and one weekly composite samples of public drinking water at location (BD-22) and ground/well water samples collected quarterly from eight locations (BD-13, BD-34, BD-35, BD-36, BD-37, BD-50, BD-51 and BD-54). All samples were collected in new unused plastic bottles, which were rinsed with source water prior to collection. Fish samples comprising the flesh of largemouth bass, golden redhorse, shorthead redhorse, smallmouth bass, and common carp were collected semiannually at three locations, BD-25 (control), BD-28 and BD-41. Sediment samples composed of recently deposited substrate were collected at three locations semiannually, BD-10, BD-25 (control), and BD-57.

Atmospheric Environment

The atmospheric environment was evaluated by performing radiological analyses on samples of air particulate and airborne iodine. Air particulate samples were collected and analyzed weekly at eight locations (BD-02, BD-03, BD-04, BD-05, BD-06, BD-19, BD-20 and BD-21). The control location was BD-03. 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 air filters and air iodine samples were replaced weekly and sent to the laboratory for analysis.

Terrestrial Environment

The terrestrial environment was evaluated by performing radiological analyses on milk and food product samples. Milk samples were collected biweekly at one location (BD-17) from May through October and monthly from November through April. Control location (BD-18) was unavailable, due to cows being sold. All samples were collected in new unused two gallon plastic bottles from the bulk tank at each location, preserved with

sodium bisulfite and shipped promptly to the laboratory. Food products were collected annually in September at five locations (BD-Control, BD-Quad 1, BD-Quad 2, BD-Quad 3 and BD-Quad 4). The control location was BD-Control. Various types of samples were collected and placed in new unused plastic bags and sent to the laboratory for analysis.

Ambient Gamma Radiation

Beginning in 2012, Exelon changed the type of dosimetry used for the Radiological Environmental Monitoring Program (REMP). Optically Stimulated Luminescent Dosimeters (OSLD) were deployed and the use of Thermoluminescent Dosimeters (TLD) was discontinued. This change may result in a step change in readings, up or down, depending on site characteristics. The relative comparison to control locations remains valid. OSLD technology is different than that used in a TLD but has the same purpose (to measure direct radiation).

Each location consisted of 2 OSLDs. The OSLDs were exchanged quarterly and sent to Landauer for analysis. The OSLDs were placed at locations on and around the Braidwood Station site as follows:

An inner ring consisting of 16 locations (BD-101, BD-102, BD-103, BD-104, BD-105, BD-106, BD-107, BD-108, BD-109, BD-110, BD-111a, BD-112, BD-113a, BD-114, BD-115 and BD-116) at or near the site boundary.

An outer ring consisting of 16 locations (BD-201, BD-202, BD-203, BD-204, BD-205, BD-206, BD-207, BD-208, BD-209, BD-210, BD-211, BD-212, BD-213, BD-214, BD-215 and BD-216) extending to approximately 5 miles from the site.

An additional (other) set consisting of seven locations (BD-02, BD-04, BD-05, BD-06, BD-19, BD-20 and BD-21).

The balance of one location (BD-03) represents the control area.

The specific OSLD 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 Braidwood Station, if any, would be most significant.

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 Braidwood Station REMP in 2014. 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 public and surface water and air particulates.

2. Concentrations of gamma emitters in public, ground/well and surface water, air particulates, milk, fish, sediment and food products.

3. Concentrations of tritium in public, ground/well and surface water.

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

5. Concentrations of Ni-63 in surface water, fish and sediment.

6. Ambient gamma radiation levels at various site environs.

C. Data Interpretation

The radiological and direct radiation data collected prior to Braidwood Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, Braidwood Station was considered operational at initial criticality. In addition, data was 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

Braidwood Station detection capabilities for environmental sample analysis.

The MDC is the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal. The MDC is an *a postori* determination.

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

For public water, sediment, air particulate, milk and vegetation 11 nuclides, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Nb-95, Zr-95, Cs-134, Cs-137, Ba-140 and La-140 were reported.

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

D. Program Exceptions

For 2014 the Braidwood Station REMP had a sample recovery rate in excess of 98.2%. Sample anomalies and missed samples are listed in the tables below:

Table D-1 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
OSLD	BD-205-2, BD-216-2	01/02/14	Fourth quarter 2013 OSLDs found missing during quarterly exchange; collector placed new 1st quarter 2014 OSLDs.
WW	BD-54	01/09/14	No sample; water shut off; house appears empty. Collector will attempt to obtain samples during quarterly collection period.
A/I	BD-02	03/13/14	No apparent reason for low reading of 161.9 hours.
OSLD	BD-104-1, BD-206-1, BD-208-1		OSLDs missing in field; collector placed new 2nd quarter OSLDs.
A/I	BD-04	05/15/14	No apparent reason for the low reading of 149.6 hours.
A/I	BD-03	06/26/14	Low reading of 139.4 hours possibly due to power outages from storms.
A/I	BD-21	06/26/14	Low reading due to pump malfunction; pump replaced. Insufficient volume for valid sample.
OSLD	BD-06-2	06/26/14	OSLD disappeared during shipment from Braidwood to Landauer, Inc. dosimeter was confirmed to be collected at the field location and shipped out, but was not received at Landauer.
OSLD	BD-114-2, BD-103-1	06/26/14	OSLDs missing in field. Collector placed new 3rd quarter OSLDs.
A/I	BD-02	07/03/14	Low reading of 151.9 hours possibly due to power outages from storms.
A/I	BD-04	07/10/14	No apparent reason for the low reading of 145.7 hours.

Table D-1 LISTING OF SAMPLE ANOMALIES (continued)

Sample Type	Location Code	Collection Date	Reason
WW	BD-54	07/10/14	No sample; water shut off; house appears empty. Collector will attempt to obtain sample during quarterly collection period. Note: Sample collected 09/04/14.
A/I	BD-03	07/17/14	Low reading of 58.8 hours due to pump malfunction; Flowrate estimated at 60 CFM.
A/I	BD-03	11/26/14	Low reading of 142.0 hours possibly due to placement of new utility pole.

Table D-2 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Collection Date	Reason
SW	BD-55, BD-56	01/02/14	No sample; water frozen.
M	BD-18	01/02/14	No sample for entire year; farmer sold cows.
SW	BD-55, BD-56	01/09/14	No sample; water frozen.
SW	BD-55, BD-56	01/16/14	No sample; water frozen.
SW	BD-38, BD-55, BD-56	01/23/14	No sample; water frozen.
SW	BD-25, BD-38, BD-55, BD-56	01/30/14	No sample; water frozen.
SW	BD-25, BD-38, BD-55, BD-56	02/06/14	No sample; water frozen.
SW	BD-25, BD-38, BD-55, BD-56	02/13/14	No sample; water frozen.
SW	BD-38, BD-55, BD-56	02/19/14	No sample; water frozen.

Table D-2 LISTING OF MISSED SAMPLES (continued)

Sample Type	Location Code	Collection Date	Reason
SW	BD-38, BD-55, BD-56	02/27/14	No sample; water frozen.
SW	BD-38, BD-55, BD-56	03/06/14	No sample; water frozen.
WW	BD-54	01/09/14	No sample; house empty; water off.
SW	BD-55, BD-56	03/13/14	No sample; water frozen.
A/I	BD-03	07/24/14	Pump not running due to circuit breaker malfunction. Collector placed new pump; will check sampler for possible rewiring.
SW	BD-38, BD-55, BD-56	12/31/14	No sample; water frozen.

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

There were no program changes in 2014.

IV. Results and Discussion

A. Aquatic Environment

1. Surface Water

Samples were taken weekly and composited monthly at six locations (BD-10, BD-25 (control), BD-38, BD-40, BD-55 and BD-

56). Of these locations, only BD-10 could be affected by Braidwood Station's effluent releases as it is downstream of the NPDES permitted outfall. The following analyses were performed.

Gross Beta

Samples from all locations were analyzed for concentrations of gross beta (Table C–I.1, Appendix C). Gross beta was detected in 66 of 69 samples. The values ranged from 2.4 to 13.9 pCi/L. Concentrations detected were consistent with those detected in previous years (Figures C–1 through C-3, Appendix C).

Tritium

Quarterly composites of weekly collections were analyzed for tritium activity (Table C–I.2, Appendix C). Tritium activity was detected in two samples. The values ranged from 221 to 241 pCi/l (Figures C–4 through C-6, Appendix C).

Nickel-63

Monthly samples were analyzed for Nickel-63 activity (Table C–I.3, Appendix C). Nickel-63 was not detected and the required LLD was met.

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–I.4, Appendix C). No nuclides were detected and all required LLDs were met.

2. Public Water

Monthly composites of weekly samples were made at one location (BD-22). This location could be affected by Braidwood Station's effluent releases. The following analyses were performed:

Gross Beta

Samples from the location were analyzed for concentrations of gross beta (Tables C–II.1, Appendix C). Gross beta was detected in 11 of 12 samples. The values ranged from 2.7 to 4.5 pCi/L. Concentrations detected were consistent with those detected in previous years (Figure C–7, Appendix C).
Tritium

Monthly composites of weekly samples from BD-22 were analyzed for tritium activity (Table C–II.2, Appendix C). Tritium was detected in 11 of 12 samples. The concentration ranged from 223 to 1,410 pCi/L. Concentrations detected were consistent with those detected in previous years (Figure C–8, Appendix C).

Iodine

Monthly composites of weekly samples from the location were analyzed for I-131 (Table C-II.3, Appendix C). Iodine was not detected in any samples and the required LLD was met.

Gamma Spectrometry

Samples from the location were analyzed for gamma emitting nuclides (Table C–II.4, Appendix C). No nuclides were detected and all required LLDs were met.

3. Ground/Well Water

Quarterly samples were collected at eight locations (BD-13, BD-34, BD-35, BD-36, BD-37, BD-50, BD-51and BD-54). The following analyses were performed:

Tritium

Quarterly grab samples from the locations were analyzed for tritium activity (Table C–III.1, Appendix C). Tritium was not detected in any sample and the required LLD was met. (Figures C–9 through C–13, Appendix C).

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 largemouth bass, golden redhorse, shorthead redhorse, smallmouth bass, and common carp were collected at three locations (BD-25, BD-28, and BD-41) semiannually. Location BD-28 could be affected by Braidwood Station's effluent releases. The following analysis was performed:

Gamma Spectrometry

The edible portion of fish samples from all three locations was analyzed for gamma emitting nuclides (Table C–IV.1, Appendix C). No fission or activation products were found. No nuclides were detected and all required LLDs were met.

5. Sediment

Aquatic sediment samples were collected at three locations (BD-10, BD-25, and BD-57) semiannually. The locations at the Braidwood Station outfall to the Kanakakee River and downstream of the outfall, could be affected by Braidwood Station's effluent releases. The following analysis was performed:

Gamma Spectrometry

Sediment samples from the location were analyzed for gamma emitting nuclides (Table C–V.1, Appendix C). Concentrations of the fission product Cs-137 were found at locations BD-10 and BD-57. The concentration ranged from 104 to 162 pCi/kg dry. The activity detected was consistent with those detected in previous years (29 pCi/kg to 260 pCi/kg from 1995 to 2006). No other Braidwood fission or activation products were found and all required LLDs were met.

B. Atmospheric Environment

1. Airborne

a. Air Particulates

Continuous air particulate samples were collected from eight locations on a weekly basis. The eight locations were separated into three groups: Near field samplers (BD-06, BD-19, BD-20 and BD-21), far field samplers within 10 km of the site (BD-02, BD-04 and BD-05) and the Control sampler between 10 and 30 km from the site (BD-03). The following analyses were performed:

Gross Beta

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

Detectable gross beta activity was observed at all locations. Comparison of results among the three groups aid in determining the effects, if any, resulting from the operation of Braidwood Station. The results from the near field (Group I) ranged from 8 E-03 to 32 E-02 pCi/m^3 with a mean of 18 E-02 pCi/m^3. The results from the far field (Group II) ranged from 8 E-03 to 33 E-02 pCi/m^3 with a mean of 18 E-02 pCi/m^3. The results from the Control location (Group III) ranged from 8 E-03 to 49 E-02 pCi/m^3 with a mean of 19 E-02 pCi/m^3. Comparison of the 2014 air particulate data with previous years data indicate no effects from the operation of Braidwood Station. In addition a comparison of the weekly mean values for 2014 indicate no notable differences among the three groups (Figures C–14 through C-18, Appendix C).

Gamma Spectrometry

Weekly samples were composited quarterly and analyzed for gamma emitting nuclides (Table C–VI.3, Appendix C). No nuclides were detected and all required LLDs were met.

b. Airborne Iodine

Continuous air samples were collected from eight locations (BD-02, BD-03, BD-04, BD-05, BD-06, BD-19, BD-20 and BD-21) and analyzed weekly for I-131 (Table C–VII.1, Appendix C). All results were less than the minimum detectable concentration for I-131.

C. Terrestrial Environment

1. Milk

Samples were collected from one location (BD-17) and are typically collected from the control location (BD-18). Sampling frequencies were increased to biweekly in May and continued through October and monthly sampling was performed November through April. The following analyses were performed:

Iodine-131

Milk samples from the indicator location were analyzed for concentrations of I-131 (Table C–VIII.1, Appendix C).

Iodine-131 was not detected in any samples. All required LLDs were met.

Gamma Spectrometry

Each milk sample was analyzed for concentrations of gamma emitting nuclides (Table C–VIII.2, Appendix C). No nuclides were detected and all required LLDs were met.

2. Food Products

Food product samples were collected at five locations (BD-Control, BD-Quad 1, BD-Quad 2, BD-Quad 3 and BD-Quad 4) when available. Four locations, (located downwind, BD-Quad 1, BD-Quad 2, BD-Quad 3 and BD-Quad 4) could be affected by Braidwood Station's effluent releases. The following analysis was performed:

Gamma Spectrometry

Samples from all locations were analyzed for gamma emitting nuclides (Table C–IX.1, Appendix C). No nuclides were detected and all required LLDs were met.

D. Ambient Gamma Radiation

Ambient gamma radiation levels were measured utilizing Optically Stimulated Luminescence Dosimeter (OSLD). Eighty Six OSLD locations were established around the site. Results of OSLD measurements are listed in Tables C–X.1 to C–X.3, Appendix C.

Most OSLD measurements were below 30 mrem/quarter, with a range of 13.9 to 30.1 mrem/quarter. A comparison of the Inner Ring, Outer Ring and Other data to the Control Location data, indicate that the ambient gamma radiation levels from all locations were similar.

E. Land Use Survey

A Land Use Survey conducted during August 2014 around the Braidwood Station was performed by Environmental Inc. (Midwest Labs) for Exelon Nuclear to comply with section 12.5.2 of the Braidwood Station's Offsite Dose Calculation Manual. The purpose of the survey was to document the nearest resident, milk producing animal and garden of greater than 500 ft^2 in each of the sixteen 22 ½ degree sectors around the site. For dose calculation, a garden is assumed at the nearest residence. There

were no changes required to the Braidwood Station REMP, as a result of this survey. The results of this survey are summarized below.

Distance in Miles from the Braidwood Station Reactor Buildings			
Sector	Residence Miles	Livestock Miles	Milk Farm Miles
(A) N	0.5	2.6	-
(B) NNE	0.9	-	-
(C) NE	0.7	0.9	-
(D) ENE	0.8	3.3	-
(E) E	1.5	2.3	-
(F) ESE	2.2	2.3	-
(G) SE	2.7	2.7	-
(H) SSE	4.5	-	-
(J) S	4.2	4.8	-
(K) SSW	1.3	5.3	5.5
(L) SW	0.4	1.2	-
(M) WSW	0.5	-	-
(N) W	0.4	1.6	-
(P) WNW	0.4	-	-
(Q) NW	0.4	-	-
(R) NNW	0.4	-	-

F. Errata Data

CY-BR-170-301, Offsite Dose Calculation Manual (ODCM), requires the AREOR to include the results of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the tables and figures in the ODCM.

1. A 2011 revision to the Braidwood ODCM added six Independent Spent Fuel Storage Installation (ISFSI) dosimeters to the Radiological Environmental Monitoring Program (REMP). The ISFSI dosimeters and the radiation dose recorded by the dosimeters were not included in the analyses reported in the 2011, 2012, and 2013 Annual Radiological Environmental Operating Reports (AREORs). Additionally, the land use census included in the AREOR does not identify the nearest resident to the ISFSI. The ODCM also requires the nearest residence to the ISFSI be identified and reported in the land use census included in the AREOR.

Reporting omissions identified in the 2011, 2012, and 2013 AREORs:

Dosimeters for the ISFSI added to the ODCM in 2011 need to be included in the analyses documented in the following areas of the 2014 AREOR:

A. Appendix B, Table B-1, Sampling Locations, Distance & Direction, and Sample Collection and Analytical Methods (AREOR 2011, 2012, 2013)

B. Appendix B, Figure B-1, Inner ring OSLD Locations (AREOR 2011, 2012, 2013)

C. Table C-X.1, Quarterly OSLD Results for Braidwood Station (AREOR 2011, 2013)

D. Table C-X.3, Mean Quarterly OSLD Results for the Inner Ring, Outer Ring, Other and Control Locations for Braidwood Station (by location) AREOR 2011, 2013)

E. Section IV.E, Results and Discussion - Land Use Survey, locates the nearest residence by distance in miles from the ISFSI Pad. (AREOR 2011, 2012, 2013)

F. ISFSI dosimeter locations BD-104-3, BD-104-4, BD-105-3, BD-105-4, BD-110-3, and BD-110-4 were added to Table 11-1 in CY-BR-170-301, Offsite Dose Calculation Manual (ODCM), revision 6 (October 27, 2011), Radiological Environmental Monitoring Program, but these were not added to the map in Figure 11-2, Other OSLD Locations.

Distance in Miles from the Braidwood Station ISFSI Pad, 2014

Sector	Residence Miles
(N) W	0.7
(P) WNW	0.7
(Q) NW	0.7
(R) NNW	0.7

Requirement: CY-BR-170-301, Offsite Dose Calculation Manual (ODCM), requires the AREOR to include the results of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the

locations specified in the tables and figures in Chapter 11 of the ODCM

Requirement: CY-BR-170-301, Offsite Dose Calculation Manual (ODCM), Section 12.5.2, Land Use Census, requires the land use census to identify the nearest resident to the ISFSI and be included in the AREOR.

2. **Reporting omissions identified in the 2007 AREOR:**

Well sample locations BD-52 and BD-53 were removed from ODCM Table 11-1. However, they were still identified on the map in Figure 11-3, Ingestion, and Waterborne Exposure Pathway Sample Locations in CY-BR-170-301, Offsite Dose Calculation Manual (ODCM), revision 3 (April 4, 2007).

G. Summary of Results – Inter-Laboratory Comparison Program

The primary and secondary laboratories analyzed Performance Evaluation (PE) samples of air particulate, air iodine, milk, soil, vegetation and water matrices (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 laboratory results and Analytics' known value. Since flag values are not assigned by Analytics, TBE-ES evaluates the reported ratios based on internal QC requirements, which are based on the DOE MAPEP criteria.

2. ERA Evaluation Criteria

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

3. DOE Evaluation Criteria

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

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

In reviewing our environmental inter-laboratory crosscheck programs, we identified 1) duplication of efforts on some matrices and isotopes and 2) that we are performing crosscheck samples on some matrices and isotopes that we do not perform for clients. Since the DOE MAPEP is designed to evaluate the ability of analytical facilities to correctly analyze for radiological constituents representative of those at DOE sites, the needed changes were made to the MAPEP program. Therefore, the following isotopes were removed from the MAPEP program:

Soil – gamma – will be provided by Analytics twice per year, starting in 2015. For 2014, one soil gamma is provided by MAPEP, the 2nd soil gamma is provided by Analytics.

AP – gamma – is currently provided by Analytics.

Water – gamma, H-3, Sr-90, uranium, gross alpha and gross beta currently provided by ERA.

MAPEP evaluates non-reported (NR) analyses as failed if they were reported in the previous series.

For the TBE laboratory, 163 out of 169 analyses performed met the specified acceptance criteria. Six analyses (Ni-63, K-40 and I-131 in water, and two Sr-90s and one Gross Alpha in AP samples) did not meet the specified acceptance criteria for the following reasons:

1. Teledyne Brown Engineering's MAPEP March 2014 Ni-63 in water result of 32.7 ± 1.69 Bq/L was overlooked when reporting the data but would have passed the acceptance range of 23.9 – 44.2 Bq/L. NCR 14-04
2. Teledyne Brown Engineering's MAPEP March 2014 K-40 in water result of 1.63 ± 2.49 Bq/L was overlooked when reporting the data but would have passed the false positive test. NCR 14-04

3. Teledyne Brown Engineering's ERA November 2014 I-131 in water result of 15.8 pCi/L was lower than the known value of 20.3 pCi/L, failing below the lower acceptance limit of 16.8. The result was evaluated as failed with a found to known ratio of 0.778. No cause could be found for the slightly low result. All ERA I-131 evaluations since 2004 have been acceptable. NCR 14-08

4. Teledyne Brown Engineering's MAPEP March 2014 Sr-90 in AP result of 0.822 Bq/sample was lower than the known value of 1.18 Bq/sample, failing below the lower acceptance limit of 0.83 Bq/sample. The rerun result was still low, but fell within the lower acceptance range of 0.836. The rerun result was statistically the same number as the original result. No cause could be found for the slightly low results. NCR 14-04

5. Teledyne Brown Engineering's MAPEP September 2014 Sr-90 in AP result of 0.310 Bq/sample was lower than the known value of 0.703 Bq/sample. The gravimetric yield of 117% was very high (we normally see yields of 60% to 70 %) and could account for the low activity. NCR 14-09

6. Teledyne Brown Engineering's MAPEP September 2014 Gr-Alpha in AP result of 0.153 Bq/sample was lower than the known value of 0.53 Bq/sample. The AP sample was counted on the wrong side. The AP was flipped over and recounted with acceptable results. NCR 14-09

For the EIML laboratory, 85 of 90 analyses met the specified acceptance criteria. Five analyses (Water – Pu-238, Pu-239, Fe-55; AP - Co-57; Soil, Cs134) did not meet the specified acceptance criteria for the following reasons:

1. Environmental Inc., Midwest Laboratory's MAPEP February 2014 water Pu-238 result of 1.28 Bq/L was higher than the known value of 0.83 Bq/L, exceeding the upper control limit of 1.08 Bq/L. The high bias on the plutonium was traced to contamination from a newly purchased standard. The result of the reanalysis with the new tracer was 0.68, which fell within the acceptance criteria.

2. Environmental Inc., Midwest Laboratory's MAPEP February 2014 water Pu-239/240 result of 0.91 Bq/L was higher than the known value of 0.68 Bq/L, exceeding the upper control limit of 0.88 Bq/L. The high bias on the plutonium was traced to contamination from a newly purchased standard. The result of reanalysis with the new tracer was 0.66 Bq/L, which fell within the acceptance criteria.

3. Environmental Inc., Midwest Laboratory's MAPEP February 2014 AP Co-57 result of 1.60 ± 0.05 Bq/total sample failed the false

positive test. Interference from the Eu-152 resulted in the misidentification of Co-57.

4. Environmental Inc., Midwest Laboratory's MAPEP February 2014 soil Cs-134 result of 6.10 ± 1.80 Bq/kg failed the false positive test. Long sample counting time lead to interference from naturally occurring Bi-214 in the sample matrix with a close spectral energy.
5. Environmental Inc., Midwest Laboratory's MAPEP August 2014 water Fe-55 result of 55.10 ± 14.80 Bq/L was higher than the known value of 31.50 Bq/L, exceeding the upper control limit of 41.00 Bq/L. The result of the reanalysis of Fe-55 was 32.63 ± 16.30 Bq/L, which fell within the acceptance criteria.

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

APPENDIX A

RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT ANNUAL SUMMARY

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TABLE A-1 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM ANNUAL SUMMARY FOR BRAIDWOOD STATION, 2014

NAME OF FACILITY: BRAIDWOOD | **DOCKET NUMBER: 50-456 & 50-457 2014**

LOCATION OF FACILITY: BRACEVILLE, IL | **REPORTING PERIOD: ANNUAL**

MEDIUM OR PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPES OF ANALYSIS PERFORMED	NUMBER OF ANALYSIS PERFORMED	REQUIRED LOWER LIMIT OF DETECTION (LLD)	INDICATOR LOCATIONS MEAN (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	GR-B	67	4	6.2 (53/55) (2.4/12.9)	9.1 (12/12) (5.4/13.9)	10.2 (12/12) (8.4/12.9)	BD-40 INDICATOR BRAIDWOOD STATION COOLING LAKE ONSITE	0
	H-3	24	200	231 (2/20) (221/241)	<LLD	231 (2/4) (221/241)	BD-10 INDICATOR KANKAKEE RIVER DOWNSTREAM 5.4 MILES NE OF SITE	0
	NI-63	24	30	<LLD	<LLD	-		0
	GAMMA	67						
	MN-54		15	<LLD	<LLD	-		0
	CO-58		15	<LLD	<LLD	-		0
	FE-59		30	<LLD	<LLD	-		0
	CO-60		15	<LLD	<LLD	-		0
	ZN-65		30	<LLD	<LLD	-		0
	NB-95		15	<LLD	<LLD	-		0

* 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)

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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 (M) (F) RANGE	CONTROL LOCATION MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) MEAN (M) (F) RANGE	LOCATION WITH HIGHEST ANNUAL MEAN (M) STATION # NAME DISTANCE AND DIRECTION	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
SURFACE WATER (PCI/LITER)	ZR-95		30	<LLD	<LLD	-		0
	I-131		15	<LLD	<LLD	-		0
	CS-134		15	<LLD	<LLD	-		0
	CS-137		18	<LLD	<LLD	-		0
	BA-140		60	<LLD	<LLD	-		0
	LA-140		15	<LLD	<LLD	-		0
PUBLIC WATER (PCI/LITER)	GR-B	12	4	3.8 (11/12) (2.7/4.5)	NA	3.8 (11/12) (2.7/4.5)	BD-22 INDICATOR WILMINGTON 6.0 MILES NE OF SITE	0
	H-3	12	200	615 (11/12) (223/1410)	NA	615 (11/12) (223/1410)	BD-22 INDICATOR WILMINGTON 6.0 MILES NE OF SITE	0
	I-131	12	1	<LLD	NA	-		0

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PUBLIC WATER (PCI/LITER)	GAMMA	12						
	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
	ZR-95		30	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0

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PUBLIC WATER (PCI/LITER)	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
GROUND WATER (PCI/LITER)	H-3	30	200	<LLD	NA	-		0
	GAMMA MN-54	30	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

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GROUND WATER (PCI/LITER)	ZR-95		30	<LLD	NA	-		0
	I-131		15	<LLD	NA	-		0
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0
	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
FISH (PCI/KG WET)	NI-63	12	260	<LLD	<LLD	-		0
	GAMMA MN-54	12	130	<LLD	<LLD	-		0
	CO-58		130	<LLD	<LLD	-		0

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FISH (PCI/KG WET)	FE-59		260	<LLD	<LLD	-		0
	CO-60		130	<LLD	<LLD	-		0
	ZN-65		260	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	I-131		NA	<LLD	<LLD	-		0
	CS-134		130	<LLD	<LLD	-		0
	CS-137		150	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0

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FISH (PCI/KG WET)	LA-140		NA	<LLD	<LLD	-		0
SEDIMENT (PCI/KG DRY)	NI-63	6	260	<LLD	<LLD	-		0
	GAMMA	6						
	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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SEDIMENT (PCI/KG DRY)	CS-134		150	<LLD	<LLD	-		0
	CS-137		180	133 (2/4) (104/162)	<LLD	162 (1/2)	BD-10 INDICATOR KANKAKEE RIVER DOWNSTREAM 5.4 MILES NE OF SITE	0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR PARTICULATE (E-3 PCI/CU.METER)	GR-B	414	10	18 (363/363) (8/33)	19 (51/51) (8/49)	19 (51/51) (8/49)	BD-03 CONTROL COUNTY LINE ROAD 6.2 MILES ESE OF SITE	0
	GAMMA MN-54	32	NA	<LLD	<LLD	-		0
	CO-58		NA	<LLD	<LLD	-		0
	FE-59		NA	<LLD	<LLD	-		0
	CO-60		NA	<LLD	<LLD	-		0

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AIR PARTICULATE (E-3 PCI/CU.METER)	ZN-65		NA	<LLD	<LLD	-		0
	NB-95		NA	<LLD	<LLD	-		0
	ZR-95		NA	<LLD	<LLD	-		0
	CS-134		50	<LLD	<LLD	-		0
	CS-137		60	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
AIR IODINE (E-3 PCI/CU.METER)	GAMMA I-131	414	70	<LLD	<LLD	-		0
MILK (PCI/LITER)	I-131	20	1	<LLD	NA	-		0

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MILK (PCI/LITER)	GAMMA	20						
	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
	CS-134		15	<LLD	NA	-		0
	CS-137		18	<LLD	NA	-		0

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MILK (PCI/LITER)	BA-140		60	<LLD	NA	-		0
	LA-140		15	<LLD	NA	-		0
VEGETATION (PCI/KG WET)	GAMMA	10						
	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)	CS-134		60	<LLD	<LLD	-		0
	CS-137		80	<LLD	<LLD	-		0
	BA-140		NA	<LLD	<LLD	-		0
	LA-140		NA	<LLD	<LLD	-		0
DIRECT RADIATION (MILLIREM/QTR.)	OSLD-QUARTERLY	338	NA	19.7 (330/330) (13.9/30.1)	20.5 (8/8) (17.2/22.4)	24.1 (4/4) (19.4/26.4)	BD-212-4 INDICATOR 5.0 MILES WSW	0

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

APPENDIX B

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

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TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2014

Location	Location Description	Distance & Direction From Site
A. Surface Water		
BD-10	Kankakee River Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-38	Main Drainage Ditch (indicator)	1.5 miles SE
BD-40	Braidwood Station Cooling Lake (indicator)	Onsite
BD-55	North Pond Fatlan Site (indicator)	0.6 miles NE
BD-56	South Pond Fatlan Site (indictor)	0.6 miles NE
B. Drinking (Potable) Water		
BD-22	Wilmington (indicator)	6.0 miles NE
C. Ground/Well Water		
BD-13	Braidwood City Hall Well (indicator)	1.7 miles NNE
BD-34	Gibson Well (indicator)	4.7 miles E
BD-35	Joly Well (indicator)	4.7 miles E
BD-36	Hutton Well (indicator)	4.7 miles E
BD-37	Nurczyk Well (indicator)	4.7 miles E
BD-50	Skole Well (indicator)	4.7 miles E
BD-51	Fatlan Well (indicator)	0.6 miles NE
BD-54	Cash Well (indicator)	0.9 miles NE
D. Milk - bi-weekly / monthly		
BD-17	Halpin's Dairy (indicator)	5.5 miles SSW
BD-18	Biros' Farm (control)	8.7 miles W
E. Air Particulates / Air Iodine		
BD-02	Custer Park (indicator)	5.0 miles E
BD-03	County Line Road (control)	6.2 miles ESE
BD-04	Essex (indicator)	4.8 miles SSE
BD-05	Gardner (indicator)	5.5 miles SW
BD-06	Godley (indicator)	0.5 miles WSW
BD-19	Nearsite NW (indicator)	0.3 miles NW
BD-20	Nearsite N (indicator)	0.6 miles N
BD-21	Nearsite NE (indicator)	0.5 miles NE
F. Fish		
BD-25	Kankakee River, Upstream (control)	9.6 miles E
BD-28	Kankakee River, Discharge (indicator)	5.4 miles E
BD-41	Cooling Lake (indicator)	1.0 mile E
G. Sediment		
BD-10	Kankakee River, Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-57	Circulating Water Blowdown Discharge (indicator)	5.4 miles E

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2014

Location	Location Description	Distance & Direction From Site
H. Food Products		
Quadrant 1	Clark Farm	3.8 miles ENE
Quadrant 2	W.F. Soltwisch	4.5 miles SSE
Quadrant 3	Terri Schultz	4.8 miles SSW
Quadrant 4	Bruce Sinkular	1.9 miles NNW
Control	Gorman Farm	9.0 miles NE
I. Environmental Dosimetry - OSLD		
Inner Ring		
BD-101-3 and -4		0.5 miles N
BD-102-1 and -2		1.1 miles NNE
BD-103-1 and -2		1.0 mile NE
BD-104-1 and -2		0.7 miles ENE
BD-105-1 and -2		2.2 miles E
BD-106-1 and -2		2.5 miles ESE
BD-107-1 and -2		3.2 miles SE
BD-108-1 and -2		3.2 miles SSE
BD-109-1 and -2		3.8 miles S
BD-110-1 and -2		2.8 miles SSW
BD-111a-1 and -2		1.4 miles SW
BD-112-1 and -2		0.7 miles WSW
BD-113a-1 and -2		0.5 miles W
BD-114-1 and -2		0.4 miles WNW
BD-115-1 and -2		0.3 miles NW
BD-116-1		0.4 miles NNW
BD-116-2		0.5 miles NNW
Outer Ring		
BD-201-1 and -2		4.2 miles N
BD-202-1 and -2		4.8 miles NNE
BD-203-1 and -2		4.9 miles NE
BD-204-1 and -2		4.3 miles ENE
BD-205-1 and -2		4.0 miles E
BD-206-1 and -2		4.5 miles ESE
BD-207-1 and -2		4.5 miles SE
BD-208-1 and -2		4.5 miles SSE
BD-209-1 and -2		4.8 miles S
BD-210-1 and -2		5.3 miles SSW
BD-211-1 and -2		4.8 miles SW
BD-212-3 and -4		5.0 miles WSW
BD-213-3 and -4		4.8 miles W
BD-214-1 and -2		4.3 miles WNW
BD-215-1 and -2		4.5 miles NW
BD-216-1 and -2		4.0 miles NNW
Other		
BD-02-1 and -2	Custer Park (indicator)	5.0 miles E
BD-04-1 and -2	Essex (indicator)	4.8 miles SSE
BD-05-1 and -2	Gardner (indicator)	5.5 miles SW
BD-06-1 and -2	Godley (indicator)	0.5 miles WSW
BD-19-1 and -2	Nearsite NW (indicator)	0.3 miles NW
BD-20-1 and -2	Nearsite N (indicator)	0.6 miles N
BD-21-1 and -2	Nearsite NE (indicator)	0.5 miles NE

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2014

Location	Location Description	Distance & Direction From Site
I. Environmental Dosimetry – OSLD (cont'd)		
Control		
BD-03-1 and -2	13000 W. Road	6.2 miles ESE
ISFSI		
BD-104-3 and -4		0.7 miles ENE
BD-105-3 and -4		0.7 miles ENE
BD-110-3 and -4		2.8 miles SSW

Distance in Miles from the Braidwood Station ISFSI Pad, 2014

Sector	Residence Miles
(N) W	0.7
(P) WNW	0.7
(Q) NW	0.7
(R) NNW	0.7

Distance in Miles from the Braidwood Station Reactor Buildings, 2014

Sector	Residence Miles	Livestock Miles	Milk Farm Miles
(A) N	0.5	2.6	-
(B) NNE	0.9	-	-
(C) NE	0.7	0.9	-
(D) ENE	0.8	3.3	-
(E) E	1.5	2.3	-
(F) ESE	2.2	2.3	-
(G) SE	2.7	2.7	-
(H) SSE	4.5	-	-
(J) S	4.2	4.8	-
(K) SSW	1.3	5.3	5.5
(L) SW	0.4	1.2	-
(M) WSW	0.5	-	-
(N) W	0.4	1.6	-
(P) WNW	0.4	-	-
(Q) NW	0.4	-	-
(R) NNW	0.4	-	-

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Braidwood Station, 2014

Sample Medium	Analysis	Sampling Method	Analytical Procedure Number
Surface Water	Gamma Spectroscopy	Monthly composite from weekly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Surface Water	Gross Beta	Monthly composite from weekly grab samples.	TBE, TBE-2008 Gross Alpha and/or Gross Beta activity in various matrices
Surface Water	Tritium	Quarterly composite from weekly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation
Surface Water	Nickel-63	Monthly composite from weekly grab samples.	TBE, TBE-2013 Radionickel activity in various matrices
Drinking Water	Gross Beta	Monthly composite from weekly composite samples.	TBE, TBE-2008 Gross Alpha and/or Gross Beta activity in various matrices
Drinking Water	Gamma Spectroscopy	Monthly composite from weekly composite samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Drinking Water	Tritium	Monthly composite from weekly composite samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation
Drinking Water	Iodine	Monthly composite from weekly composite samples.	TBE, TBE-2031 Radioactive Iodine in drinking water
Ground/Well Water	Gamma Spectroscopy	Quarterly grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
Ground/Well Water	Tritium	Quarterly grab samples.	TBE, TBE-2011 Tritium analysis in drinking water by liquid scintillation
Fish	Nickel-63	Semi-annual samples collected via electroshocking or other techniques	TBE, TBE-2013 Radionickel activity in various matrices
Fish	Gamma Spectroscopy	Samples collected twice annually via electro-shocking or other techniques	TBE-2007 Gamma emitting radioisotope analysis
Sediment	Gamma Spectroscopy	Semi-annual grab samples	TBE, TBE-2007 Gamma emitting radioisotope analysis
Sediment	Nickel-63	Semi-annual grab samples	TBE, TBE-2013 Radionickel activity in various matrices

TABLE B-2: Radiological Environmental Monitoring Program – Summary of Sample Collection and Analytical Methods, Braidwood Station, 2014

Sample Medium	Analysis	Sampling Method	Analytical Procedure Number
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
Air Particulates	Gamma Spectroscopy	Quarterly composite of each station	TBE, TBE-2007 Gamma emitting radioisotope analysis
Air Iodine	Gamma Spectroscopy	Weekly composite of continuous air sampling through charcoal filter	TBE, TBE-2007 Gamma emitting radioisotope analysis
Milk	I-131	Bi-weekly grab sample May through October. Monthly all other times	TBE, TBE-2012 Radioiodine in various matrices
Milk	Gamma Spectroscopy	Bi-weekly grab sample May through October. Monthly all other times	TBE, TBE-2007 Gamma emitting radioisotope analysis
Food Products	Gamma Spectroscopy	Annual grab samples.	TBE, TBE-2007 Gamma emitting radioisotope analysis
OSLD	Optically Stimulated Luminescence Dosimetry	Quarterly OSLDs comprised of two Al_2O_3:C Landauer Incorporated elements.	Landauer Incorporated

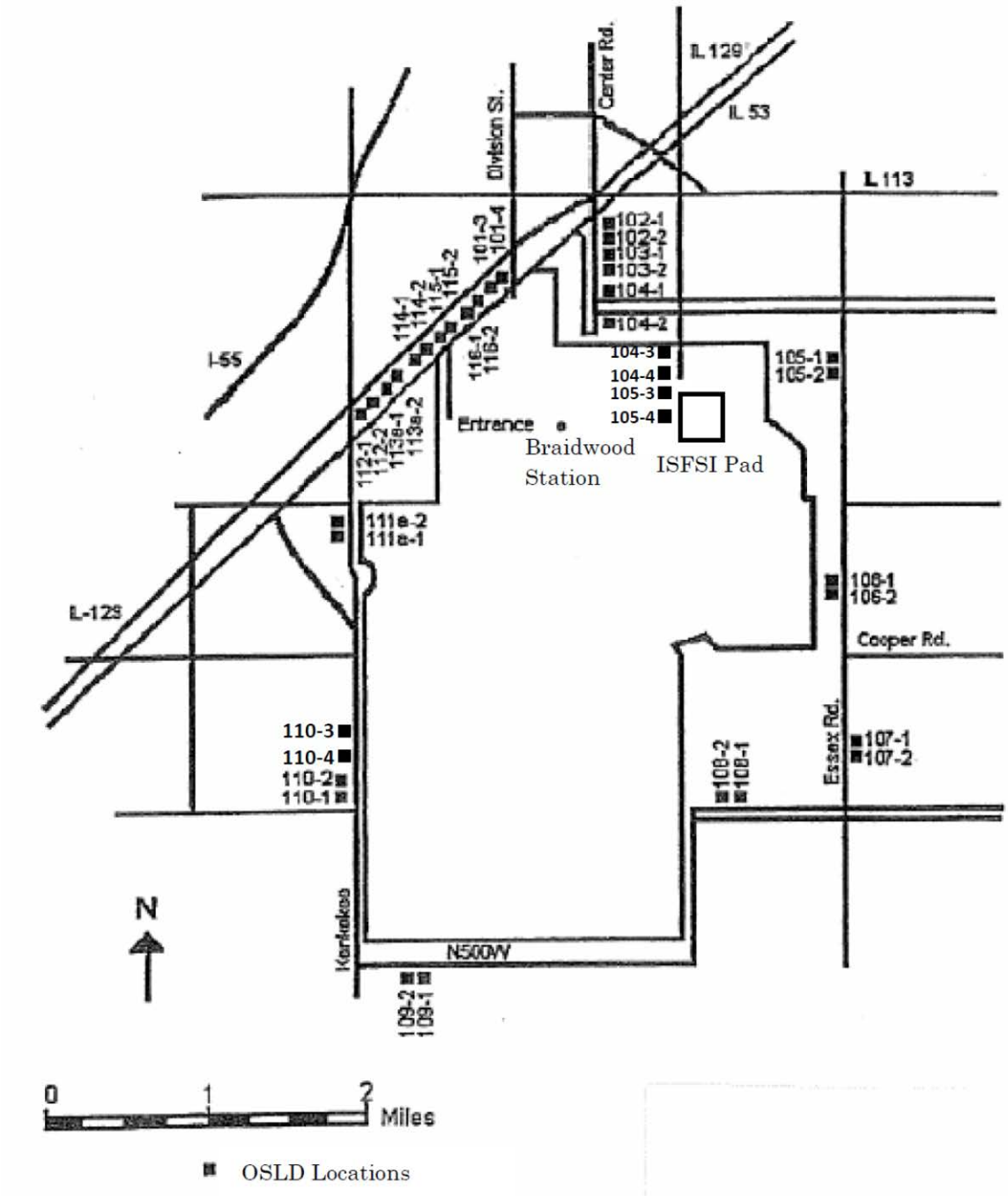

Figure B-1
Inner Ring and Other OSLD Locations of the
Braidwood Station, 2014

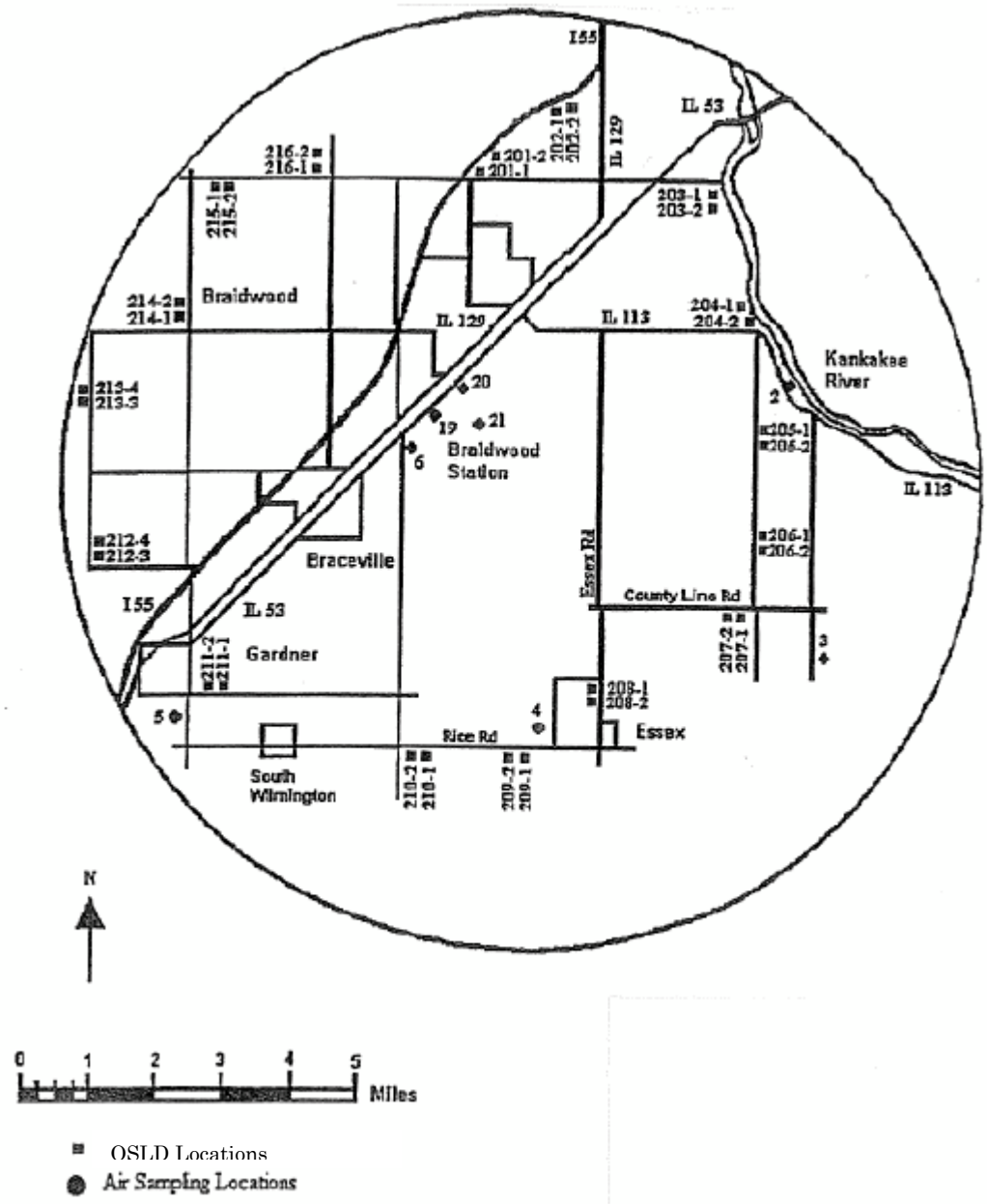

Figure B-2
Fixed Air Sampling and Outer Ring OSLD Locations
of the Braidwood Station, 2014

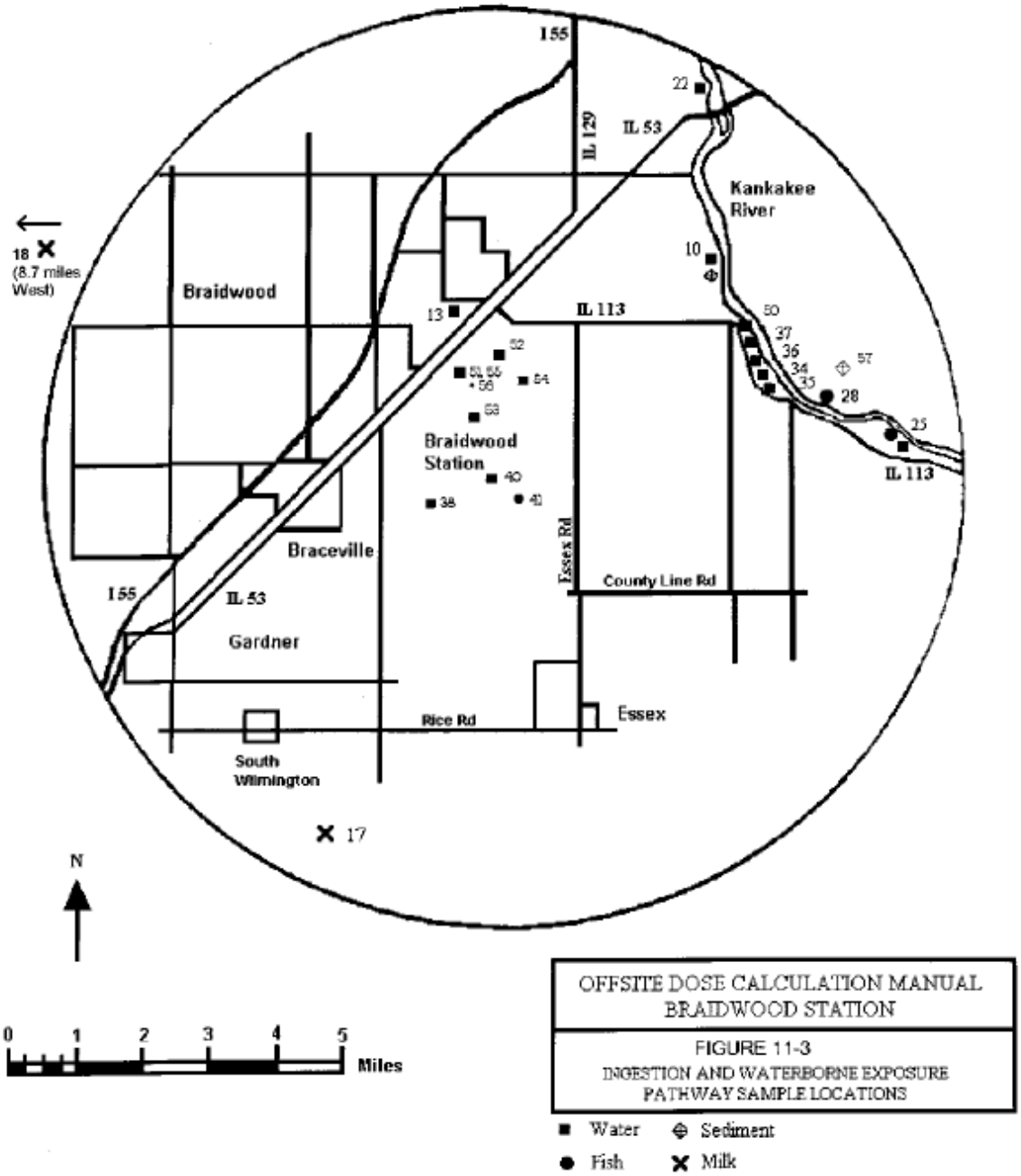

Figure B-3
Ingestion and Waterborne Exposure Pathway Sample Locations
of the Braidwood Station, 2014

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

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Table C-I.1 **CONCENTRATIONS OF GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-10	BD-25	BD-38	BD-40	BD-55	BD-56
01/02/14 - 01/30/14	4.6 ± 1.6	13.9 ± 2.4	4.9 ± 1.9 (1)	9.2 ± 1.9	(1)	(1)
02/19/14 - 02/27/14	5.1 ± 1.3	13.3 ± 2.5	(1)	9.4 ± 2.0	(1)	(1)
03/20/14 - 03/27/14	5.9 ± 2.5	11.4 ± 2.8	5.1 ± 2.3 (1)	10.4 ± 2.7	< 2.1 (1)	2.4 ± 1.5 (1)
04/03/14 - 04/24/14	4.3 ± 2.4	11.0 ± 3.1	7.5 ± 2.9	12.2 ± 3.1	5.3 ± 1.7	5.9 ± 2.3
05/01/14 - 05/29/14	2.9 ± 1.9	5.4 ± 2.1	6.8 ± 2.9	9.1 ± 2.8	3.0 ± 1.6	3.7 ± 2.1
06/05/14 - 06/26/14	6.4 ± 2.4	5.9 ± 2.1	5.5 ± 2.4	9.4 ± 2.4	3.9 ± 1.7	3.3 ± 2.0
07/03/14 - 07/31/14	4.9 ± 2.1	6.7 ± 2.3	3.7 ± 2.3	10.4 ± 2.6	4.9 ± 1.8	3.9 ± 2.0
08/07/14 - 08/28/14	4.7 ± 1.9	6.0 ± 2.1	6.7 ± 2.7	8.4 ± 2.4	3.0 ± 1.5	4.3 ± 1.9
09/04/14 - 09/25/14	6.0 ± 2.1	8.1 ± 2.3	7.2 ± 2.6	9.2 ± 2.4	3.6 ± 1.6	6.3 ± 2.2
10/02/14 - 10/30/14	3.9 ± 2.1	7.5 ± 2.5	8.0 ± 3.2	11.3 ± 2.9	4.2 ± 1.7	5.6 ± 2.3
11/06/14 - 11/26/14	4.5 ± 2.1	10.7 ± 2.6	7.7 ± 2.6	11.0 ± 2.7	2.8 ± 1.6	7.4 ± 2.2
12/04/14 - 12/24/14	3.6 ± 2.1	9.5 ± 2.9	5.1 ± 2.8 (1)	12.9 ± 3.1	< 2.4 (1)	4.8 ± 2.1 (1)
MEAN	4.7 ± 2.0	9.1 ± 5.9	6.2 ± 2.8	10.2 ± 2.8	3.8 ± 1.8	4.8 ± 3.1

Table C-I.2 **CONCENTRATIONS OF TRITIUM IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-10	BD-25	BD-38	BD-40	BD-55	BD-56
01/02/14 - 03/27/14	221 ± 129	< 185 (1)	< 187 (1)	< 191	< 188 (1)	< 186 (1)
04/03/14 - 06/26/14	< 183	< 189	< 184	< 184	< 181	< 186
07/03/14 - 09/25/14	241 ± 131	< 186	< 181	< 183	< 181	< 183
10/02/14 - 12/24/14	< 155	< 153	< 156 (1)	< 154	< 186 (1)	< 186 (1)
MEAN	231 ± 28	-	-	-	-	-

Table C-I.3 **CONCENTRATIONS OF NI-63 IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-10	BD-25
01/02/14 - 01/30/14	< 19	< 19 (1)
02/19/14 - 02/27/14	< 16	< 16 (1)
03/20/14 - 03/27/14	< 15	< 18
04/03/14 - 04/24/14	< 18	< 18
05/01/14 - 05/29/14	< 14	< 14
06/05/14 - 06/26/14	< 16	< 16
07/03/14 - 07/31/14	< 14	< 14
08/07/14 - 08/28/14	< 14	< 15
09/04/14 - 09/25/14	< 15	< 17
10/02/14 - 10/30/14	< 16	< 16
11/06/14 - 11/26/14	< 18	< 18
12/04/14 - 12/24/14	< 16	< 18
MEAN	-	-

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

Table C-I.4 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-10	01/02/14 - 01/30/14	< 2	< 2	< 5	< 2	< 4	< 3	< 4	< 13	< 2	< 2	< 22	< 6
	02/06/14 - 02/27/14	< 1	< 1	< 3	< 1	< 2	< 1	< 3	< 6	< 1	< 1	< 11	< 4
	03/06/14 - 03/27/14	< 4	< 4	< 8	< 4	< 8	< 5	< 8	< 15	< 4	< 4	< 30	< 9
	04/03/14 - 04/24/14	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 10	< 1	< 2	< 17	< 6
	05/01/14 - 05/29/14	< 2	< 2	< 5	< 2	< 4	< 3	< 5	< 14	< 2	< 2	< 26	< 6
	06/05/14 - 06/26/14	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 21	< 7
	07/03/14 - 07/31/14	< 1	< 1	< 3	< 1	< 3	< 1	< 2	< 6	< 1	< 1	< 12	< 3
	08/07/14 - 08/28/14	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 7	< 1	< 1	< 10	< 4
	09/04/14 - 09/25/14	< 5	< 5	< 10	< 5	< 9	< 5	< 9	< 15	< 4	< 5	< 33	< 10
	10/02/14 - 10/30/14	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 15	< 4
	11/06/14 - 11/26/14	< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 15	< 2	< 2	< 23	< 7
	12/04/14 - 12/31/14	< 3	< 3	< 9	< 4	< 7	< 4	< 7	< 11	< 3	< 4	< 25	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-25	01/02/14 - 01/23/14	(1) < 1	< 2	< 3	< 1	< 3	< 2	< 3	< 13	< 1	< 1	< 19	< 5
	02/19/14 - 02/27/14	(1) < 1	< 2	< 4	< 1	< 3	< 2	< 3	< 7	< 1	< 1	< 13	< 4
	03/06/14 - 03/27/14	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 14	< 4	< 4	< 29	< 10
	04/03/14 - 04/24/14	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 12	< 2	< 2	< 19	< 7
	05/01/14 - 05/29/14	< 2	< 2	< 5	< 1	< 4	< 2	< 4	< 12	< 2	< 2	< 21	< 6
	06/05/14 - 06/26/14	< 2	< 2	< 5	< 2	< 5	< 3	< 4	< 13	< 2	< 2	< 23	< 6
	07/03/14 - 07/31/14	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 16	< 5
	08/07/14 - 08/28/14	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 9	< 1	< 1	< 15	< 3
	09/04/14 - 09/25/14	< 4	< 5	< 11	< 5	< 8	< 5	< 8	< 15	< 5	< 4	< 33	< 9
	10/02/14 - 10/30/14	< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 8	< 2	< 2	< 15	< 6
	11/06/14 - 11/26/14	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 14	< 2	< 3	< 26	< 8
	12/04/14 - 12/31/14	< 3	< 4	< 8	< 3	< 8	< 4	< 7	< 14	< 4	< 4	< 26	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-I.4 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-38	01/02/14 - 01/16/14	(1)	< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 26	< 1	< 2	< 29	< 9
	02/06/14 - 02/27/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	03/13/14 - 03/27/14	(1)	< 4	< 4	< 11	< 5	< 9	< 4	< 8	< 13	< 4	< 4	< 30	< 10
	04/03/14 - 04/24/14		< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 8	< 1	< 1	< 13	< 4
	05/01/14 - 05/29/14		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 23	< 7
	06/05/14 - 06/26/14		< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 10	< 1	< 2	< 16	< 5
	07/03/14 - 07/31/14		< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 12	< 2	< 2	< 22	< 6
	08/07/14 - 08/28/14		< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 7	< 1	< 1	< 10	< 3
	09/04/14 - 09/25/14		< 4	< 5	< 11	< 5	< 11	< 5	< 10	< 15	< 4	< 6	< 34	< 11
	10/02/14 - 10/30/14		< 1	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 1	< 1	< 15	< 4
	11/06/14 - 11/26/14		< 1	< 1	< 3	< 1	< 3	< 2	< 2	< 9	< 1	< 1	< 14	< 4
	12/04/14 - 12/24/14	(1)	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 14	< 2	< 2	< 23	< 7
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-
BD-40	01/02/14 - 01/30/14		< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 12	< 2	< 3	< 24	< 7
	02/06/14 - 02/27/14		< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 2	< 3	< 23	< 8
	03/06/14 - 03/27/14		< 4	< 4	< 9	< 4	< 9	< 4	< 7	< 15	< 4	< 4	< 31	< 9
	04/03/14 - 04/24/14		< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 22	< 7
	05/01/14 - 05/29/14		< 2	< 3	< 6	< 4	< 6	< 3	< 5	< 14	< 2	< 3	< 23	< 8
	06/05/14 - 06/26/14		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 20	< 6
	07/03/14 - 07/31/14		< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 8	< 2	< 2	< 15	< 4
	08/07/14 - 08/28/14		< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 11	< 1	< 1	< 15	< 5
	09/04/14 - 09/25/14		< 5	< 4	< 7	< 3	< 8	< 5	< 9	< 15	< 4	< 5	< 27	< 10
	10/02/14 - 10/30/14		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 10	< 2	< 2	< 18	< 7
	11/06/14 - 11/26/14		< 1	< 1	< 3	< 1	< 3	< 1	< 2	< 10	< 1	< 1	< 16	< 5
	12/04/14 - 12/31/14		< 4	< 5	< 10	< 4	< 10	< 5	< 8	< 15	< 4	< 5	< 34	< 12
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-I.4 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-55	01/02/14 - 01/30/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	02/06/14 - 02/27/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	03/20/14 - 03/27/14	(1)	< 2	< 2	< 5	< 2	< 4	< 3	< 5	< 11	< 2	< 2	< 20	< 6
	04/03/14 - 04/24/14		< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 10	< 1	< 1	< 16	< 5
	05/01/14 - 05/29/14		< 2	< 3	< 7	< 3	< 5	< 3	< 4	< 14	< 2	< 2	< 27	< 9
	06/05/14 - 06/26/14		< 2	< 2	< 4	< 2	< 3	< 2	< 4	< 11	< 2	< 2	< 18	< 6
	07/03/14 - 07/31/14		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 9	< 2	< 2	< 18	< 6
	08/07/14 - 08/28/14		< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 10	< 1	< 1	< 13	< 4
	09/04/14 - 09/25/14		< 4	< 4	< 8	< 4	< 8	< 4	< 8	< 15	< 4	< 4	< 27	< 10
	10/02/14 - 10/30/14		< 2	< 2	< 4	< 2	< 4	< 2	< 3	< 9	< 2	< 2	< 16	< 5
	11/06/14 - 11/26/14		< 1	< 1	< 3	< 1	< 2	< 1	< 2	< 9	< 1	< 1	< 13	< 5
	12/04/14 - 12/24/14	(1)	< 2	< 2	< 5	< 2	< 3	< 2	< 4	< 12	< 2	< 2	< 21	< 7
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-
BD-56	01/02/14 - 01/30/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	02/06/14 - 02/27/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	03/20/14 - 03/27/14	(1)	< 3	< 3	< 6	< 3	< 5	< 3	< 5	< 13	< 3	< 3	< 23	< 8
	04/03/14 - 04/24/14		< 1	< 1	< 3	< 1	< 2	< 2	< 2	< 13	< 1	< 1	< 17	< 5
	05/01/14 - 05/29/14		< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 13	< 2	< 2	< 22	< 6
	06/05/14 - 06/26/14		< 2	< 3	< 7	< 2	< 5	< 3	< 5	< 15	< 2	< 3	< 27	< 8
	07/03/14 - 07/31/14		< 2	< 2	< 5	< 2	< 4	< 2	< 3	< 9	< 2	< 2	< 17	< 6
	08/07/14 - 08/28/14		< 1	< 1	< 2	< 1	< 2	< 1	< 1	< 8	< 1	< 1	< 11	< 3
	09/04/14 - 09/25/14		< 4	< 5	< 10	< 4	< 8	< 5	< 9	< 14	< 5	< 4	< 27	< 12
	10/02/14 - 10/30/14		< 2	< 3	< 6	< 2	< 5	< 3	< 5	< 11	< 2	< 2	< 23	< 8
	11/06/14 - 11/26/14		< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 12	< 1	< 1	< 17	< 4
	12/04/14 - 12/24/14	(1)	< 2	< 2	< 4	< 2	< 4	< 2	< 4	< 12	< 2	< 2	< 21	< 5
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-II.1 **CONCENTRATIONS OF GROSS BETA IN PUBLIC WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-22
01/02/14 - 01/30/14	4.1 ± 2.1
01/30/14 - 02/27/14	3.9 ± 2.0
02/27/14 - 04/03/14	3.2 ± 1.8
04/03/14 - 05/01/14	3.5 ± 1.6
05/01/14 - 05/29/14	4.5 ± 1.7
05/29/14 - 07/03/14	4.0 ± 1.4
07/03/14 - 07/31/14	3.9 ± 1.6
07/31/14 - 08/28/14	3.4 ± 1.7
08/28/14 - 10/02/14	3.9 ± 1.5
10/02/14 - 10/30/14	< 2.2
10/30/14 - 11/26/14	2.7 ± 1.6
11/26/14 - 12/31/14	4.2 ± 1.5
MEAN	3.8 ± 1.0

Table C-II.2 **CONCENTRATIONS OF TRITIUM IN PUBLIC WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-22
01/02/14 - 01/30/14	1410 ± 193
01/30/14 - 02/27/14	1200 ± 176
02/27/14 - 04/03/14	369 ± 119
04/03/14 - 05/01/14	1140 ± 176
05/01/14 - 05/29/14	223 ± 111
05/29/14 - 07/03/14	235 ± 118
07/03/14 - 07/31/14	555 ± 145
07/31/14 - 08/28/14	431 ± 139
08/28/14 - 10/02/14	279 ± 124
10/02/14 - 10/30/14	< 159
10/30/14 - 11/26/14	635 ± 153
11/26/14 - 12/31/14	287 ± 129
MEAN	615 ± 864

Table C-II.3 **CONCENTRATIONS OF I-131 IN PUBLIC WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-22
01/02/14 - 01/30/14	< 1.0
01/30/14 - 02/27/14	< 0.6
02/27/14 - 04/03/14	< 0.7
04/03/14 - 05/01/14	< 0.8
05/01/14 - 05/29/14	< 0.5
05/29/14 - 07/03/14	< 0.7
07/03/14 - 07/31/14	< 0.5
07/31/14 - 08/28/14	< 0.5
08/28/14 - 10/02/14	< 0.7
10/02/14 - 10/30/14	< 0.4
10/30/14 - 11/26/14	< 0.8
11/26/14 - 12/31/14	< 1.0
MEAN	-

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

Table C-II.4 **CONCENTRATIONS OF GAMMA EMITTERS IN PUBLIC WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-22	01/02/14 - 01/30/14	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 1	< 1	< 14	< 4
	01/30/14 - 02/27/14	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 18	< 6
	02/27/14 - 04/03/14	< 2	< 2	< 4	< 2	< 3	< 2	< 3	< 2	< 2	< 15	< 5
	04/03/14 - 05/01/14	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 2	< 21	< 7
	05/01/14 - 05/29/14	< 3	< 3	< 8	< 4	< 6	< 3	< 6	< 4	< 4	< 23	< 9
	05/29/14 - 07/03/14	< 2	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 2	< 16	< 5
	07/03/14 - 07/31/14	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 2	< 2	< 17	< 6
	07/31/14 - 08/28/14	< 1	< 2	< 3	< 1	< 3	< 2	< 3	< 1	< 1	< 20	< 6
	08/28/14 - 10/02/14	< 1	< 2	< 4	< 1	< 3	< 2	< 3	< 1	< 1	< 20	< 6
	10/02/14 - 10/30/14	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 17	< 4
	10/30/14 - 11/26/14	< 2	< 2	< 5	< 2	< 4	< 2	< 4	< 2	< 2	< 22	< 6
	11/26/14 - 12/31/14	< 1	< 1	< 2	< 1	< 2	< 1	< 2	< 1	< 1	< 9	< 3
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-III.1 **CONCENTRATIONS OF TRITIUM IN GROUND/WELL WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

COLLECTION PERIOD	BD-13	BD-34	BD-35	BD-36	BD-37	BD-50	BD-51	BD-54
01/09/14 - 01/09/14	< 168	< 166	< 164	< 168	< 164	< 164	< 166	(1)
04/10/14 - 04/10/14	< 161	< 158	< 160	< 161	< 163	< 161	< 161	< 177
07/10/14 - 07/10/14	< 178	< 172	< 172	< 174	< 176	< 174	< 175	< 194
10/10/14 - 10/10/14	< 184	< 185	< 186	< 187	< 189	< 185	< 185	(1)
MEAN	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-III.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND/WELL WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-13	01/09/14 - 01/09/14	< 3	< 4	< 7	< 2	< 6	< 3	< 6	< 14	< 3	< 3	< 23	< 7
	04/10/14 - 04/10/14	< 4	< 5	< 9	< 4	< 10	< 6	< 7	< 14	< 4	< 5	< 32	< 9
	07/10/14 - 07/10/14	< 4	< 4	< 9	< 4	< 8	< 4	< 7	< 9	< 4	< 4	< 22	< 7
	10/10/14 - 10/10/14	< 5	< 4	< 11	< 4	< 12	< 6	< 10	< 13	< 5	< 6	< 35	< 9
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-34	01/09/14 - 01/09/14	< 2	< 2	< 6	< 2	< 4	< 2	< 4	< 13	< 2	< 3	< 24	< 6
	04/10/14 - 04/10/14	< 5	< 4	< 13	< 5	< 10	< 5	< 9	< 13	< 4	< 5	< 27	< 11
	07/10/14 - 07/10/14	< 5	< 6	< 13	< 7	< 14	< 8	< 9	< 11	< 7	< 6	< 31	< 8
	10/10/14 - 10/10/14	< 4	< 4	< 11	< 6	< 10	< 6	< 9	< 13	< 5	< 5	< 28	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-35	01/09/14 - 01/09/14	< 2	< 2	< 4	< 2	< 4	< 3	< 4	< 9	< 2	< 2	< 19	< 5
	04/10/14 - 04/10/14	< 5	< 5	< 12	< 6	< 11	< 6	< 10	< 15	< 4	< 6	< 37	< 13
	07/10/14 - 07/10/14	< 6	< 8	< 16	< 8	< 13	< 7	< 14	< 15	< 7	< 9	< 40	< 11
	10/10/14 - 10/10/14	< 6	< 6	< 12	< 6	< 10	< 7	< 9	< 12	< 6	< 6	< 32	< 11
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-36	01/09/14 - 01/09/14	< 3	< 2	< 4	< 2	< 4	< 2	< 4	< 11	< 2	< 2	< 22	< 5
	04/10/14 - 04/10/14	< 5	< 5	< 11	< 6	< 11	< 6	< 9	< 15	< 5	< 5	< 34	< 8
	07/10/14 - 07/10/14	< 5	< 4	< 12	< 4	< 10	< 5	< 7	< 9	< 5	< 5	< 28	< 7
	10/10/14 - 10/10/14	< 3	< 3	< 6	< 4	< 7	< 4	< 7	< 9	< 3	< 4	< 25	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-37	01/09/14 - 01/09/14	< 2	< 3	< 5	< 2	< 3	< 3	< 4	< 12	< 2	< 2	< 23	< 6
	04/10/14 - 04/10/14	< 5	< 4	< 11	< 5	< 10	< 5	< 10	< 15	< 5	< 5	< 29	< 10
	07/10/14 - 07/10/14	< 6	< 5	< 11	< 6	< 12	< 7	< 11	< 10	< 6	< 7	< 28	< 8
	10/10/14 - 10/10/14	< 4	< 4	< 9	< 4	< 9	< 5	< 8	< 10	< 4	< 4	< 26	< 7
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-III.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUND/WELL WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD		Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-50	01/09/14 - 01/09/14		< 2	< 2	< 3	< 2	< 4	< 3	< 4	< 12	< 2	< 2	< 24	< 6
	04/10/14 - 04/10/14		< 4	< 3	< 7	< 4	< 6	< 4	< 6	< 11	< 4	< 4	< 23	< 8
	07/10/14 - 07/10/14		< 7	< 9	< 15	< 7	< 15	< 9	< 14	< 15	< 9	< 10	< 44	< 10
	10/10/14 - 10/10/14		< 5	< 5	< 11	< 5	< 10	< 5	< 8	< 10	< 5	< 5	< 24	< 9
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-
BD-51	01/09/14 - 01/09/14		< 3	< 3	< 6	< 3	< 5	< 3	< 6	< 15	< 3	< 3	< 28	< 10
	04/10/14 - 04/10/14		< 4	< 5	< 10	< 5	< 11	< 5	< 8	< 14	< 4	< 4	< 34	< 8
	07/10/14 - 07/10/14		< 5	< 6	< 11	< 5	< 10	< 7	< 8	< 9	< 6	< 6	< 28	< 7
	10/10/14 - 10/10/14		< 4	< 3	< 7	< 3	< 5	< 4	< 7	< 9	< 3	< 4	< 22	< 6
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-
BD-54	01/09/14 - 01/09/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	04/10/14 - 04/10/14		< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 14	< 4	< 5	< 32	< 9
	09/04/14 - 09/04/14		< 3	< 4	< 9	< 3	< 6	< 4	< 7	< 11	< 3	< 4	< 23	< 7
	10/10/14 - 10/10/14	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	MEAN		-	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-IV.1 **CONCENTRATIONS OF NICKEL-63 AND GAMMA EMITTERS IN FISH SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	Ni-63	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
BD-25														
Golden Redhorse	05/07/14	< 204	< 46	< 62	< 111	< 50	< 107	< 66	< 107	< 366	< 46	< 55	< 592	< 157
Smallmouth Bass	05/07/14	< 176	< 79	< 69	< 173	< 74	< 151	< 55	< 130	< 447	< 54	< 80	< 812	< 266
Golden Redhorse	10/07/14	< 154	< 37	< 39	< 90	< 30	< 89	< 49	< 70	< 156	< 36	< 37	< 327	< 76
Smallmouth Bass	10/07/14	< 155	< 46	< 45	< 102	< 55	< 105	< 49	< 85	< 181	< 41	< 50	< 335	< 96
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-	-
BD-28														
Golden Redhorse	05/07/14	< 182	< 61	< 64	< 171	< 56	< 128	< 62	< 105	< 423	< 57	< 61	< 740	< 141
Common Carp	05/07/14	< 233	< 57	< 65	< 146	< 30	< 122	< 64	< 124	< 346	< 56	< 59	< 592	< 182
Golden Redhorse	10/07/14	< 176	< 39	< 43	< 96	< 34	< 98	< 50	< 76	< 160	< 36	< 41	< 295	< 120
Shorthead redhorse	10/07/14	< 166	< 25	< 26	< 60	< 24	< 51	< 28	< 47	< 114	< 22	< 24	< 232	< 54
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-	-
BD-41														
Largemouth Bass	05/07/14	< 150	< 72	< 68	< 169	< 64	< 138	< 87	< 126	< 463	< 71	< 78	< 887	< 203
Common Carp	05/07/14	< 173	< 48	< 55	< 142	< 57	< 116	< 70	< 108	< 292	< 46	< 62	< 560	< 69
Largemouth Bass	10/07/14	< 142	< 22	< 26	< 54	< 23	< 53	< 28	< 45	< 108	< 21	< 23	< 207	< 66
Common Carp	10/07/14	< 164	< 22	< 24	< 54	< 21	< 46	< 27	< 43	< 114	< 22	< 23	< 207	< 56
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-	-

Table C-V.1 CONCENTRATIONS OF NICKEL-63 AND GAMMA EMITTERS IN SEDIMENT SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014

RESULTS IN UNITS OF PCI/KG DRY ± 2 SIGMA

SITE	COLLECTION PERIOD	Ni-63	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-10	05/01/14	< 213	< 103	< 110	< 233	< 105	< 180	< 127	< 195	< 94	< 140	< 882	< 218
	10/02/14	< 256	< 71	< 84	< 183	< 63	< 171	< 105	< 154	< 72	162 ± 106	< 980	< 209
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-25	05/01/14	< 197	< 49	< 47	< 113	< 44	< 98	< 47	< 86	< 38	< 54	< 421	< 102
	10/02/14	< 257	< 78	< 91	< 154	< 59	< 137	< 102	< 161	< 80	< 99	< 1082	< 162
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-
BD-57	05/01/14	< 233	< 43	< 44	< 94	< 40	< 102	< 48	< 77	< 39	< 47	< 342	< 122
	10/02/14	< 257	< 59	< 70	< 176	< 55	< 166	< 87	< 126	< 58	104 ± 56	< 692	< 260
	MEAN	-	-	-	-	-	-	-	-	-	-	-	-

Table C-VI.1 **CONCENTRATIONS OF GROSS BETA IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

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

COLLECTION PERIOD	GROUP I - NEAR FIELD				GROUP II - FAR FIELD			GROUP III - CONTROL LOCATION
	BD-06	BD-19	BD-20	BD-21	BD-02	BD-04	BD-05	BD-03
01/02/14 - 01/09/14	25 ± 5	27 ± 5	25 ± 5	26 ± 5	22 ± 4	24 ± 5	26 ± 5	26 ± 5
01/09/14 - 01/16/14	21 ± 5	21 ± 5	20 ± 5	21 ± 5	22 ± 5	24 ± 5	21 ± 5	22 ± 5
01/16/14 - 01/23/14	18 ± 4	21 ± 5	20 ± 5	18 ± 4	18 ± 4	11 ± 4	18 ± 4	14 ± 4
01/23/14 - 01/30/14	17 ± 4	16 ± 4	16 ± 4	16 ± 4	20 ± 4	17 ± 4	16 ± 4	14 ± 4
01/30/14 - 02/06/14	27 ± 4	26 ± 5	23 ± 4	28 ± 5	25 ± 5	24 ± 4	25 ± 5	25 ± 5
02/06/14 - 02/13/14	24 ± 5	23 ± 4	26 ± 5	26 ± 5	23 ± 4	33 ± 5	23 ± 4	31 ± 5
02/13/14 - 02/19/14	29 ± 5	22 ± 5	29 ± 5	26 ± 5	28 ± 5	30 ± 6	31 ± 6	31 ± 6
02/19/14 - 02/27/14	25 ± 4	23 ± 4	20 ± 4	23 ± 4	19 ± 4	24 ± 4	24 ± 4	23 ± 4
02/27/14 - 03/06/14	20 ± 4	22 ± 5	22 ± 5	23 ± 5	25 ± 5	19 ± 4	22 ± 5	21 ± 5
03/06/14 - 03/13/14	21 ± 5	18 ± 5	18 ± 5	20 ± 5	21 ± 5	(1) 22 ± 5	19 ± 5	18 ± 5
03/13/14 - 03/20/14	15 ± 4	11 ± 4	15 ± 4	14 ± 4	13 ± 4	14 ± 4	19 ± 4	13 ± 4
03/20/14 - 03/27/14	18 ± 4	16 ± 4	17 ± 4	15 ± 4	19 ± 4	16 ± 4	24 ± 5	17 ± 4
03/27/14 - 04/03/14	15 ± 4	15 ± 4	16 ± 4	17 ± 4	18 ± 4	16 ± 4	13 ± 4	15 ± 4
04/03/14 - 04/10/14	15 ± 4	16 ± 4	17 ± 4	16 ± 4	17 ± 4	15 ± 4	18 ± 4	17 ± 4
04/10/14 - 04/17/14	17 ± 4	14 ± 4	15 ± 4	17 ± 4	14 ± 4	11 ± 4	15 ± 4	14 ± 4
04/17/14 - 04/24/14	18 ± 4	19 ± 5	16 ± 4	17 ± 4	16 ± 4	19 ± 4	19 ± 4	16 ± 4
04/24/14 - 05/01/14	9 ± 3	10 ± 4	9 ± 3	13 ± 4	10 ± 4	8 ± 3	9 ± 4	9 ± 4
05/01/14 - 05/08/14	11 ± 4	9 ± 4	11 ± 4	11 ± 4	13 ± 4	11 ± 4	11 ± 4	9 ± 4
05/08/14 - 05/15/14	14 ± 4	9 ± 4	13 ± 4	12 ± 4	11 ± 4	13 ± 4	(1) 9 ± 4	8 ± 4
05/15/14 - 05/22/14	16 ± 4	11 ± 4	14 ± 4	16 ± 4	13 ± 4	15 ± 4	15 ± 4	17 ± 4
05/22/14 - 05/29/14	15 ± 4	12 ± 4	14 ± 4	13 ± 4	14 ± 4	13 ± 4	15 ± 4	14 ± 4
05/29/14 - 06/05/14	8 ± 4	13 ± 4	10 ± 4	12 ± 4	11 ± 4	10 ± 4	11 ± 4	12 ± 4
06/05/14 - 06/12/14	18 ± 4	15 ± 4	12 ± 4	13 ± 4	13 ± 4	13 ± 4	14 ± 4	15 ± 4
06/12/14 - 06/19/14	15 ± 4	15 ± 4	19 ± 5	17 ± 4	14 ± 4	16 ± 4	18 ± 4	20 ± 4
06/19/14 - 06/26/14	14 ± 4	12 ± 4	14 ± 4	(1)	11 ± 4	13 ± 4	12 ± 4	13 ± 4 (1)
06/26/14 - 07/03/14	8 ± 4	9 ± 4	12 ± 4	10 ± 4	12 ± 4	(1) 9 ± 4	10 ± 4	10 ± 4
07/03/14 - 07/10/14	14 ± 4	13 ± 4	11 ± 4	14 ± 4	12 ± 4	12 ± 4	(1) 13 ± 4	11 ± 4
07/10/14 - 07/17/14	12 ± 4	12 ± 4	13 ± 4	15 ± 4	16 ± 4	11 ± 4	11 ± 4	49 ± 6 (1)
07/17/14 - 07/24/14	23 ± 5	20 ± 4	26 ± 5	20 ± 4	20 ± 5	22 ± 5	27 ± 5	(1)
07/24/14 - 07/31/14	19 ± 4	16 ± 4	18 ± 4	16 ± 4	16 ± 4	16 ± 4	17 ± 4	13 ± 4
07/31/14 - 08/07/14	28 ± 5	26 ± 5	32 ± 5	26 ± 5	26 ± 5	28 ± 5	31 ± 5	23 ± 4
08/07/14 - 08/14/14	16 ± 4	17 ± 4	17 ± 4	17 ± 4	18 ± 4	17 ± 4	16 ± 4	19 ± 4
08/14/14 - 08/21/14	24 ± 5	24 ± 5	20 ± 4	25 ± 5	26 ± 5	21 ± 5	23 ± 5	25 ± 5
08/21/14 - 08/28/14	15 ± 4	18 ± 4	15 ± 4	15 ± 4	14 ± 4	15 ± 4	18 ± 4	18 ± 4
08/28/14 - 09/04/14	22 ± 5	19 ± 5	24 ± 5	19 ± 5	15 ± 4	18 ± 4	20 ± 5	21 ± 5
09/04/14 - 09/11/14	15 ± 4	14 ± 4	16 ± 4	16 ± 4	17 ± 4	16 ± 4	17 ± 4	16 ± 4
09/11/14 - 09/18/14	14 ± 4	18 ± 4	17 ± 4	15 ± 4	15 ± 4	17 ± 4	16 ± 4	15 ± 4
09/18/14 - 09/25/14	22 ± 5	19 ± 4	23 ± 5	24 ± 5	22 ± 5	20 ± 4	20 ± 4	26 ± 5
09/25/14 - 10/02/14	17 ± 4	24 ± 5	21 ± 5	19 ± 5	24 ± 5	23 ± 5	23 ± 5	22 ± 5
10/02/14 - 10/09/14	11 ± 4	11 ± 4	14 ± 4	10 ± 4	13 ± 4	8 ± 4	14 ± 4	11 ± 4
10/09/14 - 10/16/14	14 ± 4	12 ± 4	13 ± 4	16 ± 4	13 ± 4	12 ± 4	11 ± 4	14 ± 4
10/16/14 - 10/23/14	10 ± 4	10 ± 4	11 ± 4	13 ± 4	11 ± 4	14 ± 4	12 ± 4	14 ± 4
10/23/14 - 10/30/14	20 ± 4	18 ± 4	21 ± 5	21 ± 4	17 ± 4	20 ± 4	20 ± 4	20 ± 4
10/30/14 - 11/06/14	15 ± 4	19 ± 4	18 ± 4	13 ± 4	15 ± 4	19 ± 4	18 ± 4	15 ± 4
11/06/14 - 11/13/14	14 ± 4	12 ± 4	17 ± 4	16 ± 4	16 ± 4	14 ± 4	15 ± 4	17 ± 4
11/13/14 - 11/20/14	16 ± 4	19 ± 4	18 ± 4	18 ± 4	19 ± 4	16 ± 4	16 ± 4	18 ± 4
11/20/14 - 11/26/14	19 ± 5	22 ± 5	25 ± 5	24 ± 5	25 ± 5	26 ± 5	19 ± 5	27 ± 5 (1)
11/26/14 - 12/04/14	29 ± 5	26 ± 4	27 ± 4	22 ± 4	28 ± 4	27 ± 4	26 ± 4	28 ± 4
12/04/14 - 12/11/14	26 ± 5	23 ± 5	28 ± 5	32 ± 5	26 ± 5	21 ± 5	25 ± 5	28 ± 5
12/11/14 - 12/18/14	29 ± 5	24 ± 5	28 ± 5	25 ± 5	26 ± 5	22 ± 5	27 ± 5	27 ± 5
12/18/14 - 12/24/14	23 ± 5	20 ± 5	23 ± 5	18 ± 5	22 ± 5	19 ± 5	18 ± 5	21 ± 5
12/24/14 - 12/31/14	20 ± 4	22 ± 4	26 ± 5	21 ± 4	17 ± 4	21 ± 4	17 ± 4	22 ± 4
MEAN	18 ± 11	17 ± 10	19 ± 11	18 ± 10	18 ± 10	18 ± 11	18 ± 11	19 ± 15

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

Table C-VI.2 **MONTHLY AND YEARLY VALUES OF GROSS BETA CONCENTRATIONS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

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

GROUP I - NEAR FIELD LOCATIONS				GROUP II - FAR FIELD LOCATIONS				GROUP III - CONTROL LOCATIONS			
COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD	COLLECTION PERIOD	MIN	MAX	MEAN ± 2SD
01/02/14 - 01/30/14	16	27	21 ± 7	01/02/14 - 01/30/14	11	26	20 ± 8	01/02/14 - 01/30/14	14	26	19 ± 12
01/30/14 - 02/27/14	20	29	25 ± 5	01/30/14 - 02/27/14	19	33	26 ± 8	01/30/14 - 02/27/14	23	31	27 ± 8
02/27/14 - 04/03/14	11	23	17 ± 6	02/27/14 - 04/03/14	13	25	19 ± 8	02/27/14 - 04/03/14	13	21	17 ± 6
04/03/14 - 05/01/14	9	19	15 ± 7	04/03/14 - 05/01/14	8	19	14 ± 8	04/03/14 - 05/01/14	9	17	14 ± 7
05/01/14 - 05/29/14	9	16	13 ± 4	05/01/14 - 05/29/14	9	15	13 ± 4	05/01/14 - 05/29/14	8	17	12 ± 8
05/29/14 - 07/03/14	8	19	13 ± 6	05/29/14 - 07/03/14	9	18	12 ± 5	05/29/14 - 07/03/14	10	20	14 ± 8
07/03/14 - 07/31/14	11	26	16 ± 9	07/03/14 - 07/31/14	11	27	16 ± 10	07/03/14 - 07/31/14	11	49	24 ± 43
07/31/14 - 09/04/14	15	32	21 ± 10	07/31/14 - 09/04/14	14	31	20 ± 11	07/31/14 - 09/04/14	18	25	21 ± 6
09/04/14 - 10/02/14	14	24	18 ± 7	09/04/14 - 10/02/14	15	24	19 ± 6	09/04/14 - 10/02/14	15	26	20 ± 10
10/02/14 - 10/30/14	10	21	14 ± 8	10/02/14 - 10/30/14	8	20	14 ± 7	10/02/14 - 10/30/14	11	20	14 ± 8
10/30/14 - 12/04/14	12	29	19 ± 10	10/30/14 - 12/04/14	14	28	20 ± 10	10/30/14 - 12/04/14	15	28	21 ± 12
12/04/14 - 12/31/14	18	32	24 ± 8	12/04/14 - 12/31/14	17	27	22 ± 7	12/04/14 - 12/31/14	21	28	25 ± 7
01/02/14 - 12/31/14	8	32	18 ± 11	01/02/14 - 12/31/14	8	33	18 ± 11	01/02/14 - 12/31/14	8	49	19 ± 15

Table C-VI.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

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

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-02	01/02/14 - 04/03/14	< 2	< 2	< 8	< 3	< 6	< 3	< 6	< 3	< 2	< 40	< 14
	04/03/14 - 07/03/14	< 2	< 2	< 6	< 3	< 6	< 3	< 5	< 3	< 3	< 32	< 6
	07/03/14 - 10/02/14	< 2	< 3	< 8	< 2	< 6	< 3	< 5	< 2	< 2	< 59	< 23
	10/02/14 - 12/31/14	< 4	< 5	< 12	< 4	< 10	< 5	< 8	< 4	< 3	< 50	< 23
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-03	01/02/14 - 04/03/14	< 4	< 4	< 7	< 2	< 8	< 3	< 6	< 3	< 4	< 42	< 10
	04/03/14 - 07/03/14	< 4	< 5	< 10	< 3	< 9	< 4	< 8	< 4	< 4	< 49	< 16
	07/03/14 - 10/02/14	< 3	< 3	< 7	< 3	< 8	< 3	< 6	< 3	< 3	< 60	< 14
	10/02/14 - 12/31/14	< 3	< 3	< 9	< 2	< 7	< 4	< 6	< 3	< 3	< 47	< 25
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-04	01/02/14 - 04/03/14	< 4	< 4	< 8	< 2	< 9	< 3	< 6	< 4	< 4	< 46	< 18
	04/03/14 - 07/03/14	< 4	< 4	< 9	< 4	< 5	< 4	< 6	< 4	< 3	< 49	< 20
	07/03/14 - 10/02/14	< 3	< 3	< 7	< 3	< 9	< 4	< 6	< 3	< 2	< 82	< 30
	10/02/14 - 12/31/14	< 3	< 4	< 8	< 3	< 9	< 5	< 8	< 4	< 3	< 61	< 21
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-05	01/02/14 - 04/03/14	< 2	< 3	< 9	< 4	< 7	< 4	< 7	< 3	< 2	< 32	< 18
	04/03/14 - 07/03/14	< 2	< 3	< 6	< 2	< 4	< 2	< 5	< 2	< 2	< 30	< 10
	07/03/14 - 10/02/14	< 2	< 2	< 7	< 2	< 3	< 3	< 5	< 2	< 2	< 52	< 21
	10/02/14 - 12/31/14	< 2	< 2	< 4	< 3	< 5	< 3	< 5	< 2	< 2	< 40	< 15
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-06	01/02/14 - 04/03/14	< 3	< 3	< 9	< 3	< 8	< 4	< 7	< 4	< 4	< 39	< 15
	04/03/14 - 07/03/14	< 4	< 3	< 8	< 4	< 8	< 4	< 6	< 3	< 2	< 38	< 14
	07/03/14 - 10/02/14	< 3	< 4	< 5	< 3	< 6	< 4	< 6	< 3	< 3	< 89	< 32
	10/02/14 - 12/31/14	< 2	< 2	< 6	< 2	< 5	< 2	< 4	< 2	< 2	< 38	< 10
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-VI.3 **CONCENTRATIONS OF GAMMA EMITTERS IN AIR PARTICULATE SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

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

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-19	01/02/14 - 04/03/14	< 4	< 4	< 10	< 2	< 8	< 5	< 7	< 4	< 4	< 47	< 15
	04/03/14 - 07/03/14	< 4	< 5	< 10	< 4	< 8	< 4	< 5	< 4	< 3	< 49	< 18
	07/03/14 - 10/02/14	< 2	< 2	< 7	< 1	< 6	< 2	< 4	< 2	< 2	< 63	< 17
	10/02/14 - 12/31/14	< 2	< 3	< 7	< 2	< 3	< 3	< 5	< 2	< 3	< 40	< 15
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-20	01/02/14 - 04/03/14	< 3	< 3	< 6	< 2	< 7	< 4	< 4	< 4	< 3	< 37	< 15
	04/03/14 - 07/03/14	< 4	< 5	< 11	< 4	< 8	< 5	< 9	< 4	< 3	< 34	< 20
	07/03/14 - 10/02/14	< 3	< 4	< 10	< 3	< 6	< 4	< 7	< 4	< 3	< 107	< 27
	10/02/14 - 12/31/14	< 2	< 3	< 7	< 2	< 5	< 3	< 5	< 2	< 2	< 46	< 13
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-21	01/02/14 - 04/03/14	< 3	< 4	< 8	< 3	< 7	< 4	< 7	< 3	< 3	< 44	< 19
	04/03/14 - 07/03/14	< 2	< 2	< 6	< 2	< 9	< 4	< 6	< 3	< 2	< 32	< 9
	07/03/14 - 10/02/14	< 2	< 3	< 7	< 1	< 8	< 3	< 5	< 2	< 2	< 68	< 21
	10/02/14 - 12/31/14	< 2	< 2	< 6	< 2	< 5	< 3	< 5	< 3	< 2	< 47	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-VII.1 **CONCENTRATIONS OF I-131 IN AIR IODINE SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

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

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

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

Table C-VIII.1 **CONCENTRATIONS OF I-131 IN MILK SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

	INDICATOR FARM	CONTROL FARM
COLLECTION PERIOD	BD-17	BD-18
01/02/14	< 0.7	(1)
02/06/14	< 0.5	(1)
03/06/14	< 0.8	(1)
04/03/14	< 0.6	(1)
05/01/14	< 0.5	(1)
05/15/14	< 0.6	(1)
05/30/14	< 0.6	(1)
06/12/14	< 0.5	(1)
06/26/14	< 0.6	(1)
07/10/14	< 0.5	(1)
07/24/14	< 0.6	(1)
08/08/14	< 0.6	(1)
08/21/14	< 0.6	(1)
09/04/14	< 0.7	(1)
09/18/14	< 0.6	(1)
10/02/14	< 0.7	(1)
10/16/14	< 0.5	(1)
10/30/14	< 0.4	(1)
11/13/14	< 0.3	(1)
12/04/14	< 0.6	(1)
MEAN	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-VIII.2 **CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-17	01/02/14	< 5	< 6	< 14	< 7	< 14	< 7	< 11	< 5	< 6	< 31	< 12
	02/06/14	< 3	< 4	< 9	< 5	< 9	< 4	< 6	< 3	< 4	< 24	< 5
	03/06/14	< 4	< 4	< 10	< 5	< 10	< 4	< 7	< 4	< 4	< 20	< 5
	04/03/14	< 5	< 5	< 12	< 5	< 12	< 5	< 9	< 4	< 6	< 33	< 7
	05/01/14	< 7	< 7	< 17	< 7	< 16	< 7	< 13	< 6	< 6	< 39	< 14
	05/15/14	< 6	< 7	< 16	< 6	< 14	< 5	< 10	< 5	< 5	< 25	< 8
	05/30/14	< 6	< 6	< 14	< 6	< 13	< 6	< 11	< 5	< 5	< 36	< 11
	06/12/14	< 8	< 9	< 19	< 8	< 19	< 10	< 16	< 9	< 8	< 43	< 10
	06/26/14	< 7	< 6	< 14	< 6	< 15	< 7	< 11	< 6	< 7	< 31	< 8
	07/10/14	< 4	< 5	< 13	< 5	< 11	< 6	< 10	< 4	< 5	< 32	< 9
	07/24/14	< 6	< 7	< 14	< 6	< 16	< 7	< 11	< 5	< 6	< 34	< 12
	08/08/14	< 5	< 4	< 11	< 4	< 10	< 5	< 9	< 5	< 5	< 27	< 7
	08/21/14	< 6	< 6	< 14	< 7	< 12	< 5	< 10	< 6	< 6	< 39	< 11
	09/04/14	< 8	< 9	< 24	< 8	< 20	< 10	< 16	< 8	< 9	< 56	< 6
	09/18/14	< 5	< 5	< 14	< 4	< 13	< 6	< 12	< 5	< 6	< 32	< 8
	10/02/14	< 5	< 6	< 15	< 6	< 13	< 7	< 11	< 5	< 6	< 39	< 11
	10/16/14	< 1	< 1	< 3	< 1	< 3	< 1	< 3	< 1	< 1	< 14	< 4
	10/30/14	< 6	< 7	< 17	< 7	< 14	< 8	< 12	< 6	< 7	< 40	< 13
	11/13/14	< 6	< 6	< 17	< 8	< 19	< 6	< 12	< 7	< 8	< 29	< 10
	12/04/14	< 6	< 7	< 14	< 7	< 15	< 7	< 12	< 6	< 6	< 29	< 8
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-VIII.2 **CONCENTRATIONS OF GAMMA EMITTERS IN MILK SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-18	01/02/14	(1) -	-	-	-	-	-	-	-	-	-	-
	02/06/14	(1) -	-	-	-	-	-	-	-	-	-	-
	03/06/14	(1) -	-	-	-	-	-	-	-	-	-	-
	04/03/14	(1) -	-	-	-	-	-	-	-	-	-	-
	05/01/14	(1) -	-	-	-	-	-	-	-	-	-	-
	05/15/14	(1) -	-	-	-	-	-	-	-	-	-	-
	05/30/14	(1) -	-	-	-	-	-	-	-	-	-	-
	06/12/14	(1) -	-	-	-	-	-	-	-	-	-	-
	06/26/14	(1) -	-	-	-	-	-	-	-	-	-	-
	07/10/14	(1) -	-	-	-	-	-	-	-	-	-	-
	07/24/14	(1) -	-	-	-	-	-	-	-	-	-	-
	08/08/14	(1) -	-	-	-	-	-	-	-	-	-	-
	08/21/14	(1) -	-	-	-	-	-	-	-	-	-	-
	09/04/14	(1) -	-	-	-	-	-	-	-	-	-	-
	09/18/14	(1) -	-	-	-	-	-	-	-	-	-	-
	10/02/14	(1) -	-	-	-	-	-	-	-	-	-	-
	10/16/14	(1) -	-	-	-	-	-	-	-	-	-	-
	10/30/14	(1) -	-	-	-	-	-	-	-	-	-	-
	11/13/14	(1) -	-	-	-	-	-	-	-	-	-	-
	12/04/14	(1) -	-	-	-	-	-	-	-	-	-	-
	MEAN	-	-	-	-	-	-	-	-	-	-	-

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-IX.1 **CONCENTRATIONS OF GAMMA EMITTERS IN VEGETATION SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/KG WET ± 2 SIGMA

SITE	COLLECTION PERIOD	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	Cs-134	Cs-137	Ba-140	La-140
BD-CONTROL												
Beets	09/19/14	< 13	< 13	< 32	< 13	< 33	< 13	< 22	< 11	< 13	< 75	< 16
Cabbage	09/19/14	< 8	< 8	< 22	< 10	< 21	< 8	< 16	< 7	< 8	< 46	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-QUAD 1												
Cabbage	09/17/14	< 12	< 13	< 27	< 9	< 27	< 14	< 20	< 10	< 12	< 78	< 21
Potatoes	09/17/14	< 11	< 11	< 26	< 10	< 26	< 11	< 18	< 9	< 9	< 61	< 18
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-QUAD 2												
Broccoli	09/17/14	< 11	< 11	< 25	< 10	< 23	< 10	< 20	< 10	< 11	< 58	< 19
Potatoes	09/17/14	< 12	< 11	< 33	< 14	< 29	< 12	< 21	< 10	< 13	< 66	< 17
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-QUAD 3												
Cabbage	09/20/14	< 22	< 25	< 45	< 19	< 46	< 24	< 36	< 19	< 22	< 135	< 31
Onions	09/20/14	< 11	< 16	< 36	< 16	< 33	< 17	< 27	< 15	< 16	< 97	< 22
	MEAN	-	-	-	-	-	-	-	-	-	-	-
BD-QUAD 4												
Beets	09/20/14	< 9	< 11	< 24	< 11	< 25	< 10	< 20	< 8	< 10	< 55	< 15
Cabbage	09/20/14	< 8	< 10	< 22	< 8	< 19	< 8	< 13	< 8	< 9	< 54	< 12
	MEAN	-	-	-	-	-	-	-	-	-	-	-

Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2014

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-02-1	19.7 ± 4.7	16.6	19.7	20.3	22.3
BD-02-2	19.4 ± 3.0	17.3	19.6	19.9	20.8
BD-03-1	20.6 ± 4.8	17.2	22.2	20.7	22.4
BD-03-2	20.4 ± 2.8	18.7	19.9	21.8	21.2
BD-04-1	19.2 ± 3.2	17.0	19.8	19.2	20.8
BD-04-2	18.7 ± 3.3	16.4	19.8	20.0	18.4
BD-05-1	20.1 ± 3.6	17.4	21.1	20.8	21.0
BD-05-2	19.4 ± 2.9	17.3	20.1	19.5	20.5
BD-06-1	18.6 ± 3.8	16.2	18.7	18.5	20.8
BD-06-2	19.3 ± 4.1	16.9	(1)	20.4	20.5
BD-19-1	19.6 ± 4.1	16.5	20.8	20.4	20.7
BD-19-2	20.4 ± 4.6	17.2	20.4	21.8	22.3
BD-20-1	19.6 ± 3.2	17.4	19.5	20.3	21.2
BD-20-2	19.8 ± 3.9	17.0	20.3	20.5	21.5
BD-21-1	18.8 ± 3.4	16.3	19.0	19.6	20.2
BD-21-2	19.2 ± 3.2	16.8	20.0	19.7	20.3
BD-101-3	19.1 ± 4.4	16.0	19.9	19.5	21.1
BD-101-4	19.7 ± 4.0	16.8	20.4	20.2	21.4
BD-102-1	17.7 ± 2.9	16.0	17.6	17.6	19.6
BD-102-2	20.1 ± 3.9	17.3	20.2	21.1	21.7
BD-103-1	19.1 ± 3.8	16.9	(1)	20.2	20.2
BD-103-2	19.0 ± 4.4	15.9	21.0	18.9	20.1
BD-104-1	18.1 ± 0.6	(1)	18.0	17.9	18.5
BD-104-2	17.8 ± 5.2	13.9	19.5	19.0	18.8
BD-104-3	21.6 ± 7.0	19.0	20.1	20.5	26.8
BD-104-4	22.8 ± 5.4	19.2	22.4	25.5	24.1
BD-105-1	18.0 ± 2.6	16.2	18.1	18.7	19.1
BD-105-2	19.0 ± 3.0	16.9	19.1	19.3	20.5
BD-105-3	22.6 ± 6.0	19.1	23.2	21.6	26.3
BD-105-4	22.5 ± 10.5	18.1	21.7	20.2	30.1
BD-106-1	18.5 ± 5.1	14.7	19.2	19.4	20.5
BD-106-2	18.3 ± 3.3	16.1	19.4	17.8	19.7
BD-107-1	18.9 ± 3.0	16.7	20.0	19.4	19.5
BD-107-2	18.4 ± 4.1	16.0	18.6	18.0	21.0
BD-108-1	18.4 ± 4.0	15.5	19.4	18.7	19.9
BD-108-2	19.6 ± 4.4	16.3	20.2	20.7	21.1
BD-109-1	21.6 ± 3.7	19.5	23.5	20.7	22.7
BD-109-2	22.6 ± 2.9	20.5	23.3	22.8	23.8
BD-110-1	18.0 ± 0.8	17.6	18.0	17.7	18.5
BD-110-2	17.8 ± 4.2	14.9	18.5	19.8	18.0
BD-110-3	21.4 ± 7.6	18.5	20.7	19.5	26.9
BD-110-4	21.1 ± 6.0	19.2	19.3	20.5	25.5
BD-112-1	19.1 ± 4.9	15.8	20.3	18.8	21.5
BD-112-2	18.0 ± 2.4	16.2	18.4	19.0	18.2

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2014

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-114-1	19.2 ± 3.9	16.3	19.8	20.6	20.1
BD-114-2	18.6 ± 4.9	15.8	(1)	19.8	20.3
BD-115-1	18.7 ± 5.1	15.3	18.7	19.5	21.4
BD-115-2	19.3 ± 4.1	16.3	20.7	19.6	20.6
BD-116-1	19.9 ± 4.5	16.7	21.9	20.1	20.7
BD-116-2	19.6 ± 5.4	15.8	20.5	19.9	22.1
BD-201-1	23.4 ± 6.3	18.7	24.7	25.4	24.9
BD-201-2	20.6 ± 3.8	17.7	21.6	21.6	21.3
BD-202-1	19.4 ± 5.0	15.8	19.7	21.3	20.9
BD-202-2	19.1 ± 5.3	15.3	19.4	19.9	21.6
BD-203-1	20.1 ± 5.5	16.1	21.8	20.5	22.0
BD-203-2	18.0 ± 4.6	14.9	20.4	18.2	18.6
BD-204-1	18.5 ± 5.0	15.0	19.0	19.2	20.9
BD-204-2	17.8 ± 2.4	16.1	18.7	17.8	18.5
BD-205-1	18.0 ± 4.5	14.8	18.4	18.7	20.1
BD-205-2	18.1 ± 4.1	15.3	19.7	17.6	19.6
BD-206-1	20.2 ± 3.1	(1)	20.4	18.5	21.6
BD-206-2	18.5 ± 3.8	16.3	19.9	17.5	20.2
BD-207-1	18.5 ± 4.3	15.7	17.9	19.7	20.6
BD-207-2	17.3 ± 3.3	15.1	17.0	18.2	18.9
BD-208-1	20.0 ± 0.6	(1)	19.8	19.9	20.4
BD-208-2	18.5 ± 3.1	16.2	19.0	18.9	19.7
BD-209-1	23.4 ± 5.5	19.3	25.3	24.1	24.7
BD-209-2	23.9 ± 6.7	19.3	24.5	24.5	27.4
BD-210-1	21.5 ± 1.8	20.5	21.1	21.9	22.6
BD-210-2	20.7 ± 3.0	18.5	21.9	21.1	21.1
BD-211-1	22.7 ± 6.6	17.9	24.2	23.3	25.4
BD-211-2	23.0 ± 5.2	19.5	22.5	24.5	25.3
BD-212-3	19.7 ± 4.6	16.6	20.1	19.8	22.1
BD-212-4	24.1 ± 6.3	19.4	26.4	25.0	25.5
BD-213-3	18.4 ± 3.5	15.9	18.3	19.8	19.5
BD-213-4	18.7 ± 3.5	16.8	18.6	18.2	21.0
BD-214-1	18.8 ± 2.6	17.1	18.6	19.3	20.2
BD-214-2	21.5 ± 5.1	17.7	23.0	22.4	23.0
BD-215-1	18.5 ± 3.7	17.0	19.0	17.0	20.8
BD-215-2	18.3 ± 3.8	16.1	18.7	17.8	20.7
BD-216-1	20.9 ± 5.0	17.3	21.3	21.6	23.2
BD-216-2	20.9 ± 4.1	18.2	21.0	21.1	23.2
BD-111A-1	19.0 ± 4.6	16.1	18.7	19.3	21.7
BD-111A-2	19.5 ± 5.9	15.9	18.9	20.0	23.0
BD-113A-1	18.6 ± 4.4	16.2	20.3	17.3	20.7
BD-113A-2	19.8 ± 4.3	17.3	19.8	19.6	22.6

(1) SEE PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2014

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

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL	ISFSI
JAN-MAR	16.4 ± 2.5	17.0 ± 3.2	16.9 ± 0.8	18.0 ± 2.1	18.9 ± 0.9
APR-JUN	19.7 ± 2.8	20.7 ± 4.7	19.9 ± 1.3	21.1 ± 3.3	21.2 ± 2.9
JUL-SEP	19.4 ± 2.3	20.4 ± 4.8	20.1 ± 1.6	21.3 ± 1.6	21.3 ± 4.3
OCT-DEC	20.6 ± 2.8	21.7 ± 4.5	20.8 ± 1.9	21.8 ± 1.7	26.6 ± 4.0

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER, CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2014

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATION

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	125	13.9	23.8	19.0 ± 4.1
OUTER RING	126	14.8	27.4	20.0 ± 5.6
OTHER	55	16.2	22.3	19.4 ± 3.4
CONTROL	8	17.2	22.4	20.5 ± 3.6
ISFSI	24	18.1	30.1	22.0 ± 6.6

INNER RING STATIONS - BD-101-3, BD-101-4, BD-102-1, BD-102-2, BD-103-1, BD-103-2, BD-104-1, BD-104-2, BD-105-1, BD-105-2, BD-106-1, BD-106-2, BD-107-1, BD-107-2, BD-108-1, BD-108-2, BD-109-1, BD-109-2, BD-110-1, BD-110-2, BD-111A-1, BD-111A-2, BD-112-1, BD-112-2, BD-113A-1, BD-113A-2, BD-114-1, BD-114-2, BD-115-1, BD-115-2, BD-116-1, BD-116-2

OUTER RING STATIONS - BD-201-1, BD-201-2, BD-202-1, BD-202-2, BD-203-1, BD-203-2, BD-204-1, BD-204-2, BD-205-1, BD-205-2, BD-206-1, BD-206-2, BD-207-1, BD-207-2, BD-208-1, BD-208-2, BD-209-1, BD-209-2, BD-210-1, BD-210-2, BD-211-1, BD-211-2, BD-212-3, BD-212-4, BD-213-3, BD-213-4, BD-214-1, BD-214-2, BD-215-1, BD-215-2, BD-216-1, BD-216-2

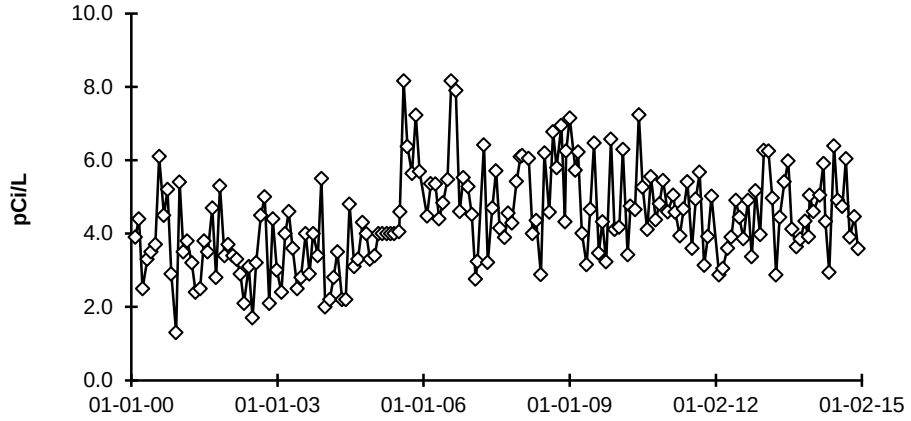
OTHER STATIONS - BD-02-1, BD-02-2, BD-04-1, BD-04-2, BD-05-1, BD-05-2, BD-06-1, BD-06-2, BD-19-1, BD-19-2, BD-20-1, BD-20-2, BD-21-1, BD-21-2

CONTROL STATIONS - BD-03-1, BD-03-2

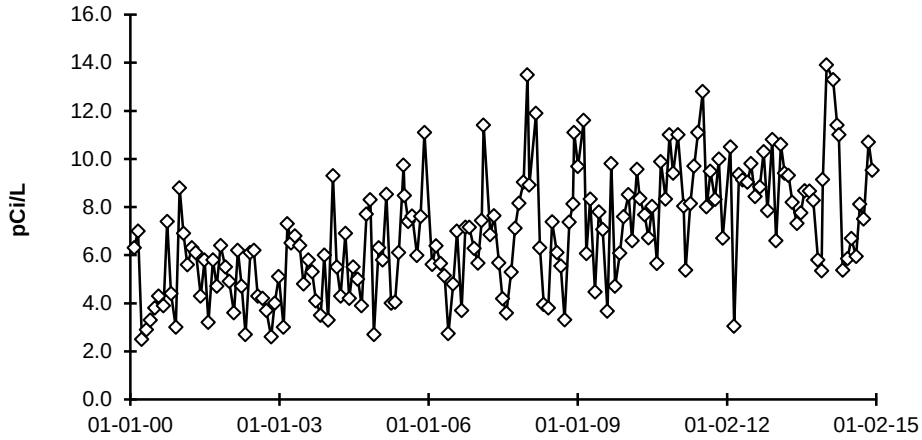
ISFSI STATIONS - BD-104-3, BD-104-4, BD-105-3, BD-105-4, BD-110-3, BD-110-4

FIGURE C-1
Surface Water - Gross Beta - Stations BD-10 and BD-25 (C) Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-10 Kankaee River, Downstream



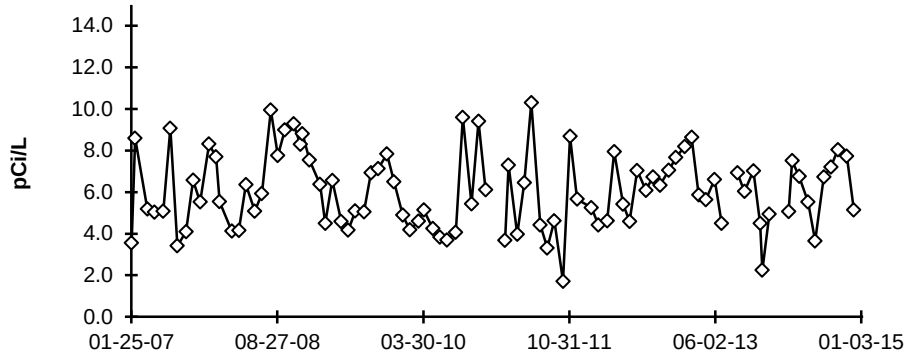
BD-25 (C) Kankakee River, Upstream



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JUNE 2005

FIGURE C-2
Surface Water - Gross Beta - Stations BD-38 and BD-40
Collected in the Vicinity of Braidwood Station, 2007 - 2014

BD-38 Main Drainage Ditch



BD-40 Braidwood Station Cooling Lake

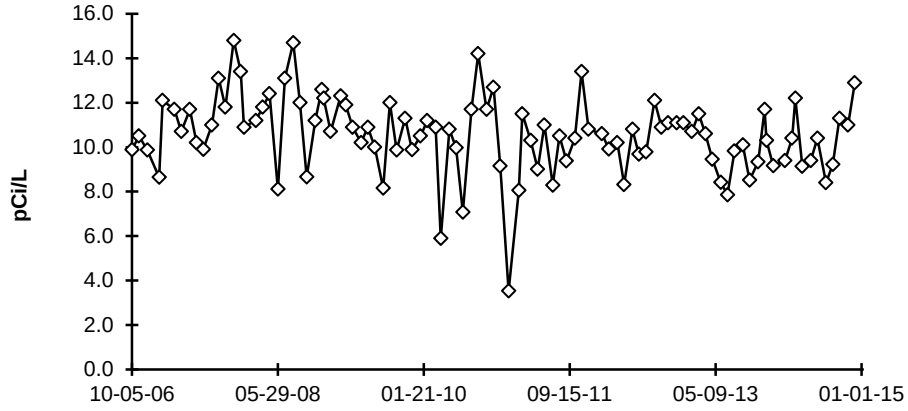
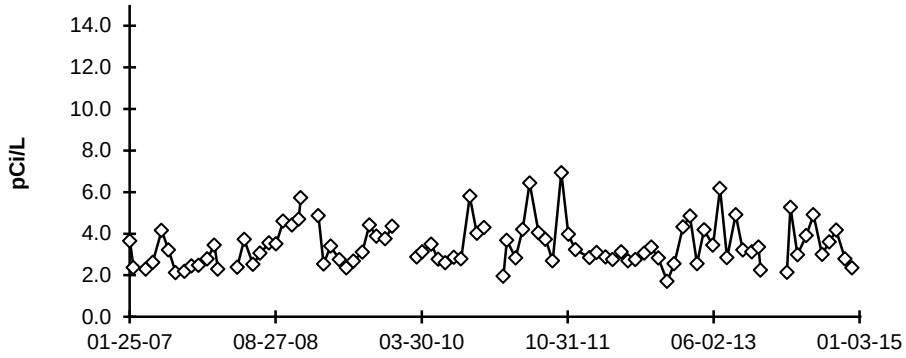
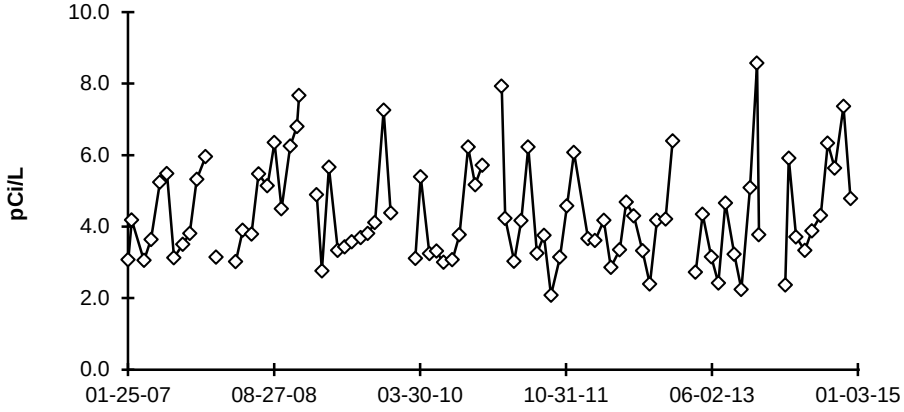


FIGURE C-3
Surface Water - Gross Beta - Stations BD-55 and BD-56 Collected in the Vicinity of Braidwood Station, 2007 - 2014

BD-55 North Pond Fatlan Site



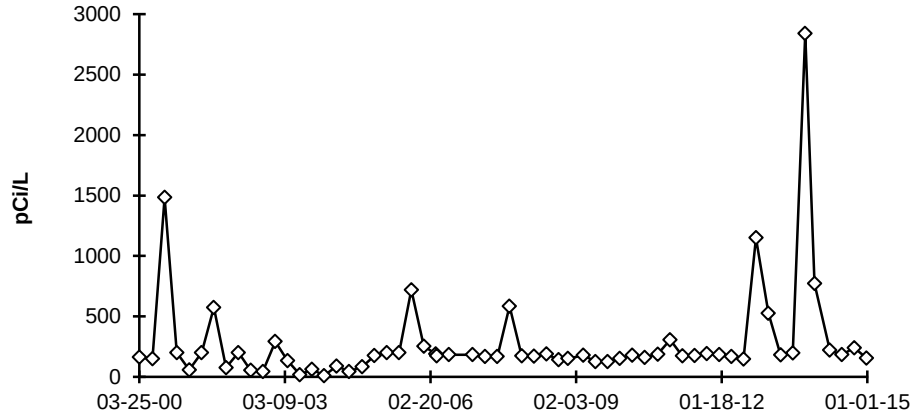
BD-56 South Pond Fatlan Site



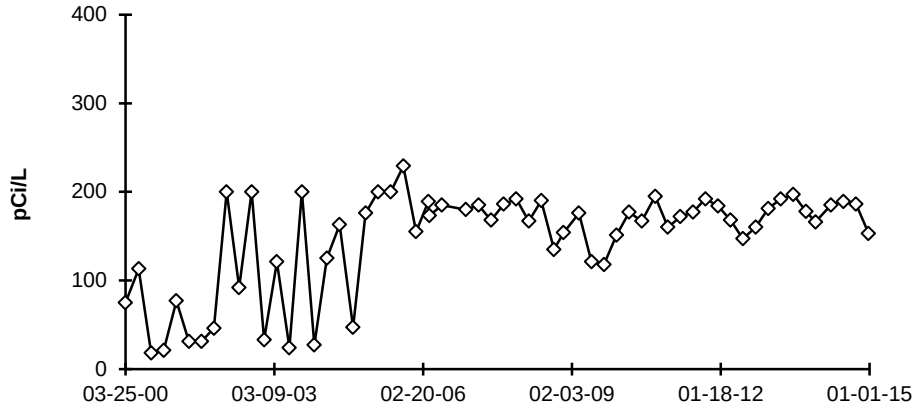
GAPS IN DATA ARE DUE TO SAMPLING POINTS BEING FROZEN AT TIME OF COLLECTION

FIGURE C-4
Surface Water - Tritium - Stations BD-10 and BD-25 (C) Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-10 Kankakee River, Downstream



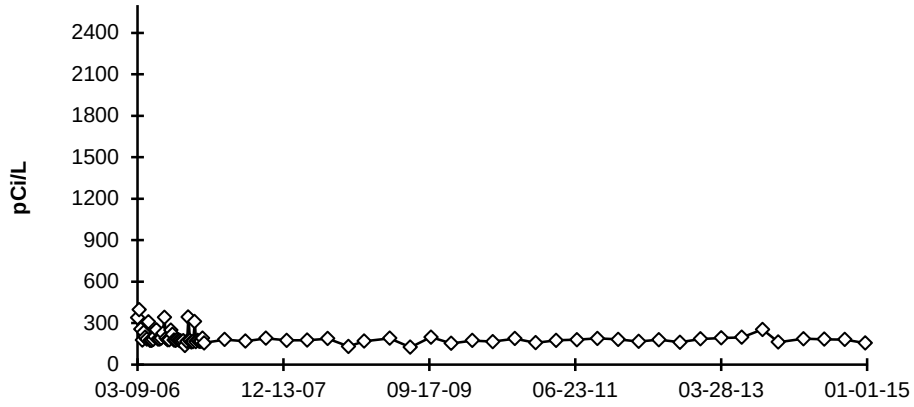
BD-25 (C) Kankakee River, Upstream



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JUNE 2005

FIGURE C-5
Surface Water - Tritium - Stations BD-38 and BD-40
Collected in the Vicinity of Braidwood Station, 2006 - 2014

BD-38 Main Drainage Ditch



BD-40 Braidwood Station Cooling Lake

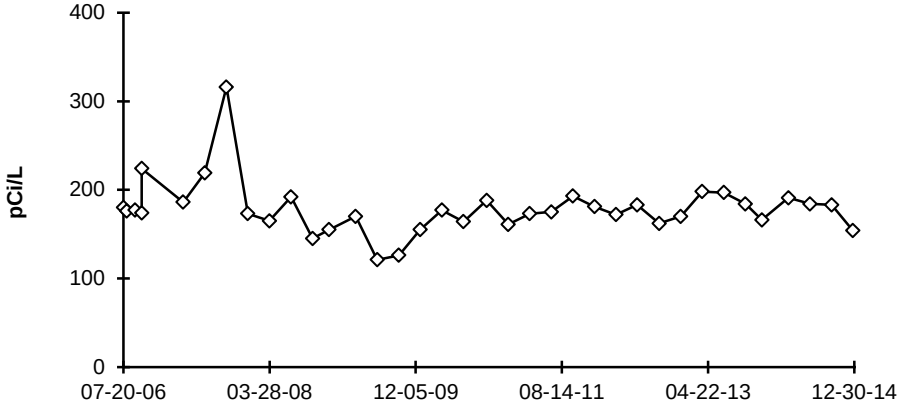
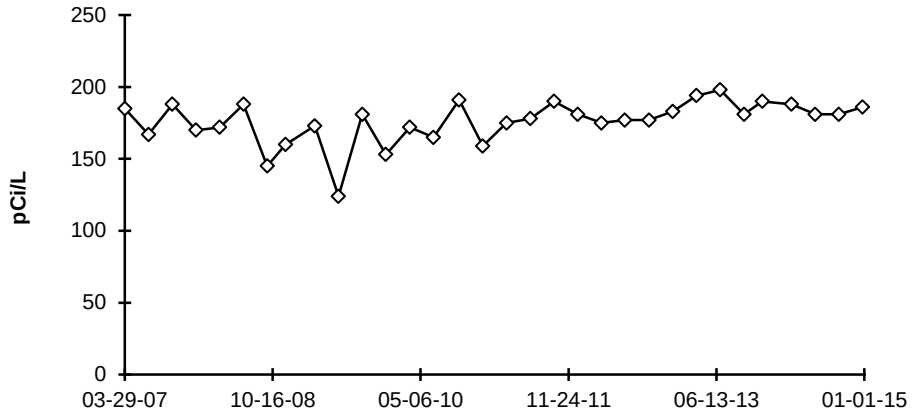


FIGURE C-6
Surface Water - Tritium - Stations BD-55 and BD-56
Collected in the Vicinity of Braidwood Station, 2007 - 2014

BD-55 North Pond Fatlan Site



BD-56 South Pond Fatlan Site

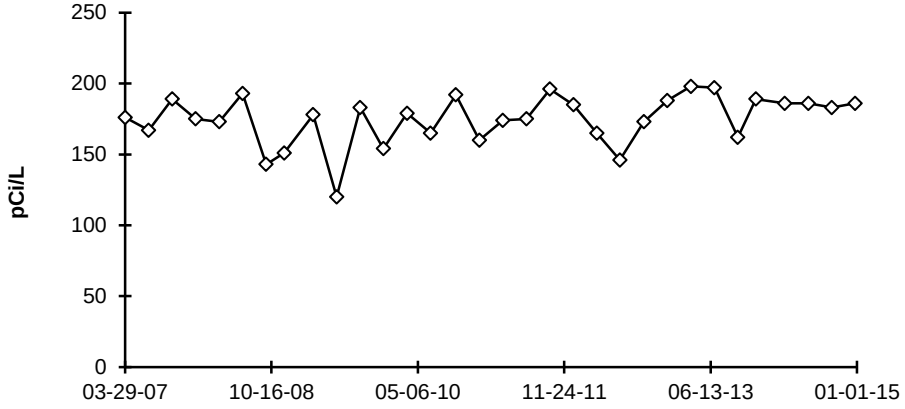
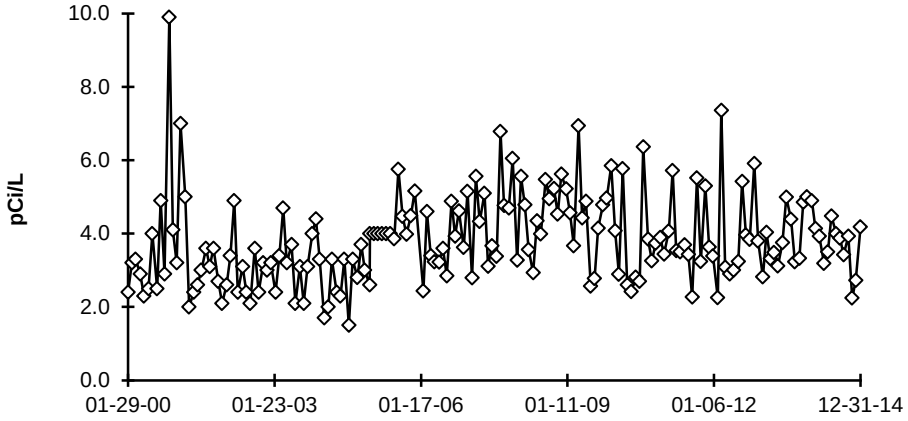


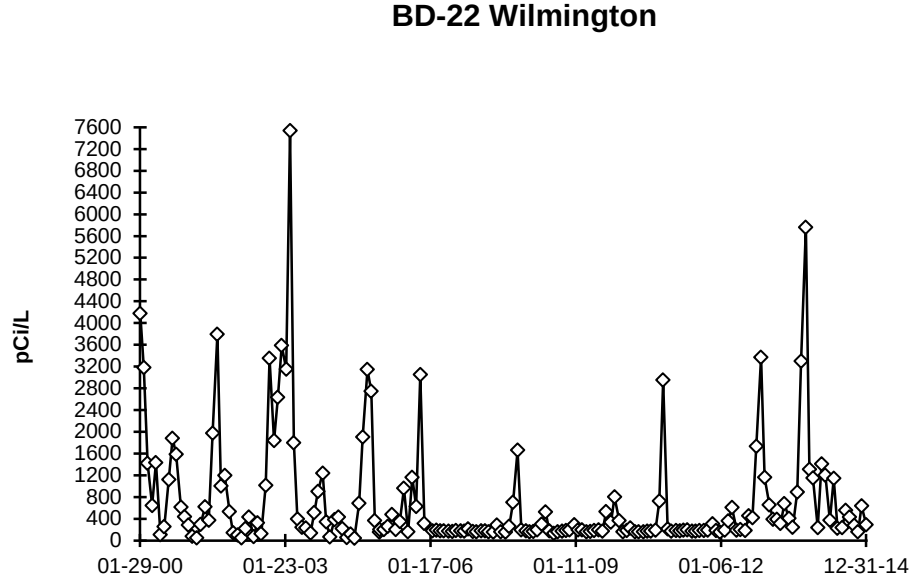
FIGURE C-7
Public Water - Gross Beta - Station BD-22
Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-22 Wilmington



DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JUNE 2005

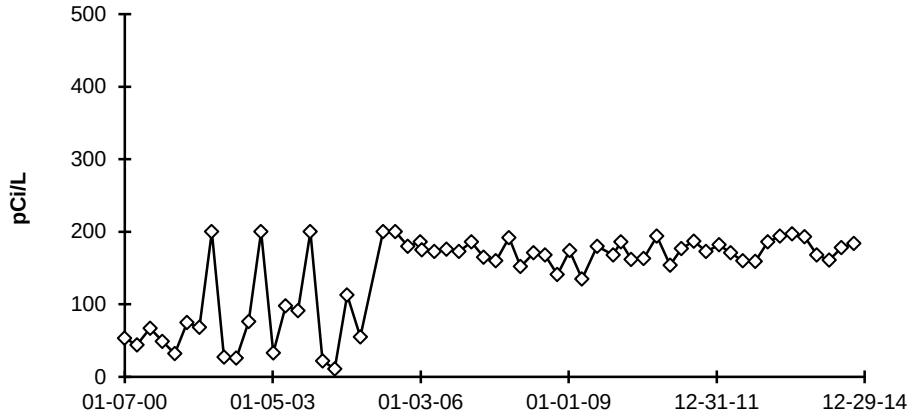
FIGURE C-8
Public Water - Tritium - Station BD-22
Collected in the Vicinity of Braidwood Station, 2000 - 2014



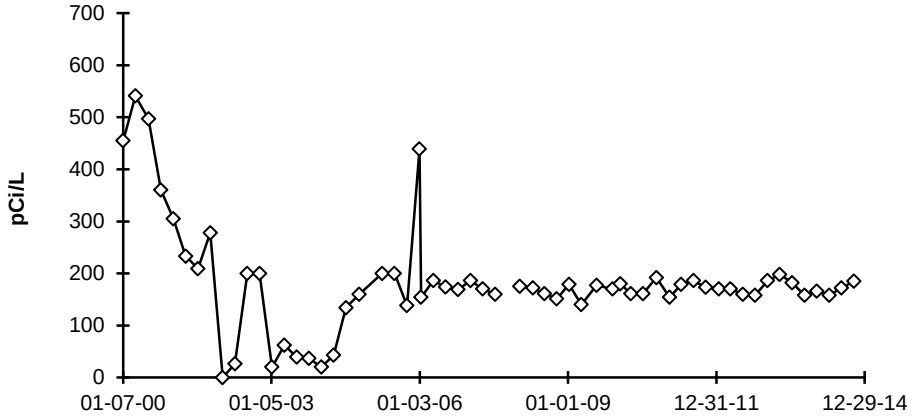
DUE TO VENDOR CHANGE, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JUNE 2005

FIGURE C-9
Ground/Well Water - Tritium - Stations BD-13 and BD-34 Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-13 Braidwood City Hall Well



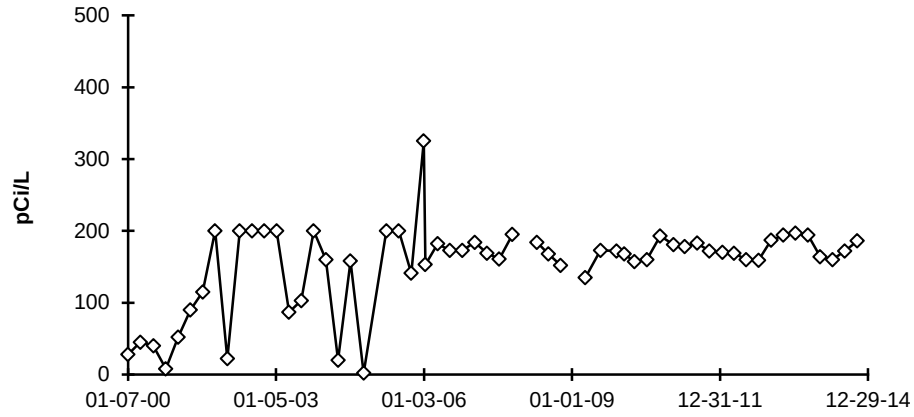
BD-34 Gibson Well



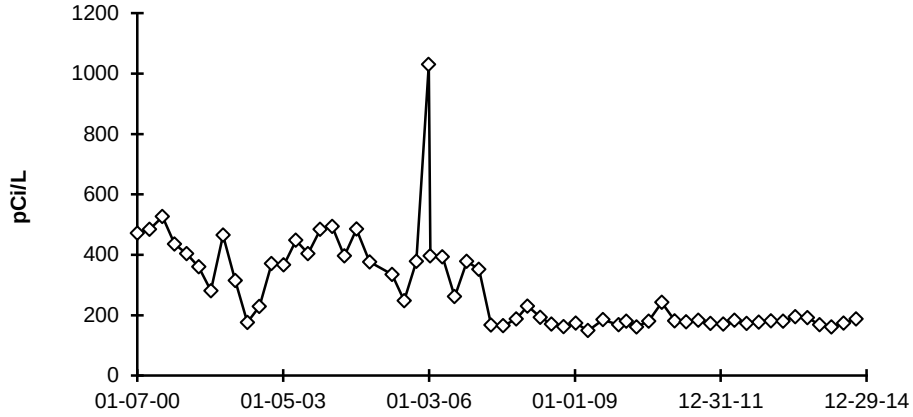
DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY.

FIGURE C-10
Ground/Well Water - Tritium - Stations BD-35 and BD-36 Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-35 Joly Well



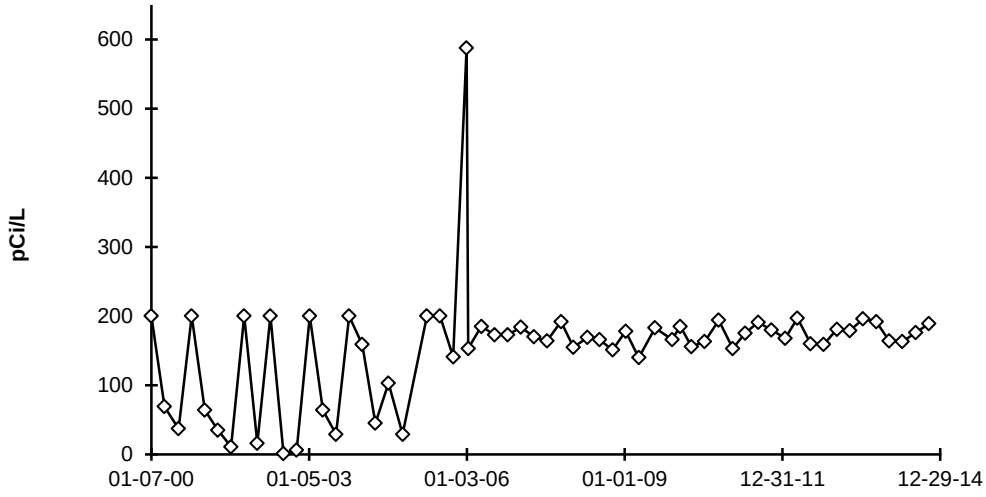
BD-36 Hutton Well



DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY.

FIGURE C-11
Ground/Well Water - Tritium - Station BD-37
Collected in the Vicinity of Braidwood Station, 2000 - 2014

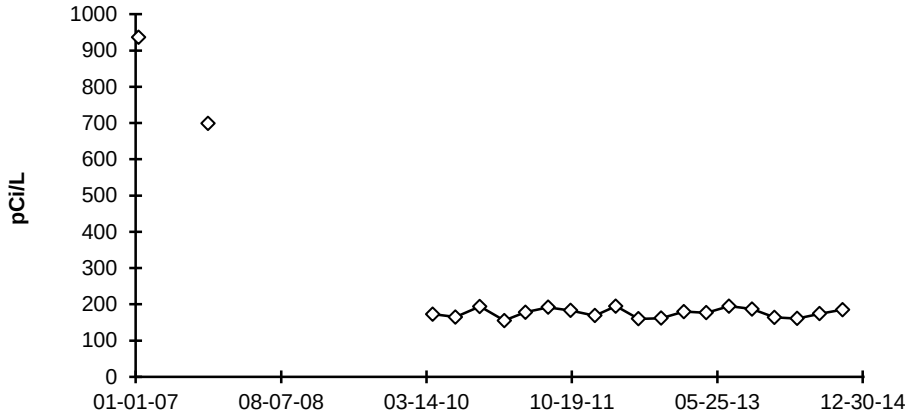
BD-37 Nurczyk Well



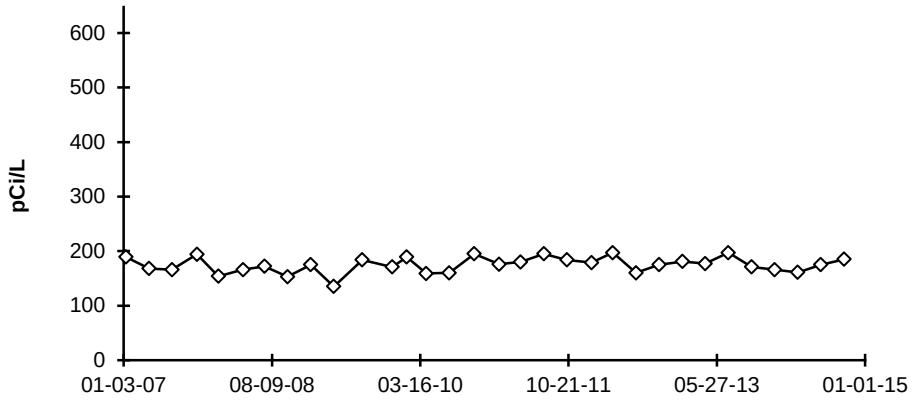
DUE TO VENDOR CHANGE IN 2005, < VALUES ARE LLD VALUES JANUARY THROUGH JUNE 2005 AND MDC VALUES AFTER JULY.

FIGURE C-12
Ground/Well Water - Tritium - Station BD-50 and BD-51 Collected in the Vicinity of Braidwood Station, 2007 - 2014

BD-50 Skole Well



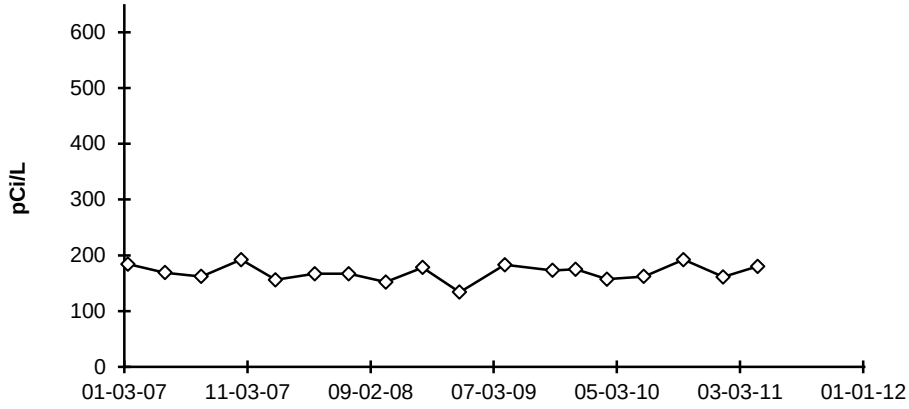
BD-51 Fatlan Well



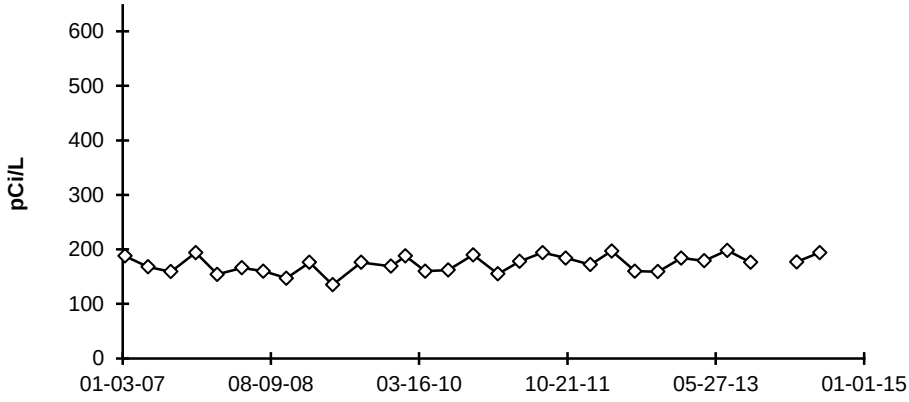
NEW STATIONS BD-50 AND BD-51 ADDED IN 2007
STATION BD-50 WAS INITIALLY DISCONTINUED ON 10/18/07 AND RESUMED ON 04/08/10

FIGURE C-13
Ground/Well Water - Tritium - Stations BD-53 and BD-54 Collected in the Vicinity of Braidwood Station, 2007 - 2014

BD-53 Phelps Well



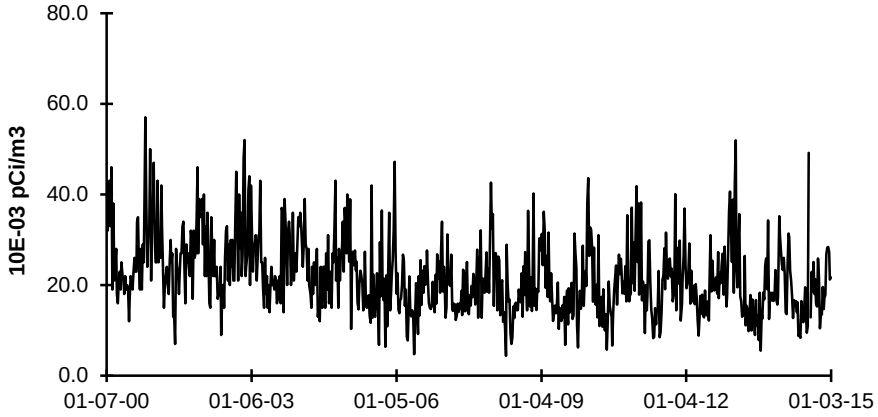
BD-54 Cash Well



BD-53 was removed from the program during the 3rd quarter of 2011

FIGURE C-14
Air Particulate - Gross Beta- Stations BD-03 (C) and BD-06 Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-03 (C) County Line Road



BD-06 Godley

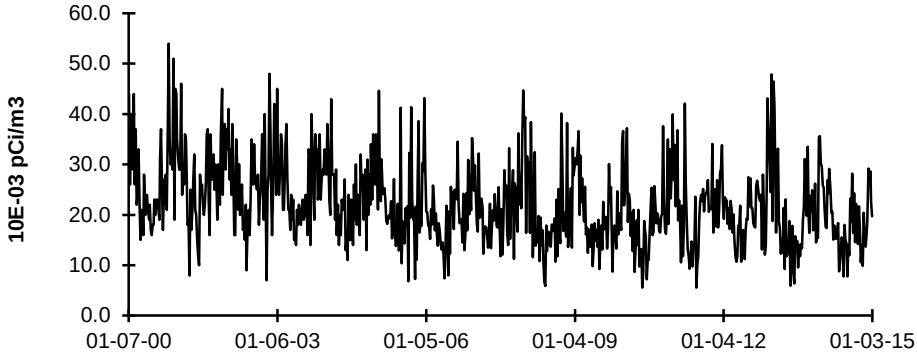
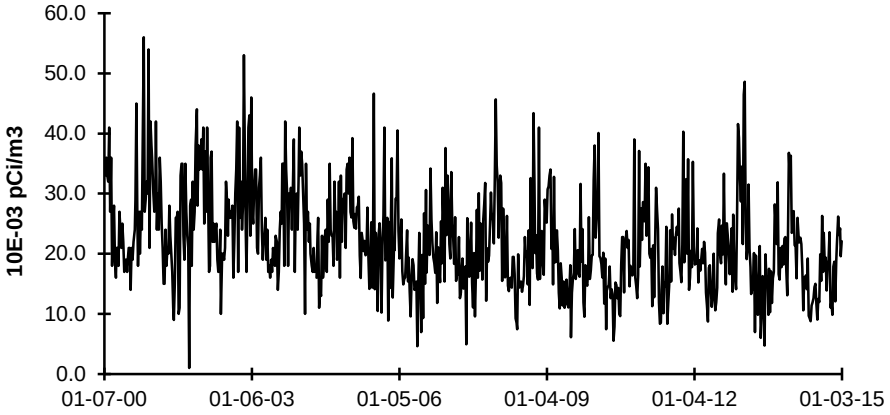


FIGURE C-15
Air Particulate - Gross Beta- Stations BD-19 and BD-20 Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-19 Near Field, NW



BD-20 Near Field, N

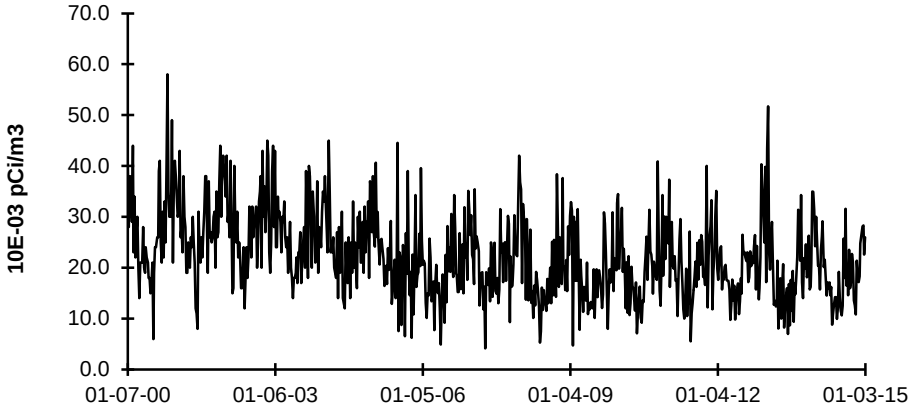


FIGURE C-16
Air Particulate - Gross Beta- Station BD-21
Collected in the Vicinity of Braidwood Station, 2000 - 2014

BD-21 Near Field, NE

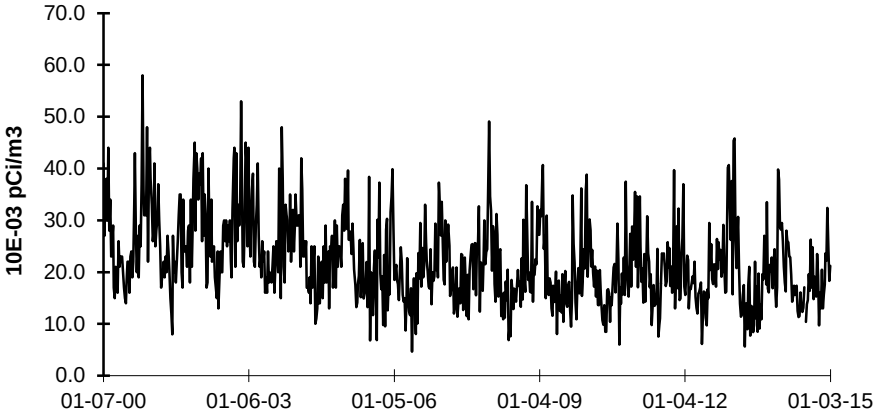
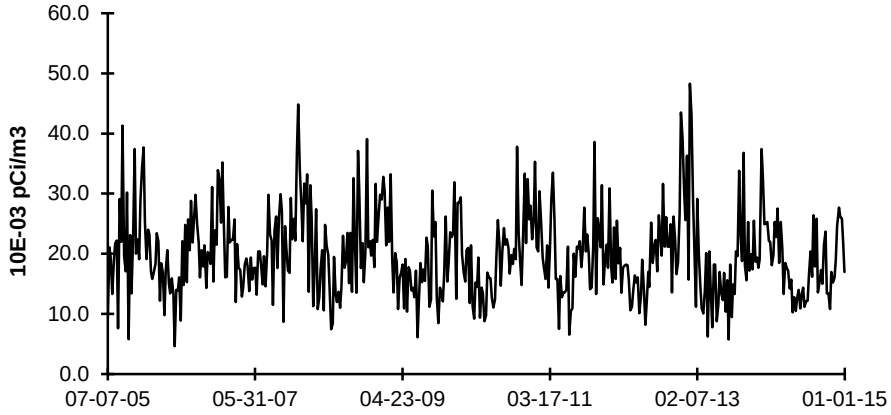


FIGURE C-17
Air Particulate - Gross Beta- Stations BD-02 and BD-04 Collected in the Vicinity of Braidwood Station, 2005 - 2014

BD-02 Near Field, NW



BD-04 Near Field, N

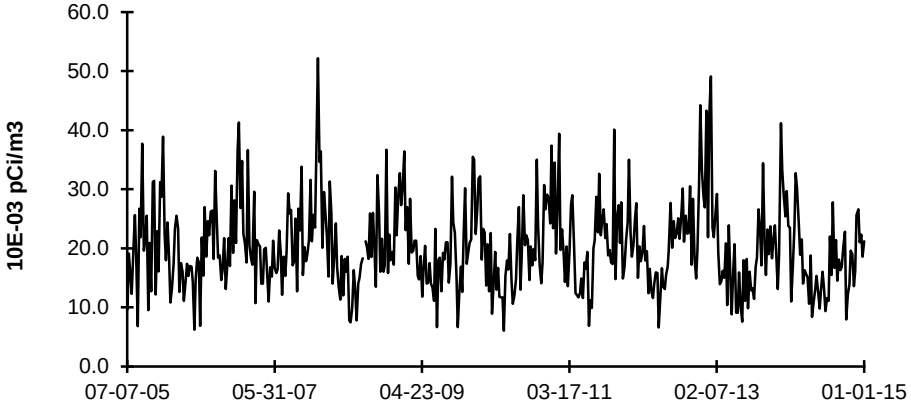
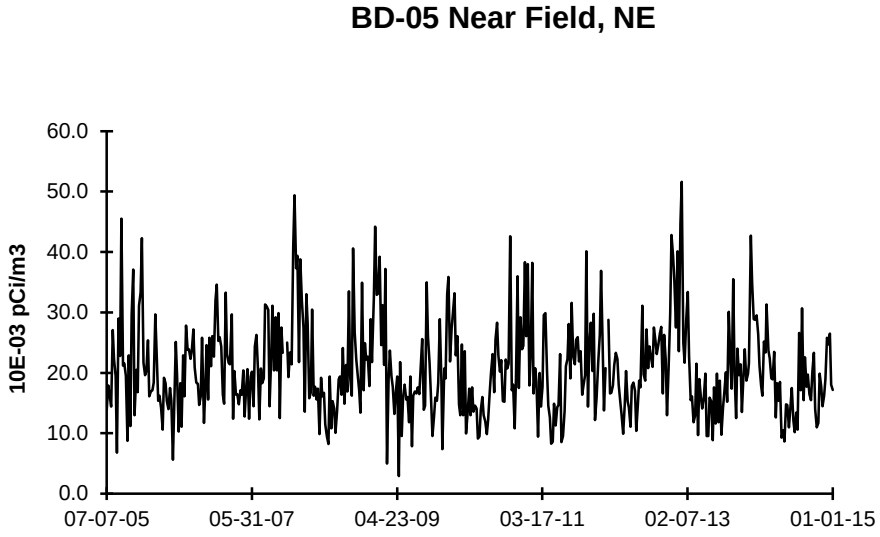


FIGURE C-18
Air Particulate - Gross Beta- Station BD-05
Collected in the Vicinity of Braidwood Station, 2005 - 2014



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APPENDIX D

INTER-LABORATORY COMPARISON PROGRAM

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TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 1 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
March 2014	E10854	Milk	Sr-89	pCi/L	95.1	91.7	1.04	A
			Sr-90	pCi/L	10.9	15.1	0.72	W
	E10855	Milk	I-131	pCi/L	96.6	98.5	0.98	A
			Ce-141	pCi/L	112	119	0.94	A
			Cr-51	pCi/L	449	491	0.91	A
			Cs-134	pCi/L	186	210	0.89	A
			Cs-137	pCi/L	250	253	0.99	A
			Co-58	pCi/L	248	268	0.93	A
			Mn-54	pCi/L	292	297	0.98	A
			Fe-59	pCi/L	230	219	1.05	A
			Zn-65	pCi/L	312	323	0.97	A
			Co-60	pCi/L	321	337	0.95	A
	E10857	AP	Ce-141	pCi	53.0	53.9	0.98	A
			Cr-51	pCi	232	223	1.04	A
			Cs-134	pCi	100	95.3	1.05	A
			Cs-137	pCi	122	115	1.06	A
			Co-58	pCi	122	121	1.01	A
			Mn-54	pCi	135	135	1.00	A
			Fe-59	pCi	111	99.3	1.12	A
			Zn-65	pCi	140	147	0.95	A
			Co-60	pCi	187	153	1.22	W
	E10856	Charcoal	I-131	pCi	74.1	76.4	0.97	A
	E10858	Water	Fe-55	pCi/L	2090	1760	1.19	A
June 2014	E10913	Milk	Sr-89	pCi/L	85.9	91.3	0.94	A
			Sr-90	pCi/L	13.8	14.5	0.95	A
	E10914	Milk	I-131	pCi/L	86.5	90.9	0.95	A
			Ce-141	pCi/L	111	124	0.90	A
			Cr-51	pCi/L	255	253	1.01	A
			Cs-134	pCi/L	147	162	0.91	A
			Cs-137	pCi/L	123	120	1.03	A
			Co-58	pCi/L	105	112	0.94	A
			Mn-54	pCi/L	155	156	0.99	A
			Fe-59	pCi/L	106	102	1.04	A
			Zn-65	pCi/L	251	252	1.00	A
			Co-60	pCi/L	218	224	0.97	A
	E10916	AP	Ce-141	pCi	95.1	92.6	1.03	A
			Cr-51	pCi	215	190	1.13	A
			Cs-134	pCi	122	122	1.00	A
			Cs-137	pCi	95.1	89.8	1.06	A
			Co-58	pCi	88.7	84.1	1.05	A
			Mn-54	pCi	115	116	0.99	A
			Fe-59	pCi	72.6	76.7	0.95	A
			Zn-65	pCi	193	189	1.02	A
			Co-60	pCi	179	168	1.07	A
	E10915	Charcoal	I-131	pCi	85.6	85.2	1.00	A
	E10917	Water	Fe-55	pCi/L	1680	1810	0.93	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 2 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
September 2014	E10946	Milk	Sr-89	pCi/L	90.7	96.9	0.94	A
			Sr-90	pCi/L	14.0	16.4	0.85	A
	E10947	Milk	I-131	pCi/L	92.0	97.6	0.94	A
			Ce-141	pCi/L	117	126	0.93	A
			Cr-51	pCi/L	281	288	0.98	A
			Cs-134	pCi/L	141	158	0.89	A
			Cs-137	pCi/L	186	193	0.96	A
			Co-58	pCi/L	137	143	0.96	A
			Mn-54	pCi/L	138	142	0.97	A
			Fe-59	pCi/L	162	158	1.03	A
			Zn-65	pCi/L	75.2	73.0	1.03	A
			Co-60	pCi/L	286	297	0.96	A
	E10949	AP	Ce-141	pCi	97.8	82.1	1.19	A
			Cr-51	pCi	212	188	1.13	A
			Cs-134	pCi	106	103	1.03	A
			Cs-137	pCi	131	126	1.04	A
			Co-58	pCi	85.7	93.0	0.92	A
			Mn-54	pCi	92.8	92.3	1.01	A
			Fe-59	pCi	113	103	1.10	A
			Zn-65	pCi	53.2	47.5	1.12	A
			Co-60	pCi	202	193	1.05	A
	E10948	Charcoal	I-131	pCi	83.9	89.8	0.93	A
	E10950	Water	Fe-55	pCi/L	2010	1720	1.17	A
	E10951	Soil	Ce-141	pCi/g	0.208	0.186	1.12	A
			Cr-51	pCi/g	0.398	0.425	0.94	A
			Cs-134	pCi/g	0.216	0.233	0.93	A
			Cs-137	pCi/g	0.398	0.365	1.09	A
			Co-58	pCi/g	0.197	0.211	0.93	A
			Mn-54	pCi/g	0.242	0.209	1.16	A
			Fe-59	pCi/g	0.238	0.233	1.02	A
			Zn-65	pCi/g	0.117	0.108	1.08	A
			Co-60	pCi/g	0.447	0.438	1.02	A
December 2014	E11078	Milk	Sr-89	pCi/L	85.7	95.7	0.90	A
			Sr-90	pCi/L	12.9	15.6	0.83	A
	E11079	Milk	I-131	pCi/L	85.9	95.1	0.90	A
			Ce-141	pCi/L	205	219	0.94	A
			Cr-51	pCi/L	402	406	0.99	A
			Cs-134	pCi/L	156	164	0.95	A
			Cs-137	pCi/L	194	198	0.98	A
			Co-58	pCi/L	122	130	0.94	A
			Mn-54	pCi/L	220	225	0.98	A
			Fe-59	pCi/L	183	175	1.05	A
			Zn-65	pCi/L	287	297	0.97	A
			Co-60	pCi/L	224	235	0.95	A

TABLE D-1 ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 3 OF 3)

Month/Year	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c) TBE/Analytics	Evaluation (d)
December 2014	E11081	AP	Ce-141	pCi	96.4	102	0.95	A
			Cr-51	pCi	171	190	0.90	A
			Cs-134	pCi	73.1	76.9	0.95	A
			Cs-137	pCi	99.0	92.6	1.07	A
			Co-58	pCi	57.5	60.8	0.95	A
			Mn-54	pCi	107	105	1.02	A
			Fe-59	pCi	74.2	81.6	0.91	A
			Zn-65	pCi	144	139	1.04	A
			Co-60	pCi	114	110	1.04	A
	E11080	Charcoal	I-131	pCi	93.5	98.2	0.95	A
	E11082	Water	Fe-55	pCi/L	1760	1970	0.89	A

(a) Teledyne Brown Engineering reported result.

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

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

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

TABLE D-2 ERA ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 1 OF 1)

Month/Year	Identification Number	Media	Nuclide	Units	Reported Value (a)	Known Value (b)	Acceptance Limits	Evaluation (c)
May 2014	RAD-97	Water	Sr-89	pCi/L	38.25	36.7	27.5 - 43.6	A
			Sr-90	pCi/L	24.65	26.5	19.2 - 30.9	A
			Ba-133	pCi/L	89.1	87.9	74.0 - 96.7	A
			Cs-134	pCi/L	45.55	44.3	35.5 - 48.7	A
			Cs-137	pCi/L	91.15	89.1	80.2 - 101	A
			Co-60	pCi/L	65.10	64.2	57.8 - 73.1	A
			Zn-65	pCi/L	244	235	212 - 275	A
			Gr-A	pCi/L	45.65	61.0	31.9 - 75.8	A
			Gr-B	pCi/L	27.95	33.0	21.4 - 40.7	A
			I-131	pCi/L	23.75	25.7	21.3 - 30.3	A
			U-Nat	pCi/L	9.61	10.2	7.95 - 11.8	A
			H-3	pCi/L	8435	8770	7610 - 9650	A
	MRAD-20	Filter	Gr-A	pCi/filter	28.0	46.0	15.4 - 71.4	A
November 2014	RAD-99	Water	Sr-89	pCi/L	30.4	31.4	22.8 - 38.1	A
			Sr-90	pCi/L	18.6	21.8	15.6 - 25.7	A
			Ba-133	pCi/L	46.8	49.1	40.3 - 54.5	A
			Cs-134	pCi/L	88.0	89.8	73.7 - 98.8	A
			Cs-137	pCi/L	99.0	98.8	88.9 - 111	A
			Co-60	pCi/L	92.5	92.1	82.9 - 104	A
			Zn-65	pCi/L	325	310	279 - 362	A
			Gr-A	pCi/L	29.9	37.6	19.4 - 48.1	A
			Gr-B	pCi/L	27.5	27.4	17.3 - 35.3	A
			I-131	pCi/L	15.8	20.3	16.8 - 24.4	N (1)
			U-Nat	pCi/L	5.74	5.80	4.34 - 6.96	A
			H-3	pCi/L	6255	6880	5940 - 7570	A
	MRAD-21	Filter	Gr-A	pCi/filter	27.3	36.9	12.4 - 57.3	A

*(1) The **Iodine-131** was evaluated as failed with a ratio of 0.778. No cause could be found for the slightly low activity. TBE would evaluate this as acceptable with warning. A rerun was not possible due to I-131 decay. All other ERA Iodine-131 evaluations since 2004 have been acceptable. NCR 14-08*

(a) Teledyne Brown Engineering reported result.

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

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

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 1 OF 2)

Month/Year	Identification Number	Media	Nuclide*	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
March 2014	14-MaW30	Water	Am-241	Bq/L	0.764	0.720	0.504 - 0.936	A
			Cs-134	Bq/L	20.7	23.1	16.2 - 30 0	A
			Cs-137	Bq/L	28.0	28.9	20.2 - 37.6	A
			Co-57	Bq/L	26.5	27.5	19.3 - 35.8	A
			Co-60	Bq/L	15.6	16.0	11.2 - 20.8	A
			H-3**	Bq/L	NR	321	225 - 417	N (3)
			Mn-54	Bq/L	13.5	13.9	9.7 - 18.1	A
			Ni-63	Bq/L	NR	34.0	23.8 - 44.2	N (3)
			Pu-238	Bq/L	0.911	0.828	0.580 - 1.076	
			Pu-239/240	Bq/L	0.751	0.676	0.473 - 0.879	
			K-40	Bq/L	NR		(1)	N (3)
			Sr-90**	Bq/L	NR	8.51	5.96 - 11.06	N (3)
			U-234/233**	Bq/L	NR	0.225	0.158 - 0.293	N (3)
			U-238**	Bq/L	NR	1.45	1.02 - 1.89	N (3)
			Zn-65	Bq/L	-0.201		(1)	A
	14-MaS30	Soil	Cs-134	Bq/kg	2.02		(1)	A
			Cs-137	Bq/kg	1300	1238	867 - 1609	A
			Co-57	Bq/kg	1069	966	676 - 1256	A
			Co-60	Bq/kg	1.32	1.22	(2)	A
			Mn-54	Bq/kg	1510	1430	1001 - 1859	A
			K-40	Bq/kg	669	622	435 - 809	A
			Sr-90	Bq/kg	4.14		(1)	A
			Zn-65	Bq/kg	763	695	487 - 904	A
	14-RdF30	AP	Cs-134**	Bq/sample	NR	1.91	1.34 - 2.48	N (3)
			Cs-137**	Bq/sample	NR	1.76	1.23 - 2.29	N (3)
			Co-57**	Bq/sample	NR		(1)	N (3)
			Co-60**	Bq/sample	NR	1.39	0.97 - 1.81	N (3)
			Mn-54**	Bq/sample	NR		(1)	N (3)
			Sr-90	Bq/sample	0.8220	1.18	0.83 - 1.53	N (3)
			Zn-65**	Bq/sample	NR		(1)	N (3)
	14-GrF30	AP	Gr-A	Bq/sample	0.606	1.77	0.53 - 3.01	A
			Gr-B	Bq/sample	0.7507	0.77	0.39 - 1.16	A
	14-RdV30	Vegetation	Cs-134	Bq/sample	5.96	6.04	4.23 - 7.85	A
			Cs-137	Bq/sample	5.06	4.74	3.32 - 6.16	A
			Co-57	Bq/sample	11.8	10.1	7.1 - 13.1	A
			Co-60	Bq/sample	7.34	6.93	4.85 - 9.01	A
			Mn-54	Bq/sample	8.95	8.62	6.03 - 11.21	A
			Sr-90	Bq/sample	1.23	1.46	1.02 - 1.90	A
			Zn-65	Bq/sample	8.91	7.86	5.50 - 10.22	A

TABLE D-3 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
TELEDYNE BROWN ENGINEERING, 2014
(PAGE 2 OF 2)

Month/Year	Identification Number	Media	Nuclide*	Units	Reported Value (a)	Known Value (b)	Acceptance Range	Evaluation (c)
September 2014	14-MaW31	Water	Am-241	Bq/L	0.705	0.88	0.62 - 1.14	A
			Cs-134***	Bq/L	NR		(1)	N (4)
			Cs-137***	Bq/L	NR	18.4	12.9 - 23.9	N (4)
			Co-57***	Bq/L	NR	24.7	17.3 - 32.1	N (4)
			Co-60***	Bq/L	NR	12.4	8.7 - 16.1	N (4)
			Mn-54***	Bq/L	NR	14.0	9.8 - 18.2	N (4)
			Ni-63	Bq/L	24.07	24.6	17.2 - 32.0	A
			Pu-238	Bq/L	0.591	0.618	0.433 - 0.803	A
			Pu-239/240	Bq/L	0.0153	0.0048	(2)	A
			K-40***	Bq/L	NR	161	113 - 209	N (4)
			Zn-65***	Bq/L	NR	10.9	7.6 - 14.2	N (4)
	14-MaS31	Soil	Cs-134***	Bq/kg	NR	622	435 - 809	N (4)
			Cs-137***	Bq/kg	NR		(1)	N (4)
			Co-57***	Bq/kg	NR	1116	781 - 1451	N (4)
			Co-60***	Bq/kg	NR	779	545 - 1013	N (4)
			Mn-54***	Bq/kg	NR	1009	706 - 1312	N (4)
			K-40***	Bq/kg	NR	824	577 - 1071	N (4)
			Sr-90	Bq/kg	694	858	601 - 1115	A
			Zn-65***	Bq/kg	NR	541	379 - 703	N (4)
	14-RdF31	AP	Sr-90	Bq/sample	0.310	0.703	0.492 - 0.914	N (4)
	14-GrF31	AP	Gr-A	Bq/sample	0.153	0.53	0.16 - 0.90	N (4)
			Gr-B	Bq/sample	0.977	1.06	0.53 - 1.59	A
September 2014	14-RdV31	Vegetation	Cs-134	Bq/sample	7.31	7.38	5.17 - 9.59	A
			Cs-137	Bq/sample	8.93	8.14	5.70 - 10.58	A
			Co-57	Bq/sample	10.8	9.2	6.4 - 12.0	A
			Co-60	Bq/sample	6.31	6.11	4.28 - 7.94	A
			Mn-54	Bq/sample	7.76	7.10	4.97 - 9.23	A
			Sr-90	Bq/sample	0.738	0.85	0.60 - 1.11	A
			Zn-65	Bq/sample	7.16	6.42	4.49 - 8.35	A

* The MAPEP cross check isotope list has been reduced due to duplication of effort or analysis not being performed for clients.

** These nuclides are no longer part of the TBE cross check program due to duplication of effort or analysis not being performed for clients. MAPEP evaluates non-reported analyses as failed if they were reported in the previous series.

*** All future gamma cross check samples for these isotopes will be provided by Analytics.

(1) False positive test.

(2) Sensitivity evaluation.

*(3) **Water, Ni-63** overlooked when reporting, but the result of 32.7 +- 1.69 would have passed the acceptance criteria. NCR 14-04*
***Water**, the non-detected **K-40** was overlooked when reporting, but would have passed the false positive test. NCR 14-04*
***AP, Sr-90** rerun was within the low range of the acceptqance criteria. The original and rerun results were statistically the same. No cause could be identified for the slightly low Sr-90 activity. NCR 14-04*
For non reported (NR) analyses, MAPEP evaluates as failed if they were reported in the previous series. NCR 14-04

*(4) **AP, Sr-90** gravimetric yield was very high at 117%. Could indicate larger than normal amounts of calcium in the AP. A second fuming HNO_3 separation would be required to remove the excess calcium. NCR 14-09*
***AP, Gr-Alpha** was counted on the wrong side. When flipped over and recounted the results were acceptable. NCR 14-09*
For non reported (NR) analyses, MAPEP evaluates as failed if they were reported in the previous series. NCR 14-09

(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[a]**
ENVIRONMENTAL, INC., 2014

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result b	ERA Result c	Control Limits	Acceptance
ERW-1384	04/07/14	Sr-89	40.29 ± 5.76	36.70	27.50 - 43.60	Pass
ERW-1384	04/07/14	Sr-90	24.08 ± 2.35	26.50	19.20 - 30.90	Pass
ERW-1385	04/07/14	Ba-133	78.23 ± 3.93	87.90	74.00 - 96.70	Pass
ERW-1385	04/07/14	Co-60	62.75 ± 3.53	64.20	57.80 - 73.10	Pass
ERW-1385	04/07/14	Cs-134	44.97 ± 3.99	44.30	35.50 - 48.70	Pass
ERW-1385	04/07/14	Cs-137	88.54 ± 4.93	89.10	80.20 - 101.00	Pass
ERW-1385	04/07/14	Zn-65	249.1 ± 10.44	235.0	212.0 - 275.0	Pass
ERW-1388	04/07/14	Gr. Alpha	56.70 ± 2.47	61.00	31.90 - 75.80	Pass
ERW-1388	04/07/14	Gr. Beta	32.10 ± 1.20	33.00	21.40 - 40.70	Pass
ERW-1391	04/07/14	I-131	25.52 ± 1.12	25.70	21.30 - 30.30	Pass
ERW-1394	04/07/14	Uranium	10.76 ± 0.74	10.20	7.95 - 11.80	Pass
ERW-1397	04/07/14	H-3	8982 ± 279	8770	7610 - 9650	Pass
ERW-5382	10/06/14	Sr-89	29.40 ± 5.32	31.40	22.80 - 38.10	Pass
ERW-5382	10/06/14	Sr-90	19.19 ± 1.85	21.80	15.60 - 25.70	Pass
ERW-5385	10/06/14	Ba-133	43.54 ± 4.54	49.10	40.30 - 54.50	Pass
ERW-5385	10/06/14	Cs-134	81.95 ± 7.49	89.80	73.70 - 98.80	Pass
ERW-5385	10/06/14	Cs-137	95.76 ± 5.50	98.80	88.90 - 111.00	Pass
ERW-5385	10/06/14	Co-60	90.25 ± 2.77	92.10	82.90 - 104.00	Pass
ERW-5385	10/06/14	Zn-65	327.4 ± 23.3	310.00	279.0 - 362.0	Pass
ERW-5388	10/06/14	Gr. Alpha	30.88 ± 8.05	37.60	19.40 - 46.10	Pass
ERW-5388	10/06/14	G. Beta	20.47 ± 4.75	27.40	17.30 - 35.30	Pass
ERW-5392	10/06/14	I-131	19.58 ± 2.35	20.30	16.80 - 24.40	Pass
ERW-5394	10/06/14	Uranium	5.51 ± 0.37	5.80	4.34 - 6.96	Pass
ERW-5397	10/06/14	H-3	6876 ± 383	6880	5940 - 7570	Pass

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

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

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

TABLE D-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
ENVIRONMENTAL, INC., 2014

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MAW-1140	02/01/14	Gr. Alpha	0.77 ± 0.06	0.85	0.26 - 1.44	Pass
MAW-1140	02/01/14	Gr. Beta	4.31 ± 0.08	4.19	2.10 - 6.29	Pass
MAW-1184	02/01/14	Fe-55	0.40 ± 3.20	0.00	-0.01 - 2.00	Pass
MAW-1184	02/01/14	H-3	345.10 ± 10.60	321.00	225.00 - 417.00	Pass
MAW-1184	02/01/14	Ni-63	32.40 ± 3.20	34.00	23.80 - 44.20	Pass
MAW-1184	02/01/14	Pu-238	1.28 ± 0.12	0.83	0.58 - 1.08	Fail (1)
MAW-1184	02/01/14	Pu-239/240	0.91 ± 0.10	0.68	0.47 - 0.88	Fail (1)
MAW-1184	02/01/14	Sr-90	7.00 ± 0.70	8.51	5.96 - 11.06	Pass
MAW-1184	02/01/14	U-233/234	0.20 ± 0.07	0.23	0.16 - 0.29	Pass
MAW-1184	02/01/14	U-238	1.25 ± 0.18	1.45	1.02 - 1.89	Pass
MAW-1184	02/01/14	Co-57	27.86 ± 0.38	27.50	19.30 - 35.80	Pass
MAW-1184	02/01/14	Co-60	15.99 ± 0.27	16.00	11.20 - 20.80	Pass
MAW-1184	02/01/14	Cs-134	21.85 ± 0.54	23.10	16.20 - 30.00	Pass
MAW-1184	02/01/14	Cs-137	28.74 ± 0.49	28.90	20.20 - 37.60	Pass
MAW-1184	02/01/14	K-40	1.80 ± 2.00	0.00	0.00 - 10.00	Pass
MAW-1184	02/01/14	Mn-54	14.06 ± 0.40	13.90	9.70 - 18.10	Pass
MAW-1184	02/01/14	Zn-65	0.00 ± 0.19	0.00	-0.01 - 0.00	Pass
MAVE-1148	02/01/14	Co-57	11.63 ± 0.19	10.10	7.10 - 13.10	Pass
MAVE-1148	02/01/14	Co-60	7.28 ± 0.18	6.93	4.85 - 9.01	Pass
MAVE-1148	02/01/14	Cs-134	6.29 ± 0.29	6.04	4.23 - 7.85	Pass
MAVE-1148	02/01/14	Cs-137	5.18 ± 0.20	4.74	3.32 - 6.16	Pass
MAVE-1148	02/01/14	Mn-54	9.22 ± 0.26	8.62	6.03 - 11.21	Pass
MAVE-1148	02/01/14	Zn-65	8.59 ± 0.40	7.86	5.50 - 10.22	Pass
MAAP-1151	02/01/14	Co-57	1.60 ± 0.05	0.00	NA	Fail (2)
MAAP-1151	02/01/14	Co-60	1.38 ± 0.08	1.39	0.97 - 1.81	Pass
MAAP-1151	02/01/14	Cs-134	1.75 ± 0.11	1.91	1.34 - 2.48	Pass
MAAP-1151	02/01/14	Cs-137	1.81 ± 0.10	1.76	1.23 - 2.29	Pass
MAAP-1151	02/01/14	Mn-54	0.01 ± 0.03	0.00	NA	Pass
MAAP-1151	02/01/14	Zn-65	-0.24 ± 0.09	0.00	-0.50 - 1.00	Pass
MAAP-1151	02/01/14	Sr-90	1.11 ± 0.14	1.18	0.83 - 1.53	Pass
MAAP-1154	02/01/14	Gr. Alpha	0.56 ± 0.06	1.77	0.53 - 3.01	Pass
MAAP-1154	02/01/14	Gr. Beta	0.98 ± 0.06	0.77	0.39 - 1.16	Pass
MASO-1146	02/01/14	Ni-63	4.80 ± 15.30	0.00	NA	Pass
MASO-1146	02/01/14	Co-57	1064.50 ± 3.60	966.00	676.00 - 1256.00	Pass
MASO-1146	02/01/14	Co-60	1.70 ± 0.50	1.22	(3)	Pass
MASO-1146	02/01/14	Cs-134	6.10 ± 1.80	0.00	NA	Fail (4)
MASO-1146	02/01/14	Cs-137	1364.30 ± 5.30	1238.00	867.00 - 1609.00	Pass
MASO-1146	02/01/14	K-40	728.90 ± 15.90	622.00	435.00 - 809.00	Pass
MASO-1146	02/01/14	Mn-54	1588.00 ± 6.00	1430.00	1001.00 - 1859.00	Pass
MASO-1146	02/01/14	Zn-65	763.50 ± 6.80	695.00	487.00 - 904.00	Pass
MASO-1146	02/01/14	Sr-90	1.23 ± 1.37	0.00	NA	Pass

TABLE D-5 DOE'S MIXED ANALYTE PERFORMANCE EVALUATION PROGRAM (MAPEP)
ENVIRONMENTAL, INC., 2014

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MASO-4439	08/01/14	Ni-63	771.62 ± 23.29	980.00	686.00 - 1274.00	Pass
MASO-4439	08/01/14	Sr-90	778.34 ± 17.82	858.00	601.00 - 1115.00	Pass
MASO-4439	08/01/14	Cs-134	520.60 ± 7.09	622.00	435.00 - 809.00	Pass
MASO-4439	08/01/14	Co-57	1135.00 ± 7.40	1116.00	781.00 - 1451.00	Pass
MASO-4439	08/01/14	Co-60	768.20 ± 7.70	779.00	545.00 - 1013.00	Pass
MASO-4439	08/01/14	Mn-54	1050.70 ± 12.60	1009.00	706.00 - 1312.00	Pass
MASO-4439	08/01/14	Zn-65	407.89 ± 15.03	541.00	379.00 - 703.00	Pass
MAW-4431	08/01/14	Am-241	0.79 ± 0.08	0.88	0.62 - 1.14	Pass
MAW-4431	08/01/14	Cs-137	18.62 ± 0.54	18.40	12.90 - 23.90	Pass
MAW-4431	08/01/14	Co-57	24.85 ± 0.42	24.70	17.30 - 32.10	Pass
MAW-4431	08/01/14	Co-60	12.27 ± 0.38	12.40	8.70 - 16.10	Pass
MAW-4431	08/01/14	H-3	207.20 ± 10.60	208.00	146.00 - 270.00	Pass
MAW-4431	08/01/14	Fe-55	55.10 ± 14.80	31.50	22.10 - 41.00	Fail (5)
MAW-4431	08/01/14	Mn-54	14.36 ± 0.53	14.00	9.80 - 18.20	Pass
MAW-4431	08/01/14	Zn-65	11.46 ± 0.78	10.90	7.60 - 14.20	Pass
MAW-4493	08/01/14	Gr. Alpha	0.93 ± 0.07	1.40	0.42 - 2.38	Pass
MAW-4493	08/01/14	Gr. Beta	6.31 ± 1.35	6.50	3.25 - 9.75	Pass
MAAP-4433	08/01/14	Sr-90	0.74 ± 0.10	0.70	0.49 - 0.91	Pass
MAAP-4444	08/01/14	Sr-89	7.82 ± 0.52	9.40	6.60 - 12.20	Pass
MAAP-4444	08/01/14	Sr-90	0.76 ± 0.10	0.76	0.53 - 0.99	Pass
MAVE-4436	08/01/14	Cs-134	7.49 ± 0.18	7.38	5.17 - 9.59	Pass
MAVE-4436	08/01/14	Co-57	11.20 ± 0.19	9.20	6.40 - 12.00	Pass
MAVE-4436	08/01/14	Co-60	6.84 ± 0.17	6.11	4.28 - 7.94	Pass
MAVE-4436	08/01/14	Mn-54	8.11 ± 0.26	7.11	4.97 - 9.23	Pass
MAVE-4436	08/01/14	Zn-65	7.76 ± 0.43	6.42	4.49 - 8.35	Pass

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

[b] Laboratory codes as follows: MAW (water), MAAP (air filter), MASO (soil), MAVE (vegetation).

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

(1) The high bias on the plutonium crosscheck samples was traced to contamination from a newly purchased standard. The results of reanalysis with replacement tracer purchased from NIST:

MAW-1184	Pu-238	0.68 ± 0.10	Bq / L
MAW-1184	Pu-239/240	0.66 ± 0.10	Bq / L

(2) Interference from Eu-152 resulted in misidentification of Co-57.

(3) Provided in the series for "sensitivity evaluation". MAPEP does not provide control limits.

(4) False positive test. Long sample counting time lead to interference from naturally occuring Bi-214 in sample matrix with a close spectral energy.

(5) Result of reanalysis Fe-55 32.63 ± 16.30 Bq/L

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APPENDIX E

EFFLUENT DATA

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INTRODUCTION

Braidwood Station, a two-unit PWR station, is located in Will County, Illinois, fifteen (15) miles south-southwest of Joliet, Illinois. Each reactor is designed to have a capacity of 3,587 thermal megawatts. Unit No. 1 went critical on May 29, 1987, and Unit No. 2 went critical on March 8, 1988. The station has been designed to keep releases to the environment at levels below those specified in the regulations.

Liquid effluents from Braidwood Station are released to the Kankakee River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere and are calculated on the basis of analyses of grab samples of noble gases and tritium, as well as continuously collected composite samples of iodine and particulate activity sampled during the course of the year. The results of effluent analyses are summarized on a monthly basis. Airborne concentrations of noble gases, I-131, and particulate radioactivity in offsite areas are calculated using effluent and meteorological data. Carbon-14 concentration in offsite areas is calculated based on industry-approved methodology for estimation of the amount released and meteorological data.

Environmental monitoring is conducted by sampling at indicator and control (background) locations in the vicinity of Braidwood Station to measure changes in radiation or radioactivity levels that may be attributable to station operations. If significant changes attributable to Braidwood Station are measured, these changes are correlated with effluent releases. An environmental monitoring program is conducted which also includes all potential pathways at the site. Gaseous pathways include ground plane (direct), inhalation, vegetation, meat, and milk. Liquid pathways include potable water and freshwater fish. The critical pathway for 2014 gaseous dose was vegetation. The critical pathway for 2014 liquid dose was fresh water fish.

SUMMARY

Calculations based on gaseous and liquid effluents, Kankakee River Flow and meteorological data indicate that public dose due to radioactive material attributable to Braidwood Station during the period does not exceed regulatory or Offsite Dose Calculation Manual (ODCM) limits.

The maximally exposed individual's total body dose due to gaseous and liquid emissions from licensed activities at Braidwood Station is 5.68E-01 mrem.

The assessment of radiation doses to the public is performed in accordance with the ODCM. The results of these analyses confirm that the station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

1.0 EFFLUENTS

1.1 Gaseous Effluents to the Atmosphere

Measured concentrations of noble gases, radioiodine, and particulate radioactivity released to the atmosphere during the year, are listed in Table 1.1-1.

A total of 3.42E-01 curies of fission and activation gases were released with a maximum quarterly average release rate of 1.81E-02 µCi/sec for Unit 1 and 1.59E-02 µCi/sec for Unit 2.

A total of 2.73E-04 curies of radioiodine were released during the year with a maximum average quarterly release rate of 1.04E-05 µCi/sec for Unit 1 and 2.10E-05 µCi/sec for Unit 2.

A total of 1.15E-04 curies of beta-gamma emitters were released as airborne particulate matter with a maximum average release rate of <LLD µCi/sec for Unit 1 and 2.10E-05 µCi/sec for Unit 2. Alpha-emitting radionuclides were below the lower limit of detection (LLD) for the year.

A total of 2.71E+02 curies of tritium were released with a maximum average quarterly release rate of 3.70E+00 µCi/sec for Unit 1 and 7.79E+00 µCi/sec for Unit 2.

A total of 8.61E+00 curies of C-14 was released with a maximum average quarterly release rate of 1.41E-01 uCi/sec from Unit 1 and 1.41E-01 uCi/sec from Unit 2.

1.2 Liquids Released to Kankakee River

A total of 7.42E+06 liters of radioactive liquid wastes (prior to dilution) containing 9.48E-02 curies (excluding tritium, noble gases and alpha) were discharged from the station. These wastes were released at a maximum quarterly diluted average concentration of 1.29E-08 µCi/ml. Alpha-emitting radionuclides were less than the LLD for the year. A total of 3.00E+03 curies of tritium were released from the station. Quarterly release activities are given in Table 1.2-1.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped by truck to the Envirocare of Utah and Waste Control Specialists disposal facilities and various waste processors. For details, refer to the Braidwood Station 2014 Radioactive Effluent

Release Report.

3.0 DOSE TO MAN

3.1 Gaseous Effluent Pathways

Table 3.1-1 summarizes the doses resulting from releases of airborne radioactivity via the different exposure pathways.

3.1.1 Noble Gases

3.1.1.1 Gamma Dose Rates

Offsite Gamma air and total body dose rates are shown in Table 3.1-1 and were calculated based on measured effluents and average meteorological data. Based on measured effluents and average meteorological data, the maximum total body dose to an individual would be 5.25E-01 mrem for the year (Table 3.1-1) with an occupancy or shielding factor of 0.7 used. The maximum total body dose based on measured effluents and concurrent meteorological data would be 5.39E-01 mrem (Table 3.4-1). The maximum gamma air dose was 7.01E-06 mrad (Table 3.1-1) based on measured effluents and average meteorological data and 1.17E-05 mrad based on concurrent meteorological date (Table 3.4-1).

3.1.1.2 Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less); consequently, plumes of gaseous effluents may be considered "infinite" for purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor of 1.0 is used. The skin dose from beta and gamma radiation for the year was 1.71E-05 mrem based on concurrent meteorological data (Table 3.4-1).

The maximum offsite beta air dose for the year was 1.66E-05 mrad (Table 3.1-1) based on measured effluents and average meteorological data and 1.71E-05 mrad based on concurrent meteorological data (Table 3.4-1).

3.1.2 Radioactive Iodine & Particulate

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. I-131 released during routine operation of the station may be made available to man resulting in a dose to the thyroid. C-14 is also included in this category. C-14 exhibits a capacity to concentrate in bone. C-14 is released in gaseous form and is absorbed into vegetation through photosynthesis. The principal pathways of interest for C-14 are the consumption of vegetation by humans and milk from which animals have ingested C-14 through the consumption of vegetation. With the inclusion of C-14 in plant effluent calculations, human dose in this category is primarily driven by the release of C-14 from the plant.

The hypothetical dose to the maximum exposed individual living near the station via ingestion of milk and vegetation was calculated. The source of milk and vegetation was assumed to be at the nearest site boundary with the cows pastured and vegetation grown from May through October. The maximum dose from radioactive iodine and particulate (including C-14) to any organ was 2.31E+00 mrem (child/bone) based on measured effluents and average meteorological data and 2.40E+00 mrem based on concurrent meteorological data. The maximum dose from radioactive iodine and particulate (including C-14) to the whole body was 5.25E-01 mrem (child) based on measured effluents and average meteorological data and 5.39E-01 mrem based on concurrent meteorological data.

3.2 Liquid Effluent Pathways

The three principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water, eating aquatic foods, and exposure while on the shoreline. Not all of these pathways are significant or applicable at a given time or station but a reasonable approximation of the dose can be made by adjusting the dose formula for season of the year or type and degree of use of the aquatic environment. NRC developed equations* were

used to calculate the doses to the whole body, lower GI tracts, thyroid, bone and skin; specific parameters for use in the equations are given in the Braidwood Offsite Dose Calculation Manual. The maximum whole body dose and any organ dose for the year was 4.26E-02 mrem and 8.60E-02 mrem, respectively (Table 3.2-1 [adult]).

3.3 Assessment of Dose to Member of Public

During the period January to December, 2014, Braidwood Station did not exceed the following limits as shown in Table 3.1-1 and Table 3.2-1 (based on annual average meteorological data), Table 3.4-1 (based on concurrent meteorological data), and Table 3.3-1:

- The RETS limits on dose or dose commitment to an individual due to radioactive materials in liquid effluents from each reactor unit (1.5 mrem to the whole body or 5 mrem to any organ during any calendar year; 3 mrem to the whole body or 10 mrem to any organ during the calendar year).
- The RETS limits on air dose in noble gases released in gaseous effluents to a member of the public from each reactor unit (5 mrads for gamma radiation or 10 mrad for beta radiation during any calendar quarter; 10 mrad for gamma radiation or 20 mrad for beta radiation during a calendar year).
- The RETS limits on dose to a member of the public due to iodine-131, iodine-133, tritium, and radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from each reactor unit (7.5 mrem to any organ during any calendar quarter; 15 mrem to any organ during any calendar year).
- The 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public (100 mrem) during any calendar year.

4.0 SITE METEOROLOGY

A summary of the site meteorological measurements taken during each calendar quarter of the year is given in Appendix F. The data are presented as cumulative joint frequency distributions of the wind direction for the 203' level and wind speed class by atmospheric stability class determined from the temperature difference between the 199' and 30' levels. Data recovery for these measurements was 99.8% during 2014.

APPENDIX E-1

DATA TABLES AND FIGURES

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Table 1.1-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 2014
GAS RELEASES
UNIT 1 (Docket Number 50-456)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Est. Total Error%
A. Fission and Activation Gas Releases						
1. Total Release Activity	Ci	1.15E-02	1.42E-01	<LLD	5.19E-02	7.59E+00
2. Average Release Rate	μCi/sec	1.48E-04	1.81E-02	<LLD	6.53E-03	
3. Percent of ODCM Limit – gamma	%	1.83E-06	1.00E-04	N/A	3.66E-06	
4. Percent of ODCM Limit - beta	%	4.43E-06	7.76E-05	N/A	2.12E-05	
B. Iodine Releases						
1. Total Iodine	Ci	2.44E-05	8.19E-05	8.36E-07	6.05E-07	3.32E+01
2. Average Release Rate	μCi/sec	3.14E-06	1.04E-05	1.05E-07	7.61E-08	
3. Percent of ODCM Limit	%	1.17E-04	6.84E-05	6.08E-06	5.79E-06	
C. Particulate (> 8 day half-life) Releases						
1. Particulates with half-lives > 8 days	Ci	<LLD	<LLD	<LLD	<LLD	1.98E+01
2. Average Release Rate	μCi/sec	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM Limit	%	N/A	N/A	N/A	N/A	
4. Gross Alpha Radioactivity	Ci	<LLD	<LLD	<LLD	<LLD	
D. Tritium Releases						
1. Total Release Activity	Ci	1.87E+01	2.92E+01	2.33E+01	2.16E+01	8.07E+00
2. Average Release Rate	μCi/sec	2.40E+00	3.70E+00	2.92E+00	2.70E+00	
3. Percent of ODCM Limit	%	5.33E-02	8.30E-02	6.62E-02	6.14E-02	
E. Gross Alpha Releases						
1. Total Release Activity	Ci	<LLD	<LLD	<LLD	<LLD	1.98E+01
2. Average Release Rate	μCi/sec	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A	
F. Carbon-14 Releases						
1. Total Release Activity	Ci	1.10E+00	1.11E+00	1.12E+00	1.11E+00	
2. Average Release Rate	μCi/sec	1.41E-01	1.41E-01	1.41E-01	1.40E-01	

Note: LLD Values are included in Appendix A of this report.

Table 1.1-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 2014
GAS RELEASES
UNIT 2 (Docket Number 50-457)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Est. Total Error%
A. Fission and Activation Gas Releases						
1. Total Activity Released	Ci	1.15E-02	1.25E-01	<LLD	<LLD	7.59E+00
2. Average Release Rate	μCi/sec	1.48E-03	1.59E-02	<LLD	<LLD	
3. Percent of ODCM Limit - gamma	%	1.83E-06	3.27E-05	N/A	N/A	
4. Percent of ODCM Limit - beta	%	4.43E-06	5.83E-05	N/A	N/A	
B. Iodine Releases						
1. Total Iodine	Ci	<LLD	1.65E-04	<LLD	<LLD	3.32E+01
2. Average Release Rate	μCi/sec	<LLD	2.10E-05	<LLD	<LLD	
3. Percent of ODCM Limit	%	N/A	1.26E-05	N/A	N/A	
C. Particulate (> 8 day half-life) Releases						
1. Particulates with half-lives > 8 days	Ci	<LLD	1.15E-04	<LLD	<LLD	1.98E+01
2. Average Release Rate	μCi/sec	<LLD	1.46E-05	<LLD	<LLD	
3. Percent of OCDM Limit	%	N/A	6.25E-04	N/A	N/A	
4. Gross Alpha Radioactivity	Ci	<LLD	<LLD	<LLD	<LLD	
D. Tritium Releases						
1. Total Release Activity	Ci	3.24E+01	6.12E+01	4.45E+01	3.95E+01	8.07E+00
2. Average Release Rate	μCi/sec	4.17E+00	7.79E+00	5.60E+00	4.97E+00	
3. Percent of ODCM Limit	%	9.19E-02	1.73E-01	1.26E-01	1.12E-01	
E. Gross Alpha Releases						
1. Total Release Activity	Ci	<LLD	<LLD	<LLD	<LLD	1.98E+01
2. Average Release Rate	μCi/sec	<LLD	<LLD	<LLD	<LLD	
3. Percent of ODCM Limit	%	N/A	N/A	N/A	N/A	
F. Carbon-14 Releases						
1. Total Release Activity	Ci	1.10E+00	8.35E-01	1.12E+00	1.11E+00	
2. Average Release Rate	μCi/sec	1.41E-01	1.06E-01	1.41E-01	1.40E-01	

Note: LLD Values are included in Appendix A of this report.

Table 1.2-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 2014
LIQUID RELEASES
UNIT 1 (Docket Number 50-456)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Est. Total Error %
A. Fission and Activation Products						
1. Total Release	Ci	2.28E-03	3.52E-02	8.18E-03	1.74E-03	2.64E+00
2. Average Diluted Concentration	μCi/ml	1.38E-10	6.46E-09	5.48E-10	1.17E-10	
3. Percent of applicable limit	%	*	*	*	*	
B. Tritium						
1. Total Release	Ci	4.23E+02	7.05E+02	1.80E+02	1.96E+02	5.85E+00
2. Average Diluted Concentration	μCi/ml	2.56E-05	1.29E-04	1.21E-05	1.32E-05	
3. % of Limit (1E-2 μCi/ml)	%	2.56E-01	1.29E+00	1.21E-01	1.32E-01	
C. Dissolved Noble Gases						
1. Total Release	Ci	<LLD	<LLD	3.84E-06	<LLD	2.64E+00
2. Average Diluted Concentration	μCi/ml	<LLD	<LLD	2.57E-13	<LLD	
3. % of Limit (2E-4 μCi/ml)	%	N/A	N/A	1.29E-07	N/A	
D. Gross Alpha						
A. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	1.47E+01
E. Volume of Waste Released (prior to dilution)	liters	9.47E+05	1.41E+06	7.69E+05	5.84E+05	
F. Volume of Dilution Water	liters	1.65E+10	5.45E+09	1.49E+10	1.49E+10	

Note: LLD Values are included in Appendix A of this report.

Note: % Limit Values are included in Appendix C of this report.

*This limit is equal to 10 times the concentration values in Appendix B, Table 2, Column 2 to 10CFR20.1001-20.2402.

Table 1.2-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 2014
LIQUID RELEASES
UNIT 2 (Docket Number 50-457)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Est. Total Error %
A. Fission and Activation Products						
1. Total Release	Ci	2.28E-03	3.52E-02	8.18E-03	1.74E-03	2.64E+00
2. Average Diluted Concentration	μCi/ml	1.38E-10	6.46E-09	5.48E-10	1.17E-10	
3. Percent of applicable limit	%	*	*	*	*	
B. Tritium						
1. Total Release	Ci	4.23E+02	7.05E+02	1.80E+02	1.96E+02	5.85E+00
2. Average Diluted Concentration	μCi/ml	2.56E-05	1.29E-04	1.21E-05	1.32E-05	
3. % of Limit (1E-2 μCi/ml)	%	2.56E-01	1.29E+00	1.21E-01	1.32E-01	
C. Dissolved Noble Gases						
1. Total Activity Released	Ci	<LLD	<LLD	3.84E-06	<LLD	2.64E+00
2. Average Diluted Concentration	μCi/ml	<LLD	<LLD	2.57E-13	<LLD	
3. % of Limit (2E-4 μCi/ml)	%	N/A	N/A	1.29E-07	N/A	
D. Gross Alpha						
1. Total Release	Ci	<LLD	<LLD	<LLD	<LLD	1.47E+01
E. Volume of Waste Released (prior to dilution)	liters	9.47E+05	1.41E+06	7.69E+05	5.84E+05	
F. Volume of Dilution Water	liters	1.65E+10	5.45E+09	1.49E+10	1.49E+10	

Note: LLD Values are included in Appendix A of this report.

Note: % Limit Values are included in Appendix C of this report.

*This limit is equal to 10 times the concentration values in Appendix B, Table 2, Column 2 to 10CFR20.1001-2402.

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== RELEASE DATA ==========

Total Release Duration (minutes)	5.441E+05
Total Release Volume (cf)	8.248E+10
Average Release Flowrate (cfm)	1.516E+05
Average Period Flowrate (cfm)	1.569E+05

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	ECrcent Ratio	EC
AR-41	1.61E+04	6.88E-12	6.88E-04	1.00E-08
KR-85M	0.00E+00	0.00E+00	0.00E+00	1.00E-07
KR-85	0.00E+00	0.00E+00	0.00E+00	7.00E-07
KR-87	0.00E+00	0.00E+00	0.00E+00	2.00E-08
XE-133M	2.54E+03	1.09E-12	1.81E-06	6.00E-07
KR-89	0.00E+00	0.00E+00	0.00E+00	1.00E-09
KR-83M	0.00E+00	0.00E+00	0.00E+00	5.00E-05
KR-88	0.00E+00	0.00E+00	0.00E+00	9.00E-09
XE-131M	5.19E+04	2.22E-11	1.11E-05	2.00E-06
XE-135	1.80E+04	7.72E-12	1.10E-04	7.00E-08
XE-133	1.16E+05	4.98E-11	9.96E-05	5.00E-07
F&AG	2.05E+05	8.77E-11	9.11E-04	
I-131	5.09E+00	2.18E-15	1.09E-05	2.00E-10
I-132	3.98E+01	1.70E-14	8.52E-07	2.00E-08
I-133	5.64E+01	2.41E-14	2.41E-05	1.00E-09
I-134	9.88E-01	4.23E-16	7.05E-09	6.00E-08
I-135	5.55E+00	2.37E-15	3.96E-07	6.00E-09
Iodine	1.08E+02	4.61E-14	3.63E-05	
C-14	4.45E+06	1.90E-09	6.34E-01	3.00E-09
Other	4.45E+06	1.90E-09	6.34E-01	

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	ECrcent Ratio	EC
H-3	9.28E+07	3.97E-08	3.97E-01	1.00E-07
H-3	9.28E+07	3.97E-08	3.97E-01	
CO-60	0.00E+00	0.00E+00	0.00E+00	5.00E-11
P>=8	0.00E+00	0.00E+00	0.00E+00	
Total	9.74E+07	4.17E-08	1.03E+00	

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1
Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== PERIOD DOSE BY AGEGROUP, PATHWAY, ORGAN (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
AGPD	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	0.00E+00	1.51E-07
AINHL	2.98E-03	3.01E-03	3.02E-03	3.01E-03	3.01E-03	3.01E-03	0.00E+00	3.01E-03
AVEG	1.47E-01	3.37E-02	3.38E-02	3.37E-02	3.37E-02	3.37E-02	0.00E+00	3.37E-02
AGMILK	4.40E-03	3.91E-03	4.39E-03	3.92E-03	3.91E-03	3.91E-03	0.00E+00	3.91E-03
ACMEAT	5.45E-02	1.15E-02	1.15E-02	1.15E-02	1.15E-02	1.15E-02	0.00E+00	1.15E-02
ACMILK	5.94E-02	1.34E-02	1.38E-02	1.34E-02	1.34E-02	1.34E-02	0.00E+00	1.34E-02
TGPD	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	0.00E+00	1.51E-07
TINHL	4.25E-03	3.27E-03	3.28E-03	3.27E-03	3.27E-03	3.27E-03	0.00E+00	3.27E-03
TVEG	2.37E-01	5.26E-02	5.27E-02	5.26E-02	5.26E-02	5.26E-02	0.00E+00	5.26E-02
TGMILK	7.95E-03	5.53E-03	6.29E-03	5.54E-03	5.53E-03	5.53E-03	0.00E+00	5.53E-03
TCMEAT	4.60E-02	9.57E-03	9.58E-03	9.57E-03	9.57E-03	9.57E-03	0.00E+00	9.57E-03
TCMILK	1.10E-01	2.39E-02	2.45E-02	2.39E-02	2.39E-02	2.39E-02	0.00E+00	2.39E-02
CGPD	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	0.00E+00	1.51E-07
CINHL	5.87E-03	3.29E-03	3.30E-03	3.29E-03	3.29E-03	3.29E-03	0.00E+00	3.29E-03
CVEG	5.73E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	0.00E+00	1.23E-01
CGMILK	2.55E-01	6.01E-02	6.16E-02	6.01E-02	6.01E-02	6.01E-02	0.00E+00	6.01E-02
CCMEAT	8.65E-02	1.78E-02	1.78E-02	1.78E-02	1.78E-02	1.78E-02	0.00E+00	1.78E-02
CCMILK	2.70E-01	5.69E-02	5.82E-02	5.69E-02	5.69E-02	5.69E-02	0.00E+00	5.69E-02
IGPD	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07	0.00E+00	1.51E-07
IINHL	4.34E-03	2.13E-03	2.14E-03	2.13E-03	2.13E-03	2.13E-03	0.00E+00	2.13E-03
IGMILK	5.28E-01	1.22E-01	1.26E-01	1.22E-01	1.22E-01	1.22E-01	0.00E+00	1.22E-01
ICMILK	5.28E-01	1.17E-01	1.20E-01	1.17E-01	1.17E-01	1.17E-01	0.00E+00	1.17E-01

=== PERIOD DOSE BY AGEGROUP, ORGAN (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT	2.68E-01	6.55E-02	6.65E-02	6.55E-02	6.55E-02	6.55E-02	0.00E+00	6.55E-02
TEEN	4.05E-01	9.49E-02	9.64E-02	9.49E-02	9.49E-02	9.49E-02	0.00E+00	9.49E-02
CHILD	1.19E+00	2.61E-01	2.64E-01	2.61E-01	2.61E-01	2.61E-01	0.00E+00	2.61E-01
INFANT	1.06E+00	2.42E-01	2.48E-01	2.42E-01	2.42E-01	2.42E-01	0.00E+00	2.42E-01

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1
Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== MAXIMUM PERIOD DOSE TO LIMIT (Any Organ) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	BONE	1.19E+00	31-day	2.25E-01	5.29E+02	3.00E-01	3.97E+02
Qrtr->End	CHILD	BONE	1.19E+00	Quarter	5.63E+00	2.12E+01	7.50E+00	1.59E+01
Year->End	CHILD	BONE	1.19E+00	Annual	1.13E+01	1.06E+01	1.50E+01	7.93E+00

Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-60	0.00E+00
I-131	6.79E-04
I-132	2.43E-06
I-133	1.11E-04
I-134	2.29E-08
I-135	7.42E-07

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== MAXIMUM PERIOD DOSE TO LIMIT (Tot Body)) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	TBODY	2.61E-01	31-day	1.50E-01	1.74E+02	2.00E-01	1.30E+02
Qrtr->End	CHILD	TBODY	2.61E-01	Quarter	5.25E+00	4.96E+00	7.50E+00	3.47E+00
Year->End	CHILD	TBODY	2.61E-01	Annual	1.05E+01	2.48E+00	1.50E+01	1.74E+00

Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	7.60E+00
C-14	9.25E+01
CO-60	0.00E+00
I-131	1.78E-03
I-132	1.10E-05
I-133	2.52E-04
I-134	1.02E-07
I-135	3.30E-06

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1
Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== MAXIMUM PERIOD NG DOSE TO LIMIT (Gamma) ==========

Dose Period	Dose Type	Dose (mrad)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	Gamma	5.28E-06	31-day	1.50E-01	3.52E-03	2.00E-01	2.64E-03
Qrtr->End	Gamma	5.28E-06	Quarter	3.75E+00	1.41E-04	5.00E+00	1.06E-04
Year->End	Gamma	5.28E-06	Annual	7.50E+00	7.04E-05	1.00E+01	5.28E-05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	6.38E+01
KR-85M	0.00E+00
KR-85	0.00E+00
KR-87	0.00E+00
XE-133M	3.55E-01
KR-89	0.00E+00
KR-83M	0.00E+00
KR-88	0.00E+00
XE-131M	3.46E+00
XE-135	1.48E+01
XE-133	1.75E+01

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== MAXIMUM PERIOD NG DOSE TO LIMIT (Beta)) ==========

Dose Period	Dose Type	Dose (mrad)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	Beta	1.03E-05	31-day	3.00E-01	3.44E-03	4.00E-01	2.58E-03
Qrtr->End	Beta	1.03E-05	Quarter	7.50E+00	1.38E-04	1.00E+01	1.03E-04
Year->End	Beta	1.03E-05	Annual	1.50E+01	6.89E-05	2.00E+01	5.16E-05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	1.88E+01
KR-85M	0.00E+00
KR-85	0.00E+00
KR-87	0.00E+00
XE-133M	1.34E+00
KR-89	0.00E+00
KR-83M	0.00E+00
KR-88	0.00E+00
XE-131M	2.05E+01
XE-135	1.58E+01
XE-133	4.35E+01

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== RELEASE DATA ==========

Total Release Duration (minutes)	5.570E+05
Total Release Volume (cf)	6.836E+10
Average Release Flowrate (cfm)	1.227E+05
Average Period Flowrate (cfm)	1.301E+05

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	ECrcent Ratio	EC
AR-41	0.00E+00	0.00E+00	0.00E+00	1.00E-08
KR-85M	0.00E+00	0.00E+00	0.00E+00	1.00E-07
KR-85	0.00E+00	0.00E+00	0.00E+00	7.00E-07
KR-87	0.00E+00	0.00E+00	0.00E+00	2.00E-08
XE-133M	2.54E+03	1.31E-12	2.19E-06	6.00E-07
KR-89	0.00E+00	0.00E+00	0.00E+00	1.00E-09
KR-88	0.00E+00	0.00E+00	0.00E+00	9.00E-09
XE-131M	0.00E+00	0.00E+00	0.00E+00	2.00E-06
XE-135	1.80E+04	9.32E-12	1.33E-04	7.00E-08
XE-133	1.16E+05	6.01E-11	1.20E-04	5.00E-07
F&AG	1.37E+05	7.07E-11	2.56E-04	
I-131	2.84E-01	1.47E-16	7.33E-07	2.00E-10
I-132	1.65E+02	8.52E-14	4.26E-06	2.00E-08
Iodine	1.65E+02	8.54E-14	4.99E-06	
C-14	4.17E+06	2.15E-09	7.17E-01	3.00E-09
Other	4.17E+06	2.15E-09	7.17E-01	

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	ECrcent Ratio	EC
H-3	1.78E+08	9.17E-08	9.17E-01	1.00E-07
H-3	1.78E+08	9.17E-08	9.17E-01	
CO-60	0.00E+00	0.00E+00	0.00E+00	5.00E-11
CE-144	1.15E+02	5.96E-14	2.98E-03	2.00E-11
P>=8	1.15E+02	5.96E-14	2.98E-03	
Total	1.82E+08	9.40E-08	1.64E+00	

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2
Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== PERIOD DOSE BY AGEGROUP, PATHWAY, ORGAN (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
AGPD	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	0.00E+00	4.29E-06
AINHL	2.81E-03	5.22E-03	5.22E-03	5.22E-03	5.25E-03	5.22E-03	0.00E+00	5.22E-03
AVEG	1.38E-01	3.59E-02	3.59E-02	3.59E-02	3.59E-02	3.65E-02	0.00E+00	3.59E-02
AGMILK	4.12E-03	6.63E-03	6.65E-03	6.63E-03	6.63E-03	6.63E-03	0.00E+00	6.63E-03
ACMEAT	5.11E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02	1.15E-02	0.00E+00	1.14E-02
ACMILK	5.57E-02	1.40E-02	1.40E-02	1.40E-02	1.40E-02	1.40E-02	0.00E+00	1.40E-02
TGPD	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	0.00E+00	4.29E-06
TINHL	4.01E-03	5.49E-03	5.48E-03	5.49E-03	5.54E-03	5.49E-03	0.00E+00	5.48E-03
TVEG	2.22E-01	5.43E-02	5.43E-02	5.43E-02	5.43E-02	5.51E-02	0.00E+00	5.43E-02
TGMILK	7.45E-03	9.04E-03	9.08E-03	9.04E-03	9.04E-03	9.04E-03	0.00E+00	9.04E-03
TCMEAT	4.31E-02	9.34E-03	9.34E-03	9.34E-03	9.34E-03	9.36E-03	0.00E+00	9.34E-03
TCMILK	1.03E-01	2.42E-02	2.43E-02	2.42E-02	2.42E-02	2.43E-02	0.00E+00	2.42E-02
CGPD	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	0.00E+00	4.29E-06
CINHL	5.53E-03	5.22E-03	5.22E-03	5.22E-03	5.27E-03	5.22E-03	0.00E+00	5.22E-03
CVEG	5.37E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.23E-01	0.00E+00	1.22E-01
CGMILK	2.39E-01	6.24E-02	6.25E-02	6.24E-02	6.24E-02	6.24E-02	0.00E+00	6.24E-02
CCMEAT	8.11E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02	0.00E+00	1.71E-02
CCMILK	2.53E-01	5.63E-02	5.64E-02	5.63E-02	5.63E-02	5.63E-02	0.00E+00	5.63E-02
IGPD	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	4.29E-06	0.00E+00	4.29E-06
IINHL	4.08E-03	3.23E-03	3.22E-03	3.22E-03	3.26E-03	3.22E-03	0.00E+00	3.22E-03
IGMILK	4.95E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	0.00E+00	1.24E-01
ICMILK	4.95E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.15E-01	0.00E+00	1.15E-01

=== PERIOD DOSE BY AGEGROUP, ORGAN (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT	2.51E-01	7.31E-02	7.32E-02	7.31E-02	7.32E-02	7.38E-02	0.00E+00	7.31E-02
TEEN	3.80E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.03E-01	0.00E+00	1.02E-01
CHILD	1.12E+00	2.64E-01	2.64E-01	2.64E-01	2.64E-01	2.64E-01	0.00E+00	2.64E-01
INFANT	9.95E-01	2.42E-01	2.42E-01	2.42E-01	2.42E-01	2.42E-01	0.00E+00	2.42E-01

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2
Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== MAXIMUM PERIOD DOSE TO LIMIT (Any Organ) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	BONE	1.12E+00	31-day	2.25E-01	4.96E+02	3.00E-01	3.72E+02
Qrtr->End	CHILD	BONE	1.12E+00	Quarter	5.63E+00	1.98E+01	7.50E+00	1.49E+01
Year->End	CHILD	BONE	1.12E+00	Annual	1.13E+01	9.92E+00	1.50E+01	7.44E+00

Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-60	0.00E+00
I-131	4.03E-05
I-132	1.08E-05
CE-144	3.66E-03

=== MAXIMUM PERIOD DOSE TO LIMIT (Tot Body)) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	TBODY	2.64E-01	31-day	1.50E-01	1.76E+02	2.00E-01	1.32E+02
Qrtr->End	CHILD	TBODY	2.64E-01	Quarter	5.25E+00	5.02E+00	7.50E+00	3.51E+00
Year->End	CHILD	TBODY	2.64E-01	Annual	1.05E+01	2.51E+00	1.50E+01	1.76E+00

Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	1.43E+01
C-14	8.58E+01
CO-60	0.00E+00
I-131	9.79E-05
I-132	4.48E-05
CE-144	2.33E-03

Table 3.1-1

RETDAS v3.6.3 <BRA> VSSI

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2
Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters)....: 610.0
Compass Point.....: 0.0

=== MAXIMUM PERIOD NG DOSE TO LIMIT (Gamma) ==========

Dose Period	Dose Type	Dose (mrad)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	Gamma	1.73E-06	31-day	1.50E-01	1.15E-03	2.00E-01	8.64E-04
Qrtr->End	Gamma	1.73E-06	Quarter	3.75E+00	4.61E-05	5.00E+00	3.46E-05
Year->End	Gamma	1.73E-06	Annual	7.50E+00	2.30E-05	1.00E+01	1.73E-05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	0.00E+00
KR-85M	0.00E+00
KR-85	0.00E+00
KR-87	0.00E+00
XE-133M	1.09E+00
KR-89	0.00E+00
KR-88	0.00E+00
XE-131M	0.00E+00
XE-135	4.53E+01
XE-133	5.37E+01

=== MAXIMUM PERIOD NG DOSE TO LIMIT (Beta)) ==========

Dose Period	Dose Type	Dose (mrad)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	Beta	6.27E-06	31-day	3.00E-01	2.09E-03	4.00E-01	1.57E-03
Qrtr->End	Beta	6.27E-06	Quarter	7.50E+00	8.36E-05	1.00E+01	6.27E-05
Year->End	Beta	6.27E-06	Annual	1.50E+01	4.18E-05	2.00E+01	3.13E-05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	0.00E+00
KR-85M	0.00E+00
KR-85	0.00E+00
KR-87	0.00E+00
XE-133M	2.21E+00
KR-89	0.00E+00
KR-88	0.00E+00
XE-131M	0.00E+00
XE-135	2.61E+01
XE-133	7.17E+01

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1

=== MULTIPLE RELEASE POINT MESSAGE ==========
Undiluted and Diluted Flowrate(s) and Concentration(s) cannot be combined.

=== RELEASE DATA ==========
Total Release Duration (minutes)..... 1.630E+06
Total Undiluted Volume Released (gallons)..... NA
Average Undiluted Flowrate (gpm)..... NA

Total Dilution Volume (gallons)..... NA
Average Dilution Flowrate (gpm)..... NA

=== NUCLIDE DATA ==========

Nuclide	uCi
CO-57	1.20E+02
NB-97	4.01E+02
SN-113	2.57E+02
SB-124	3.12E+01
SB-125	2.18E+03
TE-123M	2.39E+02
CR-51	1.85E+03
MN-54	7.40E+02
FE-59	1.39E+02
CO-58	1.30E+04
CO-60	1.49E+04
ZN-65	8.71E+01
ZR-95	3.97E+02
NB-95	8.64E+02
AG-110M	2.63E+02
TE-125M	4.06E+03
I-133	9.91E-01
Gamma	3.95E+04
XE-133	3.84E+00
D&EG	3.84E+00

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05

=== NUCLIDE DATA ==========

Nuclide	uCi
H-3	1.50E+09
FE-55	6.37E+03
NI-63	1.48E+03
---	---
Beta	1.50E+09
---	---
---	---
Total	1.50E+09

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1
Receptor.....: 0 Liquid Receptor

=== PERIOD DOSE BY AGEGROUP, PATHWAY, ORGAN (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
APWtr	1.95E-05	1.29E-02	1.29E-02	1.29E-02	1.29E-02	1.30E-02	0.00E+00	1.29E-02
AFWFSp	1.07E-03	5.79E-03	5.41E-03	6.17E-03	5.39E-03	3.00E-02	0.00E+00	5.67E-03
TPWtr	1.86E-05	9.12E-03	9.11E-03	9.11E-03	9.12E-03	9.17E-03	0.00E+00	9.12E-03
TFWFSp	1.11E-03	4.55E-03	4.17E-03	4.21E-03	4.15E-03	2.16E-02	0.00E+00	4.44E-03
CPWtr	5.64E-05	1.75E-02	1.75E-02	1.75E-02	1.75E-02	1.75E-02	0.00E+00	1.75E-02
CFWFSp	1.44E-03	3.79E-03	3.48E-03	3.48E-03	3.44E-03	9.69E-03	0.00E+00	3.77E-03
IPWtr	4.48E-05	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	0.00E+00	1.72E-02

=== PERIOD DOSE BY AGEGROUP, ORGAN (mrem) ====================

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT	1.09E-03	1.87E-02	1.84E-02	1.91E-02	1.83E-02	4.30E-02	0.00E+00	1.86E-02
TEEN	1.13E-03	1.37E-02	1.33E-02	1.33E-02	1.33E-02	3.08E-02	0.00E+00	1.36E-02
CHILD	1.50E-03	2.13E-02	2.10E-02	2.10E-02	2.09E-02	2.72E-02	0.00E+00	2.13E-02
INFANT	4.48E-05	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	0.00E+00	1.72E-02

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1
Receptor.....: 0 Liquid Receptor

=== MAXIMUM PERIOD DOSE TO LIMIT (Any Organ) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	ADULT	GILLI	4.30E-02	31-day	1.50E-01	2.87E+01	2.00E-01	2.15E+01
Qrtr->End	ADULT	GILLI	4.30E-02	Quarter	3.75E+00	1.15E+00	5.00E+00	8.61E-01
Year->End	ADULT	GILLI	4.30E-02	Annual	7.50E+00	5.74E-01	1.00E+01	4.30E-01

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	4.25E+01
CR-51	2.35E-02
MN-54	3.93E-01
FE-55	6.67E-02
FE-59	4.53E-02
CO-58	9.62E-01
CO-60	2.95E+00
NI-63	2.67E-02
ZN-65	1.59E-01
ZR-95	6.32E-03
NB-95	5.11E+01
AG-110M	6.69E-03
TE-125M	1.65E+00
I-133	3.56E-06

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05

=== MAXIMUM PERIOD DOSE TO LIMIT (Tot Body)) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	TBODY	2.13E-02	31-day	4.50E-02	4.73E+01	6.00E-02	3.55E+01
Qrtr->End	CHILD	TBODY	2.13E-02	Quarter	1.13E+00	1.89E+00	1.50E+00	1.42E+00
Year->End	CHILD	TBODY	2.13E-02	Annual	2.25E+00	9.46E-01	3.00E+00	7.10E-01

Critical Pathway.....: 0 Potable Water (PWtr)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	9.82E+01
CR-51	2.10E-04
MN-54	5.35E-02
FE-55	7.89E-02
FE-59	1.21E-02
CO-58	2.44E-01
CO-60	7.94E-01
NI-63	1.77E-01
ZN-65	2.48E-01
ZR-95	4.46E-06
NB-95	1.01E-02
AG-110M	3.31E-05
TE-125M	1.56E-01
I-133	3.36E-06

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 2

=== MULTIPLE RELEASE POINT MESSAGE ==========
Undiluted and Diluted Flowrate(s) and Concentration(s) cannot be combined.

=== RELEASE DATA ==========
Total Release Duration (minutes)..... 1.630E+06
Total Undiluted Volume Released (gallons)..... NA
Average Undiluted Flowrate (gpm)..... NA

Total Dilution Volume (gallons)..... NA
Average Dilution Flowrate (gpm)..... NA

=== NUCLIDE DATA ==========

Nuclide	uCi
CO-57	1.20E+02
NB-97	4.01E+02
SN-113	2.57E+02
SB-124	3.12E+01
SB-125	2.18E+03
TE-123M	2.39E+02
CR-51	1.85E+03
MN-54	7.40E+02
FE-59	1.39E+02
CO-58	1.30E+04
CO-60	1.49E+04
ZN-65	8.71E+01
ZR-95	3.97E+02
NB-95	8.64E+02
AG-110M	2.63E+02
TE-125M	4.06E+03
I-133	9.91E-01
Gamma	3.95E+04

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05

=== NUCLIDE DATA ==========

Nuclide	uCi
XE-133	3.84E+00
D&EG	3.84E+00
H-3	1.50E+09
FE-55	6.37E+03
NI-63	1.48E+03
Beta	1.50E+09
Total	1.50E+09

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 2
Receptor.....: 0 Liquid Receptor

=== PERIOD DOSE BY AGEGROUP, PATHWAY, ORGAN (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
APWtr	1.95E-05	1.29E-02	1.29E-02	1.29E-02	1.29E-02	1.30E-02	0.00E+00	1.29E-02
AFWFSp	1.07E-03	5.79E-03	5.41E-03	6.17E-03	5.39E-03	3.00E-02	0.00E+00	5.67E-03
TPWtr	1.86E-05	9.12E-03	9.11E-03	9.11E-03	9.12E-03	9.17E-03	0.00E+00	9.12E-03
TFWFSp	1.11E-03	4.55E-03	4.17E-03	4.21E-03	4.15E-03	2.16E-02	0.00E+00	4.44E-03
CPWtr	5.64E-05	1.75E-02	1.75E-02	1.75E-02	1.75E-02	1.75E-02	0.00E+00	1.75E-02
CFWFSp	1.44E-03	3.79E-03	3.48E-03	3.48E-03	3.44E-03	9.69E-03	0.00E+00	3.77E-03
IPWtr	4.48E-05	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	0.00E+00	1.72E-02

=== PERIOD DOSE BY AGEGROUP, ORGAN (mrem) ====================

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT	1.09E-03	1.87E-02	1.84E-02	1.91E-02	1.83E-02	4.30E-02	0.00E+00	1.86E-02
TEEN	1.13E-03	1.37E-02	1.33E-02	1.33E-02	1.33E-02	3.08E-02	0.00E+00	1.36E-02
CHILD	1.50E-03	2.13E-02	2.10E-02	2.10E-02	2.09E-02	2.72E-02	0.00E+00	2.13E-02
INFANT	4.48E-05	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	0.00E+00	1.72E-02

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05
Unit.....: 2
Receptor.....: 0 Liquid Receptor

=== MAXIMUM PERIOD DOSE TO LIMIT (Any Organ) ===

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	ADULT	GILLI	4.30E-02	31-day	1.50E-01	2.87E+01	2.00E-01	2.15E+01
Qrtr->End	ADULT	GILLI	4.30E-02	Quarter	3.75E+00	1.15E+00	5.00E+00	8.61E-01
Year->End	ADULT	GILLI	4.30E-02	Annual	7.50E+00	5.74E-01	1.00E+01	4.30E-01

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	4.25E+01
CR-51	2.35E-02
MN-54	3.93E-01
FE-55	6.67E-02
FE-59	4.53E-02
CO-58	9.62E-01
CO-60	2.95E+00
NI-63	2.67E-02
ZN-65	1.59E-01
ZR-95	6.32E-03
NB-95	5.11E+01
AG-110M	6.69E-03
TE-125M	1.65E+00
I-133	3.56E-06

Table 3.2-1

RETDAS v3.6.3 <BRA> VSSI

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Release Types
Period Start Date.....: 01/01/2014 00:00
Period End Date.....: 01/01/2015 00:00
Period Duration (mins): 5.256E+05

=== MAXIMUM PERIOD DOSE TO LIMIT (Tot Body)) ==========

Dose Period	Age Group	Organ	Dose (mrem)	Limit Period	Admin Limit	Admin % of Limit	T.Spec Limit	T.Spec % of Limit
Strt->End	CHILD	TBODY	2.13E-02	31-day	4.50E-02	4.73E+01	6.00E-02	3.55E+01
Qrtr->End	CHILD	TBODY	2.13E-02	Quarter	1.13E+00	1.89E+00	1.50E+00	1.42E+00
Year->End	CHILD	TBODY	2.13E-02	Annual	2.25E+00	9.46E-01	3.00E+00	7.10E-01

Critical Pathway.....: 0 Potable Water (PWtr)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	9.82E+01
CR-51	2.10E-04
MN-54	5.35E-02
FE-55	7.89E-02
FE-59	1.21E-02
CO-58	2.44E-01
CO-60	7.94E-01
NI-63	1.77E-01
ZN-65	2.48E-01
ZR-95	4.46E-06
NB-95	1.01E-02
AG-110M	3.31E-05
TE-125M	1.56E-01
I-133	3.36E-06

Table 3-3.1

Braidwood Nuclear Station

Unit 1

10 CFR 20 Compliance Assessment

Period of Assessment: 1/1/14 through 12/31/14
Calculated: 04/14/15

10 CFR 20.1301(a)(1) Compliance

Total Effective Dose Equivalent (TEDE)	mrem/year	1.09E+00
10 CFR 20.1301(a)(1) limit	mrem/year	100.00
	% of limit	1.09

Compliance Summary

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
TEDE (mrem)	2.48E-01	4.01E-01	1.91E-01	2.49E-01	1.09E+00

Table 3-3.1 (cont.)

Braidwood Nuclear Station

Unit 2

10 CFR 20 Compliance Assessment

Period of Assessment: 1/1/14 through 12/31/14
Calculated: 04/14/15

10 CFR 20.1301(a)(1) Compliance

Total Effective Dose Equivalent (TEDE)	mrem/year	1.19E+00
10 CFR 20.1301(a)(1) limit	mrem/year	100.00
	% of limit	1.19

Compliance Summary

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
TEDE (mrem)	2.61E-01	3.82E-01	2.77E-01	2.67E-01	1.19E+00

Table 3.4-1

Doses Resulting from Airborne Releases

The following are the maximum annual calculated cumulative offsite doses resulting from Braidwood Station airborne releases.

Unit 1:

Dose	*Maximum Value*	*Sector Affected*
gamma air (1)	8.780 $x10^{-6}$ mrad	North
beta air (2)	1.060 $x10^{-5}$ mrad	North
whole body (3)	2.680 $x10^{-1}$ mrem	North
skin (4)	1.210 x 10^{-5} mrem	North
organ (5) (child-bone)	1.240 $x10^{+0}$ mrem	North

Unit 1 Compliance Status

10 CFR 50 Appendix I	**Yearly Objective**	**% of Appendix I**
gamma air	10.0 mrad	0.00E+00
beta air	20.0 mrad	0.00E+00
whole body	5.0 mrem	5.36E+00
skin	15.0 mrem	0.00E+00
organ	15.0 mrem	8.27E+00

Unit 2:

Dose	*Maximum Value*	Sector *Affected*
gamma air (1)	2.900 $x10^{-6}$ mrad	North
beta air (2)	6.470 $x10^{-6}$ mrad	North
whole body (3)	2.710 $x10^{-1}$ mrem	North
skin (4)	4.980 $x10^{-6}$ mrem	North
organ (5) (child-bone)	1.160 $x10^{+0}$ mrem	North

Unit 2 Compliance Status

10 CFR 50 Appendix I	**Yearly Objective**	**% of Appendix I**
gamma air	10.0 mrad	0.00E+00
beta air	20.0 mrad	0.00E+00
whole body	5.0 mrem	5.42E+00
skin	15.0 mrem	0.00E+00
organ	15.0 mrem	7.73E+00

(1) Gamma Air Dose – GASPAR II, NUREG-0597
(2) Beta Air Dose – GASPAR II, NUREG-0597
(3) Whole Body Dose – GASPAR II, NUREG-0597
(4) Skin Dose – GASPAR II, NUREG-0597
(5) Inhalation and Food Pathways Dose – GASPAR II, NUREG-0597

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APPENDIX F

METEOROLOGICAL DATA

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Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	2	0	0	0	0	2
ESE	0	2	1	0	0	0	3
SE	0	1	5	2	0	0	8
SSE	0	2	2	2	0	0	6
S	0	1	3	2	0	0	6
SSW	0	2	7	0	0	0	9
SW	0	0	0	1	0	0	1
WSW	0	0	3	4	0	0	7
W	0	2	5	1	0	0	8
WNW	0	6	16	0	0	0	22
NW	0	3	14	1	0	0	18
NNW	0	0	9	1	0	0	10
Variable	0	0	0	0	0	0	0
Total	0	21	65	14	0	0	100

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	2	0	0	2
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	1
SE	0	3	3	0	0	0	6
SSE	0	0	3	2	0	0	5
S	0	1	2	1	0	0	4
SSW	0	1	1	0	0	1	3
SW	0	1	1	0	0	0	2
WSW	0	0	1	1	3	0	5
W	0	2	9	1	0	0	12
WNW	0	5	9	2	0	0	16
NW	0	6	4	0	0	0	10
NNW	0	2	3	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	23	38	9	3	1	74

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	0	0	2
NNE	0	0	4	0	0	0	4
NE	0	0	0	0	0	0	0
ENE	0	2	0	0	0	0	2
E	0	2	0	0	0	0	2
ESE	0	1	0	0	0	0	1
SE	0	0	0	1	0	0	1
SSE	0	0	2	2	0	0	4
S	0	1	3	2	0	0	6
SSW	0	1	2	2	2	0	7
SW	0	3	8	5	0	0	16
WSW	0	3	9	0	1	0	13
W	0	2	11	1	0	0	14
WNW	0	9	8	1	0	0	18
NW	0	7	5	1	0	0	13
NNW	0	4	8	1	0	0	13
Variable	0	0	0	0	0	0	0
Total	0	35	62	16	3	0	116

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	14	34	15	0	0	63
NNE	1	7	21	3	0	0	32
NE	3	25	27	9	0	0	64
ENE	5	33	12	0	0	0	50
E	8	5	0	0	0	0	13
ESE	0	11	6	0	0	0	17
SE	0	13	14	2	0	0	29
SSE	1	39	24	17	0	0	81
S	0	15	28	42	14	0	99
SSW	0	5	10	17	10	0	42
SW	0	8	27	30	4	0	69
WSW	2	16	17	12	4	0	51
W	2	32	42	17	0	0	93
WNW	3	38	63	18	0	0	122
NW	6	36	18	6	0	0	66
NNW	2	25	39	6	0	0	72
Variable	0	0	0	0	0	0	0
Total	33	322	382	194	32	0	963

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 35
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	3	1	0	0	0	8
NNE	1	8	4	1	0	0	14
NE	6	8	2	7	0	0	23
ENE	7	10	0	0	0	0	17
E	9	10	0	0	0	0	19
ESE	7	10	2	0	0	0	19
SE	3	26	5	1	0	0	35
SSE	1	25	20	5	0	0	51
S	1	10	14	18	6	0	49
SSW	1	6	14	17	7	0	45
SW	1	19	31	4	0	0	55
WSW	5	47	11	2	1	0	66
W	11	44	7	1	0	0	63
WNW	19	59	29	2	0	0	109
NW	14	24	5	0	0	0	43
NNW	6	15	8	0	0	0	29
Variable	0	0	0	0	0	0	0
Total	96	324	153	58	14	0	645

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 2
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	0	0	0	0	0	4
NNE	3	1	0	0	0	0	4
NE	6	1	0	0	0	0	7
ENE	9	0	0	0	0	0	9
E	8	0	0	0	0	0	8
ESE	4	1	1	0	0	0	6
SE	4	2	0	0	0	0	6
SSE	3	2	0	0	0	0	5
S	1	2	0	0	0	0	3
SSW	0	1	1	0	0	0	2
SW	2	6	2	0	0	0	10
WSW	2	12	0	0	0	0	14
W	17	14	0	0	0	0	31
WNW	23	8	0	0	0	0	31
NW	9	0	0	0	0	0	9
NNW	5	1	0	0	0	0	6
Variable	1	0	0	0	0	0	1
Total	101	51	4	0	0	0	156

Hours of calm in this stability class: 8
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	3	0	0	0	0	0	3
NE	4	0	0	0	0	0	4
ENE	6	0	0	0	0	0	6
E	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	1	0	0	0	0	0	1
SW	3	0	0	0	0	0	3
WSW	0	2	0	0	0	0	2
W	5	0	0	0	0	0	5
WNW	13	0	0	0	0	0	13
NW	1	0	0	0	0	0	1
NNW	3	0	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	45	2	0	0	0	0	47

Hours of calm in this stability class: 7
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	2	1	1	0	0	4
SE	0	1	2	1	1	0	5
SSE	0	1	1	3	2	0	7
S	0	1	0	0	3	1	5
SSW	0	0	9	3	0	0	12
SW	0	0	0	1	0	0	1
WSW	0	0	1	3	2	0	6
W	0	1	1	1	1	0	4
WNW	0	1	5	10	9	0	25
NW	0	0	9	7	4	1	21
NNW	0	0	3	6	0	0	9
Variable	0	0	0	0	0	0	0
Total	0	7	33	36	22	2	100

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Speed (in mph)

Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	2	0	2
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	1	0	0	0	1
SE	0	1	3	2	0	0	6
SSE	0	0	0	2	0	0	2
S	0	0	1	1	3	0	5
SSW	0	1	1	2	0	1	5
SW	0	0	1	1	0	0	2
WSW	0	0	0	1	1	3	5
W	0	0	4	4	0	0	8
WNW	0	3	6	4	4	1	18
NW	0	1	9	0	2	0	12
NNW	0	0	2	3	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	7	30	20	12	5	74

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	1	0	0	2
NNE	0	0	1	3	0	0	4
NE	0	0	0	0	0	0	0
ENE	0	1	1	0	0	0	2
E	0	0	2	0	0	0	2
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	1	0	1
SSE	0	0	0	1	1	1	3
S	0	0	1	5	1	0	7
SSW	0	2	0	2	1	2	7
SW	0	1	4	4	5	0	14
WSW	0	1	6	4	0	1	12
W	0	3	6	6	0	0	15
WNW	0	2	10	1	5	0	18
NW	0	1	9	4	1	1	16
NNW	0	4	2	5	1	0	12
Variable	0	0	0	0	0	0	0
Total	0	15	44	36	16	5	116

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	24	27	11	0	67
NNE	0	4	14	22	3	0	43
NE	0	8	17	25	10	0	60
ENE	2	14	21	13	0	0	50
E	2	8	6	2	0	0	18
ESE	1	0	9	5	3	0	18
SE	0	2	6	17	3	1	29
SSE	0	7	23	11	12	4	57
S	0	6	25	23	36	26	116
SSW	0	1	7	14	12	16	50
SW	0	2	18	17	19	8	64
WSW	3	5	21	8	10	9	56
W	1	14	19	21	11	6	72
WNW	0	8	23	38	46	16	131
NW	1	15	28	30	10	12	96
NNW	1	5	21	36	6	2	71
Variable	0	0	0	0	0	0	0
Total	11	104	282	309	192	100	998

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	4	10	2	0	0	17
NNE	0	4	6	3	2	0	15
NE	1	2	8	3	3	3	20
ENE	3	5	10	0	0	0	18
E	1	3	7	2	0	0	13
ESE	1	3	7	8	2	0	21
SE	0	4	11	15	0	0	30
SSE	2	3	16	15	3	2	41
S	0	0	11	26	13	9	59
SSW	1	2	5	14	16	20	58
SW	5	4	11	21	9	0	50
WSW	1	10	24	23	1	2	61
W	0	7	27	15	4	0	53
WNW	0	4	32	58	11	1	106
NW	2	4	25	19	3	1	54
NNW	1	7	19	8	0	0	35
Variable	0	0	0	0	0	0	0
Total	19	66	229	232	67	38	651

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	5	0	0	0	6
NNE	0	3	5	0	0	0	8
NE	1	3	5	0	0	0	9
ENE	1	4	5	0	0	0	10
E	0	2	2	0	0	0	4
ESE	0	1	1	0	0	0	2
SE	0	2	2	4	0	0	8
SSE	0	5	4	0	0	0	9
S	2	0	5	0	0	0	7
SSW	0	0	0	1	0	0	1
SW	3	1	2	3	0	0	9
WSW	0	4	3	7	0	0	14
W	1	1	6	7	0	0	15
WNW	2	2	11	9	0	0	24
NW	0	8	20	2	0	0	30
NNW	0	1	7	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	10	38	83	33	0	0	164

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: January - March 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	1	0	0	0	3
NNE	1	3	1	0	0	0	5
NE	1	1	1	0	0	0	3
ENE	1	1	2	0	0	0	4
E	0	0	0	0	0	0	0
ESE	0	2	0	0	0	0	2
SE	1	1	0	0	0	0	2
SSE	1	3	0	0	0	0	4
S	0	3	0	0	0	0	3
SSW	0	2	0	0	0	0	2
SW	2	0	0	0	0	0	2
WSW	0	0	0	1	0	0	1
W	0	0	2	1	0	0	3
WNW	2	1	2	0	0	0	5
NW	0	0	1	0	0	0	1
NNW	0	1	9	2	0	0	12
Variable	0	0	0	0	0	0	0
Total	9	20	19	4	0	0	52

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	3	0	0	0	3
NNE	0	1	4	0	0	0	5
NE	0	11	2	0	0	0	13
ENE	2	19	6	0	0	0	27
E	2	11	10	0	0	0	23
ESE	0	6	1	1	0	0	8
SE	1	10	5	3	0	0	19
SSE	0	13	6	8	0	0	27
S	0	8	16	4	0	0	28
SSW	0	3	10	1	0	0	14
SW	0	0	12	2	0	0	14
WSW	0	0	5	7	2	0	14
W	0	6	7	4	0	0	17
WNW	0	5	9	0	0	0	14
NW	0	6	6	0	0	0	12
NNW	0	2	16	0	0	0	18
Variable	0	0	0	0	0	0	0
Total	5	101	118	30	2	0	256

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	0	0	0	1
NNE	0	2	0	0	0	0	2
NE	0	5	0	0	0	0	5
ENE	0	4	2	0	0	0	6
E	1	2	1	0	0	0	4
ESE	0	2	0	0	0	0	2
SE	0	4	2	1	0	0	7
SSE	1	6	4	0	0	0	11
S	0	6	7	1	0	0	14
SSW	0	2	7	2	0	0	11
SW	0	4	6	1	0	0	11
WSW	0	2	4	2	0	0	8
W	1	7	1	3	0	0	12
WNW	0	7	0	0	0	0	7
NW	0	5	2	0	0	0	7
NNW	2	2	5	1	0	0	10
Variable	0	0	0	0	0	0	0
Total	5	61	41	11	0	0	118

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	1	0	0	0	6
NNE	0	2	4	0	0	0	6
NE	1	4	6	0	0	0	11
ENE	1	7	5	0	0	0	13
E	0	2	2	0	0	0	4
ESE	0	0	1	0	0	0	1
SE	0	6	1	2	0	0	9
SSE	0	4	8	1	0	0	13
S	0	7	3	1	0	0	11
SSW	0	4	2	5	3	0	14
SW	0	3	5	0	0	0	8
WSW	0	3	4	0	1	0	8
W	0	0	2	0	0	0	2
WNW	0	5	2	0	0	0	7
NW	0	6	1	0	0	0	7
NNW	0	1	2	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	2	59	49	9	4	0	123

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	12	12	0	0	0	26
NNE	5	17	18	0	0	0	40
NE	7	48	35	0	0	0	90
ENE	10	49	24	0	0	0	83
E	8	13	18	0	0	0	39
ESE	2	9	3	0	0	0	14
SE	1	17	4	1	0	0	23
SSE	0	17	12	2	0	0	31
S	1	11	34	8	0	0	54
SSW	0	8	22	21	5	2	58
SW	0	12	38	18	1	0	69
WSW	3	14	31	8	3	0	59
W	5	16	20	12	0	0	53
WNW	4	18	6	0	0	0	28
NW	6	13	4	0	0	0	23
NNW	2	15	27	2	0	0	46
Variable	0	0	0	0	0	0	0
Total	56	289	308	72	9	2	736

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	7	3	0	0	0	17
NNE	9	13	3	1	0	0	26
NE	20	29	5	1	0	0	55
ENE	30	32	6	0	0	0	68
E	24	28	8	0	0	0	60
ESE	7	34	10	0	0	0	51
SE	3	48	26	0	0	0	77
SSE	3	53	18	2	0	0	76
S	4	30	53	22	0	0	109
SSW	2	6	26	15	5	0	54
SW	2	11	17	2	0	0	32
WSW	9	23	5	1	0	0	38
W	8	16	1	2	0	0	27
WNW	12	14	1	0	0	0	27
NW	10	17	2	0	0	0	29
NNW	3	20	6	0	0	0	29
Variable	0	0	0	0	0	0	0
Total	153	381	190	46	5	0	775

Hours of calm in this stability class: 8
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	1	0	0	0	0	2
NNE	3	1	0	0	0	0	4
NE	1	0	0	0	0	0	1
ENE	11	0	0	0	0	0	11
E	11	0	0	0	0	0	11
ESE	10	1	0	0	0	0	11
SE	1	3	0	0	0	0	4
SSE	2	6	0	0	0	0	8
S	1	3	0	0	0	0	4
SSW	1	9	0	0	0	0	10
SW	1	0	0	0	0	0	1
WSW	3	3	0	0	0	0	6
W	8	5	0	0	0	0	13
WNW	9	1	0	0	0	0	10
NW	7	0	0	0	0	0	7
NNW	1	2	0	0	0	0	3
Variable	1	0	0	0	0	0	1
Total	72	35	0	0	0	0	107

Hours of calm in this stability class: 12
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	6	0	0	0	0	0	6
E	4	0	0	0	0	0	4
ESE	1	1	0	0	0	0	2
SE	3	0	0	0	0	0	3
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	5	1	0	0	0	0	6
WNW	2	0	0	0	0	0	2
NW	2	0	0	0	0	0	2
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	28	2	0	0	0	0	30

Hours of calm in this stability class: 19
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	1	0	0	2
NNE	0	0	1	5	0	0	6
NE	0	1	6	1	0	0	8
ENE	0	9	10	6	0	0	25
E	1	10	6	6	3	0	26
ESE	0	6	2	0	2	1	11
SE	0	7	5	2	0	0	14
SSE	0	3	9	2	13	0	27
S	0	6	8	10	2	1	27
SSW	0	2	8	10	0	1	21
SW	0	0	5	2	1	0	8
WSW	0	0	4	5	3	0	12
W	0	0	9	2	5	6	22
WNW	0	1	6	4	3	0	14
NW	0	2	5	10	1	0	18
NNW	0	0	3	12	0	0	15
Variable	0	0	0	0	0	0	0
Total	1	48	87	78	33	9	256

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	2	0	0	0	0	3
NNE	0	3	0	0	0	0	3
NE	0	1	2	0	0	0	3
ENE	0	3	3	1	0	0	7
E	0	2	0	2	0	0	4
ESE	0	0	3	0	0	0	3
SE	0	2	4	0	2	0	8
SSE	0	1	1	2	0	0	4
S	1	5	5	3	0	1	15
SSW	0	1	6	5	1	0	13
SW	0	3	2	5	1	0	11
WSW	0	0	5	2	1	0	8
W	0	2	4	2	2	0	10
WNW	0	4	6	0	1	0	11
NW	0	3	2	2	0	0	7
NNW	0	0	7	1	0	0	8
Variable	0	0	0	0	0	0	0
Total	2	32	50	25	8	1	118

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	0	1	0	0	3
NNE	0	1	2	1	0	0	4
NE	0	1	3	4	0	0	8
ENE	0	5	4	4	0	0	13
E	0	4	3	1	0	1	9
ESE	0	1	0	0	2	0	3
SE	0	0	4	1	2	0	7
SSE	0	2	5	3	1	0	11
S	0	2	5	1	3	0	11
SSW	0	2	5	1	3	4	15
SW	0	1	3	3	1	0	8
WSW	0	2	5	2	0	0	9
W	0	0	2	0	1	1	4
WNW	0	2	2	1	0	0	5
NW	0	2	6	1	0	0	9
NNW	0	1	2	1	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	28	51	25	13	6	123

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Speed (in mph)

Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	12	6	9	0	0	27
NNE	2	4	9	8	0	0	23
NE	2	4	31	37	2	0	76
ENE	4	21	36	27	1	0	89
E	0	15	19	10	4	0	48
ESE	0	3	4	2	10	3	22
SE	0	3	9	3	3	0	18
SSE	0	4	11	12	5	0	32
S	1	1	13	22	8	0	45
SSW	0	0	8	18	19	11	56
SW	0	5	20	28	18	3	74
WSW	1	5	15	24	8	0	53
W	0	9	9	18	3	6	45
WNW	2	12	12	19	8	4	57
NW	2	8	11	5	0	0	26
NNW	0	10	10	19	6	0	45
Variable	0	0	0	0	0	0	0
Total	14	116	223	261	95	27	736

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	4	7	3	0	0	14
NNE	1	6	10	5	3	0	25
NE	0	6	21	7	0	0	34
ENE	1	23	37	16	2	0	79
E	1	12	33	9	9	1	65
ESE	0	1	5	18	7	1	32
SE	0	3	26	30	7	0	66
SSE	1	1	22	43	8	0	75
S	1	4	27	47	20	4	103
SSW	1	0	14	35	25	12	87
SW	0	3	9	16	4	1	33
WSW	3	8	18	10	0	0	39
W	1	5	18	5	4	0	33
WNW	0	3	14	9	0	0	26
NW	0	9	23	9	0	0	41
NNW	0	3	22	6	0	0	31
Variable	0	0	0	0	0	0	0
Total	10	91	306	268	89	19	783

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	1	0	0	2
NNE	0	1	3	0	0	0	4
NE	1	3	0	0	0	0	4
ENE	0	1	4	0	0	0	5
E	3	3	6	1	0	0	13
ESE	0	1	5	6	0	0	12
SE	1	1	4	1	0	0	7
SSE	0	0	3	2	0	0	5
S	0	0	3	2	0	0	5
SSW	0	1	5	6	0	0	12
SW	0	3	1	2	0	0	6
WSW	0	0	1	0	0	0	1
W	1	2	5	1	0	0	9
WNW	0	5	8	3	0	0	16
NW	0	2	7	1	0	0	10
NNW	0	2	5	1	0	0	8
Variable	0	0	0	0	0	0	0
Total	6	25	61	27	0	0	119

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: April - June 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	2	1	0	0	0	4
NNE	0	1	1	0	0	0	2
NE	0	0	1	0	0	0	1
ENE	1	1	0	0	0	0	2
E	2	0	0	1	0	0	3
ESE	0	0	2	3	0	0	5
SE	0	2	6	0	0	0	8
SSE	1	3	1	0	0	0	5
S	3	0	0	0	0	0	3
SSW	0	1	0	0	0	0	1
SW	2	0	0	0	0	0	2
WSW	0	1	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	1	1	1	0	0	0	3
NW	0	1	3	0	0	0	4
NNW	1	1	3	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	12	14	19	4	0	0	49

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 0

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	6	0	0	0	9
NNE	1	4	4	0	0	0	9
NE	1	21	3	0	0	0	25
ENE	1	24	0	0	0	0	25
E	1	19	0	0	0	0	20
ESE	5	9	2	0	0	0	16
SE	6	15	0	0	0	0	21
SSE	4	21	4	0	0	0	29
S	3	25	7	0	0	0	35
SSW	2	17	16	8	0	0	43
SW	0	11	13	6	0	0	30
WSW	2	16	13	2	0	0	33
W	4	20	13	0	0	0	37
WNW	0	26	14	0	0	0	40
NW	2	23	6	0	0	0	31
NNW	4	5	1	0	0	0	10
Variable	0	0	0	0	0	0	0
Total	36	259	102	16	0	0	413

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	2	0	0	0	7
NNE	1	4	1	0	0	0	6
NE	1	3	1	0	0	0	5
ENE	5	2	0	0	0	0	7
E	3	3	0	0	0	0	6
ESE	1	2	0	0	0	0	3
SE	5	0	0	0	0	0	5
SSE	0	3	1	0	0	0	4
S	3	6	0	0	0	0	9
SSW	0	4	7	1	0	0	12
SW	1	7	5	4	0	0	17
WSW	1	4	2	0	0	0	7
W	1	4	3	0	0	0	8
WNW	3	9	2	0	0	0	14
NW	3	1	2	0	0	0	6
NNW	0	5	4	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	28	62	30	5	0	0	125

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	3	0	0	0	0	5
NNE	0	8	1	0	0	0	9
NE	0	4	1	0	0	0	5
ENE	4	3	0	0	0	0	7
E	1	0	0	0	0	0	1
ESE	1	1	0	0	0	0	2
SE	2	1	0	0	0	0	3
SSE	2	4	0	0	0	0	6
S	0	4	1	0	0	0	5
SSW	0	4	4	1	1	0	10
SW	0	1	5	1	0	0	7
WSW	0	4	3	0	0	0	7
W	1	4	2	0	0	0	7
WNW	2	7	1	0	0	0	10
NW	3	4	3	0	0	0	10
NNW	3	7	5	0	0	0	15
Variable	0	0	0	0	0	0	0
Total	21	59	26	2	1	0	109

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 2
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Speed (in mph)

Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	13	27	6	0	0	0	46
NNE	6	26	9	0	0	0	41
NE	13	28	6	0	0	0	47
ENE	16	11	0	0	0	0	27
E	9	6	0	0	0	0	15
ESE	10	4	0	0	0	0	14
SE	5	10	2	0	0	0	17
SSE	3	22	5	0	0	0	30
S	2	23	24	3	0	0	52
SSW	1	6	30	8	0	0	45
SW	2	20	25	9	0	0	56
WSW	5	19	2	1	0	0	27
W	8	19	6	1	0	0	34
WNW	11	22	0	0	0	0	33
NW	5	17	9	0	0	0	31
NNW	9	26	15	1	0	0	51
Variable	0	0	0	0	0	0	0
Total	118	286	139	23	0	0	566

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 10
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	14	1	0	0	0	18
NNE	9	6	3	0	0	0	18
NE	10	9	0	0	0	0	19
ENE	44	4	0	0	0	0	48
E	40	3	0	0	0	0	43
ESE	21	8	0	0	0	0	29
SE	14	34	0	0	0	0	48
SSE	27	52	3	0	0	0	82
S	7	46	21	0	0	0	74
SSW	4	13	7	1	0	0	25
SW	1	14	10	0	0	0	25
WSW	8	12	1	0	0	0	21
W	16	12	1	0	0	0	29
WNW	27	12	1	0	0	0	40
NW	11	0	0	0	0	0	11
NNW	9	7	1	0	0	0	17
Variable	0	0	0	0	0	0	0
Total	251	246	49	1	0	0	547

Hours of calm in this stability class: 8
Hours of missing wind measurements in this stability class: 6
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	0	0	0	0	0	6
NNE	1	1	0	0	0	0	2
NE	5	0	0	0	0	0	5
ENE	12	0	0	0	0	0	12
E	35	1	0	0	0	0	36
ESE	35	5	0	0	0	0	40
SE	14	3	0	0	0	0	17
SSE	8	2	0	0	0	0	10
S	4	0	0	0	0	0	4
SSW	6	2	0	0	0	0	8
SW	9	2	0	0	0	0	11
WSW	20	5	0	0	0	0	25
W	26	2	0	0	0	0	28
WNW	12	0	0	0	0	0	12
NW	1	1	0	0	0	0	2
NNW	5	0	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	199	24	0	0	0	0	223

Hours of calm in this stability class: 24
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	0	0	0	0	0	3
NNE	3	0	0	0	0	0	3
NE	11	0	0	0	0	0	11
ENE	13	0	0	0	0	0	13
E	17	0	0	0	0	0	17
ESE	6	0	0	0	0	0	6
SE	3	0	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	1	0	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	2	0	0	0	0	0	2
WSW	8	0	0	0	0	0	8
W	13	0	0	0	0	0	13
WNW	4	0	0	0	0	0	4
NW	2	0	0	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	86	0	0	0	0	0	86

Hours of calm in this stability class: 76
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	3	2	0	0	6
NNE	1	3	0	1	0	0	5
NE	1	10	11	4	1	0	27
ENE	0	13	12	0	0	0	25
E	1	10	11	2	0	0	24
ESE	3	8	3	5	0	0	19
SE	1	11	6	1	0	0	19
SSE	2	13	7	2	0	0	24
S	2	10	14	4	1	0	31
SSW	1	14	15	10	2	0	42
SW	0	12	9	11	3	0	35
WSW	2	5	10	8	1	0	26
W	4	16	15	6	0	0	41
WNW	0	12	19	19	3	0	53
NW	1	7	14	8	0	0	30
NNW	1	4	3	1	0	0	9
Variable	0	0	0	0	0	0	0
Total	20	149	152	84	11	0	416

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	5	0	0	0	7
NNE	0	2	2	0	0	0	4
NE	0	0	3	1	1	0	5
ENE	2	4	2	0	0	0	8
E	1	3	2	0	0	0	6
ESE	2	1	1	0	0	0	4
SE	1	2	0	0	0	0	3
SSE	0	3	2	0	0	0	5
S	1	2	4	1	0	0	8
SSW	2	3	2	4	0	0	11
SW	0	5	5	7	2	0	19
WSW	0	4	2	0	0	0	6
W	1	6	1	1	0	0	9
WNW	1	7	3	4	1	0	16
NW	0	1	0	2	1	0	4
NNW	0	4	8	1	0	0	13
Variable	0	0	0	0	0	0	0
Total	11	49	42	21	5	0	128

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	3	0	0	0	5
NNE	1	5	0	0	0	0	6
NE	1	3	2	2	0	0	8
ENE	0	5	1	0	0	0	6
E	0	2	1	0	0	0	3
ESE	0	2	0	0	0	0	2
SE	1	2	0	0	0	0	3
SSE	1	1	3	0	0	0	5
S	1	2	3	1	0	0	7
SSW	0	1	2	1	1	1	6
SW	0	1	3	3	0	0	7
WSW	0	2	2	3	0	0	7
W	0	4	1	3	1	0	9
WNW	2	5	4	1	0	0	12
NW	3	5	2	2	1	0	13
NNW	0	5	5	2	0	0	12
Variable	0	0	0	0	0	0	0
Total	10	47	32	18	3	1	111

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	16	13	3	0	0	36
NNE	3	14	15	3	0	0	35
NE	6	8	24	13	0	0	51
ENE	5	14	15	0	0	0	34
E	0	8	9	0	0	0	17
ESE	4	2	5	0	0	0	11
SE	3	6	6	0	1	0	16
SSE	2	5	11	6	1	0	25
S	0	6	23	20	3	0	52
SSW	0	3	4	23	13	0	43
SW	1	8	14	29	6	1	59
WSW	2	9	21	4	1	0	37
W	1	10	9	6	2	1	29
WNW	2	5	20	6	0	0	33
NW	3	6	16	16	3	0	44
NNW	5	10	27	12	0	1	55
Variable	0	0	0	0	0	0	0
Total	41	130	232	141	30	3	577

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	3	14	1	0	0	20
NNE	1	6	6	2	0	0	15
NE	1	6	9	3	0	0	19
ENE	1	14	22	1	0	0	38
E	1	15	39	0	0	0	55
ESE	0	3	12	0	0	0	15
SE	0	9	21	5	0	0	35
SSE	0	10	35	11	0	0	56
S	0	10	53	34	0	0	97
SSW	1	13	22	22	2	0	60
SW	0	1	19	9	1	0	30
WSW	0	6	12	2	0	0	20
W	0	3	13	4	0	0	20
WNW	0	5	23	7	1	0	36
NW	2	8	16	2	0	0	28
NNW	0	5	11	1	0	0	17
Variable	0	0	0	0	0	0	0
Total	9	117	327	104	4	0	561

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Speed (in mph)

Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	2	6	0	0	0	9
NNE	1	2	4	0	0	0	7
NE	2	1	0	0	0	0	3
ENE	2	5	2	0	0	0	9
E	1	3	9	1	0	0	14
ESE	3	3	16	11	0	0	33
SE	0	8	24	5	0	0	37
SSE	0	9	9	0	0	0	18
S	2	7	6	0	0	0	15
SSW	0	4	4	0	0	0	8
SW	0	8	3	0	0	0	11
WSW	1	6	8	1	0	0	16
W	2	5	14	0	0	0	21
WNW	0	6	18	0	0	0	24
NW	1	9	8	0	0	0	18
NNW	1	3	3	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	17	81	134	18	0	0	250

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: July - September 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	2	0	0	0	3
NNE	1	1	0	0	0	0	2
NE	0	2	1	0	0	0	3
ENE	0	3	1	0	0	0	4
E	0	2	3	1	0	0	6
ESE	0	3	7	5	0	0	15
SE	2	12	5	0	0	0	19
SSE	4	12	0	0	0	0	16
S	2	9	0	0	0	0	11
SSW	9	8	1	0	0	0	18
SW	6	5	0	0	0	0	11
WSW	4	6	5	0	0	0	15
W	1	2	5	0	0	0	8
WNW	2	2	4	0	0	0	8
NW	0	9	4	0	0	0	13
NNW	1	3	5	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	33	79	43	6	0	0	161

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 2

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	0	0	0	1
NNE	0	0	1	0	0	0	1
NE	0	2	2	0	0	0	4
ENE	0	3	0	0	0	0	3
E	0	1	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	5	0	0	0	0	5
SSE	0	0	1	0	0	0	1
S	0	0	3	0	0	0	3
SSW	0	0	1	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	7	0	0	0	7
W	0	0	8	14	0	0	22
WNW	0	5	8	2	0	0	15
NW	0	6	5	0	0	0	11
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	23	39	16	0	0	78

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	1	0	3
NNE	0	1	1	0	0	0	2
NE	1	1	0	0	0	0	2
ENE	1	0	0	0	0	0	1
E	1	0	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	3	0	0	0	0	3
SSE	0	0	2	1	0	0	3
S	0	0	2	1	0	0	3
SSW	0	1	2	2	0	0	5
SW	0	2	6	2	0	0	10
WSW	0	0	2	1	0	0	3
W	0	3	3	1	0	0	7
WNW	0	4	2	0	0	0	6
NW	0	0	1	0	0	0	1
NNW	0	0	2	0	2	0	4
Variable	0	0	0	0	0	0	0
Total	3	16	25	8	3	0	55

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	3	0	0	0	4
NNE	0	0	1	0	0	0	1
NE	0	3	0	0	0	0	3
ENE	0	2	0	0	0	0	2
E	1	1	0	0	0	0	2
ESE	0	1	1	0	0	0	2
SE	1	0	0	0	0	0	1
SSE	0	0	3	1	0	0	4
S	0	2	0	0	0	0	2
SSW	0	6	4	4	0	0	14
SW	0	1	3	5	0	0	9
WSW	0	2	3	0	0	0	5
W	0	8	9	2	0	0	19
WNW	0	5	5	2	0	0	12
NW	0	2	5	0	0	0	7
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	35	38	14	0	0	89

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	21	20	10	2	0	57
NNE	2	22	9	0	0	0	33
NE	6	20	1	0	0	0	27
ENE	4	4	0	0	0	0	8
E	13	11	0	0	0	0	24
ESE	3	31	4	0	0	0	38
SE	1	16	22	0	0	0	39
SSE	1	42	30	0	0	0	73
S	1	27	76	6	0	0	110
SSW	0	13	27	36	5	0	81
SW	3	30	58	18	0	0	109
WSW	3	26	16	5	2	0	52
W	6	32	60	32	2	0	132
WNW	15	87	77	9	0	0	188
NW	12	43	22	1	0	0	78
NNW	4	52	36	18	0	0	110
Variable	0	0	0	0	0	0	0
Total	78	477	458	135	11	0	1159

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	6	1	0	0	0	15
NNE	5	16	0	0	0	0	21
NE	6	1	0	0	0	0	7
ENE	13	0	0	0	0	0	13
E	19	1	0	0	0	0	20
ESE	10	10	3	0	0	0	23
SE	2	19	12	0	0	0	33
SSE	4	22	25	0	0	0	51
S	2	38	68	5	0	0	113
SSW	4	12	36	18	1	0	71
SW	4	34	16	0	0	0	54
WSW	4	44	8	0	0	0	56
W	21	33	10	0	0	0	64
WNW	22	35	1	0	0	0	58
NW	8	4	0	0	0	0	12
NNW	13	4	1	0	0	0	18
Variable	0	0	0	0	0	0	0
Total	145	279	181	23	1	0	629

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	0	0	0	0	0	7
NNE	4	1	0	0	0	0	5
NE	3	0	0	0	0	0	3
ENE	3	0	0	0	0	0	3
E	17	0	0	0	0	0	17
ESE	12	3	0	0	0	0	15
SE	0	0	0	0	0	0	0
SSE	2	0	0	0	0	0	2
S	1	0	0	0	0	0	1
SSW	1	4	1	0	0	0	6
SW	0	4	0	0	0	0	4
WSW	4	17	0	0	0	0	21
W	25	8	0	0	0	0	33
WNW	8	0	0	0	0	0	8
NW	6	1	0	0	0	0	7
NNW	3	0	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	96	38	1	0	0	0	135

Hours of calm in this stability class: 9
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 34 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	7	0	0	0	0	0	7
NE	0	0	0	0	0	0	0
ENE	3	0	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	3	0	0	0	0	0	3
W	3	0	0	0	0	0	3
WNW	4	0	0	0	0	0	4
NW	4	0	0	0	0	0	4
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	29	0	0	0	0	0	29

Hours of calm in this stability class: 15
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Extremely Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	2	0	0	2
NE	0	0	1	1	0	0	2
ENE	0	4	1	0	0	0	5
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	6	0	0	0	6
SSE	0	0	0	1	0	0	1
S	0	0	0	2	0	0	2
SSW	0	0	1	1	0	0	2
SW	0	0	0	1	0	0	1
WSW	0	0	0	4	0	0	4
W	0	0	0	8	13	0	21
WNW	0	0	4	6	7	2	19
NW	0	0	7	4	0	0	11
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	5	21	30	20	2	78

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Moderately Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	0	0	1	2
NNE	0	0	2	1	0	0	3
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	1	0	0	0	2
SE	0	0	2	1	0	0	3
SSE	0	0	0	0	1	0	1
S	0	1	0	2	3	0	6
SSW	0	0	1	1	1	1	4
SW	0	0	2	4	2	0	8
WSW	0	0	2	3	0	0	5
W	0	1	3	1	2	0	7
WNW	0	1	2	1	3	0	7
NW	0	0	0	1	0	0	1
NNW	0	0	2	0	0	2	4
Variable	0	0	0	0	0	0	0
Total	1	5	18	15	12	4	55

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Slightly Unstable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	3	1	0	0	4
NNE	0	0	0	1	0	0	1
NE	0	1	2	0	0	0	3
ENE	0	2	0	0	0	0	2
E	0	0	0	0	0	0	0
ESE	1	0	1	1	0	0	3
SE	0	1	0	0	0	0	1
SSE	0	1	0	3	0	0	4
S	0	2	1	0	0	1	4
SSW	0	0	5	0	3	1	9
SW	0	4	3	4	2	0	13
WSW	0	1	0	1	0	0	2
W	0	5	3	5	1	0	14
WNW	0	5	1	7	5	2	20
NW	0	0	0	6	2	0	8
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	1	23	19	29	13	4	89

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Neutral - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	4	19	13	7	5	50
NNE	1	5	20	4	0	0	30
NE	1	4	19	2	0	0	26
ENE	0	9	3	0	0	0	12
E	3	12	3	0	0	0	18
ESE	0	9	19	15	0	0	43
SE	0	7	9	22	2	0	40
SSE	0	8	21	20	6	0	55
S	0	9	34	70	5	1	119
SSW	1	3	9	30	36	10	89
SW	0	8	41	31	16	2	98
WSW	4	7	33	10	1	2	57
W	3	16	18	32	33	9	111
WNW	0	19	42	87	38	7	193
NW	4	15	33	43	9	1	105
NNW	3	9	49	34	12	6	113
Variable	0	0	0	0	0	0	0
Total	22	144	372	413	165	43	1159

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Slightly Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	3	8	1	0	0	15
NNE	1	5	16	0	0	0	22
NE	0	3	5	1	0	0	9
ENE	0	5	3	0	0	0	8
E	0	7	13	0	0	0	20
ESE	0	5	10	5	0	0	20
SE	1	2	7	29	1	0	40
SSE	1	2	10	12	8	0	33
S	1	6	21	49	14	0	91
SSW	0	2	23	44	33	1	103
SW	1	17	23	18	2	0	61
WSW	1	10	27	14	0	0	52
W	0	1	27	21	0	0	49
WNW	1	4	34	22	0	0	61
NW	3	14	14	8	0	0	39
NNW	3	2	5	1	0	0	11
Variable	0	0	0	0	0	0	0
Total	16	88	246	225	58	1	634

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Moderately Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	2	0	0	0	4
NNE	0	1	4	2	0	0	7
NE	0	2	4	2	0	0	8
ENE	1	3	1	0	0	0	5
E	0	3	2	0	0	0	5
ESE	0	1	5	14	0	0	20
SE	0	1	4	5	0	0	10
SSE	0	2	0	0	0	0	2
S	1	0	1	0	0	0	2
SSW	0	2	0	0	0	0	2
SW	0	1	2	1	0	0	4
WSW	1	2	6	6	0	0	15
W	0	4	6	14	0	0	24
WNW	1	2	10	4	0	0	17
NW	0	5	4	3	0	0	12
NNW	0	2	5	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	4	33	56	51	0	0	144

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Braidwood Generating Station

Period of Record: October – December 2014
Stability Class - Extremely Stable - 199Ft-30Ft Delta-T (F)
Winds Measured at 203 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	2	0	0	0	5
NNE	1	1	3	1	0	0	6
NE	0	1	1	1	0	0	3
ENE	2	1	1	0	0	0	4
E	1	2	1	0	0	0	4
ESE	1	0	0	0	0	0	1
SE	2	1	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	0	2	0	0	0	0	2
SSW	0	4	0	0	0	0	4
SW	0	1	0	0	0	0	1
WSW	1	2	0	0	0	0	3
W	1	0	0	1	0	0	2
WNW	0	1	0	0	0	0	1
NW	1	0	1	1	0	0	3
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	10	19	11	4	0	0	44

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

APPENDIX G

ERRATA DATA

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APPENDIX B

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

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TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2011

Location	Location Description	Distance & Direction From Site
A. Surface Water		
BD-10	Kankakee River Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-38	Main Drainage Ditch (indicator)	1.5 miles SW
BD-40	Braidwood Station Cooling Lake (indicator)	Onsite
BD-55	North Pond Fatlan Site (Indicator)	0.6 miles NE
BD-56	South Pond Fatlan Site (indictor)	0.6 miles NE
B. Drinking (Potable) Water		
BD-22	Wilmington (indicator)	6.0 miles NE
C. Ground/Well Water		
BD-13	Braidwood City Hall Well (indicator)	1.7 miles NNE
BD-34	Gibson Well (indicator)	4.7 miles E
BD-35	Joly Well (indicator)	4.7 miles E
BD-36	Hutton Well (indicator)	4.7 miles E
BD-37	Nurczyk Well (indicator)	4.7 miles E
BD-50	Skole Well (indicator)	4.7 miles E
BD-51	Fatlan Well (indicator)	0.6 miles NE
BD-53	Phelps Well (indicator)	0.7 miles E
BD-54	Cash Well (indicator)	0.9 miles NE
D. Milk - bi-weekly / monthly		
BD-17	Halpin's Dairy (indicator)	5.5 miles SSW
BD-18	Biros' Farm (control)	8.7 miles W
E. Air Particulates / Air Iodine		
BD-02	Custer Park (indicator)	5.0 miles E
BD-03	County Line Road (control)	6.2 miles ESE
BD-04	Essex (indicator)	4.8 miles SSE
BD-05	Gardner (indicator)	5.5 miles SW
BD-06	Godley (indicator)	0.5 miles WSW
BD-19	Nearsite NW (indicator)	0.3 miles NW
BD-20	Nearsite N (indicator)	0.6 miles N
BD-21	Nearsite NE (indicator)	0.5 miles NE
F. Fish		
BD-25	Kankakee River, Upstream (control)	9.6 miles E
BD-28	Kankakee River, Discharge (indicator)	5.4 miles E
BD-41	Cooling Lake (indicator)	1.0 mile E
G. Sediment		
BD-10	Kankakee River, Downstream (indicator)	5.4 miles NE
BD-57	Circulating Water Blowdown Discharge (indicator)	5.4 miles E

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2011

Location	Location Description	Distance & Direction From Site
H. Food Products		
Quadrant 1	Clark Farm	3.8 miles ENE
Quadrant 2	W.F. Soltwisch	4.5 miles SSE
Quadrant 3	Terri Schultz	4.8 miles SSW
Quadrant 4	Bruce Sinkular	1.9 miles NNW
Control	Gorman Farm	9.0 miles NE
I. Environmental Dosimetry - TLD		
Site Boundary		
BD-101-3 and -4		0.5 miles N
BD-102-1 and -2		1.1 miles NNE
BD-103-1 and -2		1.0 mile NE
BD-104-1 and -2		0.7 miles ENE
BD-105-1 and -2		2.2 miles E
BD-106-1 and -2		2.5 miles ESE
BD-107-1 and -2		3.2 miles SE
BD-108-1 and -2		3.2 miles SSE
BD-109-1 and -2		3.8 miles S
BD-110-1 and -2		2.8 miles SSW
BD-111a-1 and -2		1.4 miles SW
BD-112-1 and -2		0.7 miles WSW
BD-113a-1 and -2		0.5 miles W
BD-114-1 and -2		0.4 miles WNW
BD-115-1 and -2		0.3 miles NW
BD-116-1		0.4 miles NNW
BD-116-2		0.5 miles NNW
Intermediate Distance		
BD-201-1 and -2		4.2 miles N
BD-202-1 and -2		4.8 miles NNE
BD-203-1 and -2		4.9 miles NE
BD-204-1 and -2		4.3 miles ENE
BD-205-1 and -2		4.0 miles E
BD-206-1 and -2		4.5 miles ESE
BD-207-1 and -2		4.5 miles SE
BD-208-1 and -2		4.5 miles SSE
BD-209-1 and -2		4.8 miles S
BD-210-1 and -2		5.3 miles SSW
BD-211-1 and -2		4.8 miles SW
BD-212-3 and -4		5.0 miles WSW
BD-213-3 and -4		4.8 miles W
BD-214-1 and -2		4.3 miles WNW
BD-215-1 and -2		4.5 miles NW
BD-216-1 and -2		4.0 miles NNW
Other		
BD-02-1 and -2	Custer Park (indicator)	5.0 miles E
BD-04-1 and -2	Essex (indicator)	4.8 miles SSE
BD-05-1 and -2	Gardner (indicator)	5.5 miles SW
BD-06-1 and -2	Godley (indicator)	0.5 miles WSW
BD-19-1 and -2	Nearsite NW (indicator)	0.3 miles NW
BD-20-1 and -2	Nearsite N (indicator)	0.6 miles N
BD-21-1 and -2	Nearsite NE (indicator)	0.5 miles NE

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2011

Location	Location Description	Distance & Direction From Site
I. Environmental Dosimetry – TLD (cont'd)		
Control		
BD-03-1 and -2	13000 W. Road	6.2 miles ESE
ISFSI		
BD-104-3 and -4		0.7 miles ENE
BD-105-3 and -4		0.7 miles ENE
BD-110-3 and -4		2.8 miles SSW

Distance in Miles from the Braidwood Station ISFSI Pad, 2011

Sector	Residence Miles
(N) W	0.7
(P) WNW	0.7
(Q) NW	0.7
(R) NNW	0.7

Distance in Miles from the Braidwood Station Reactor Buildings, 2011

Sector	Residence Miles	Livestock Miles	Milk Farm Miles
(A) N	0.5	2.6	-
(B) NNE	0.9	-	-
(C) NE	0.7	0.9	-
(D) ENE	0.8	3.3	-
(E) E	1.5	2.3	-
(F) ESE	2.2	2.3	-
(G) SE	2.7	2.7	-
(H) SSE	4.5	-	-
(J) S	4.2	4.8	-
(K) SSW	1.3	5.3	5.5
(L) SW	0.4	1.2	-
(M) WSW	0.5	-	-
(N) W	0.4	1.6	-
(P) WNW	0.4	-	-
(Q) NW	0.4	-	-
(R) NNW	0.4	-	-

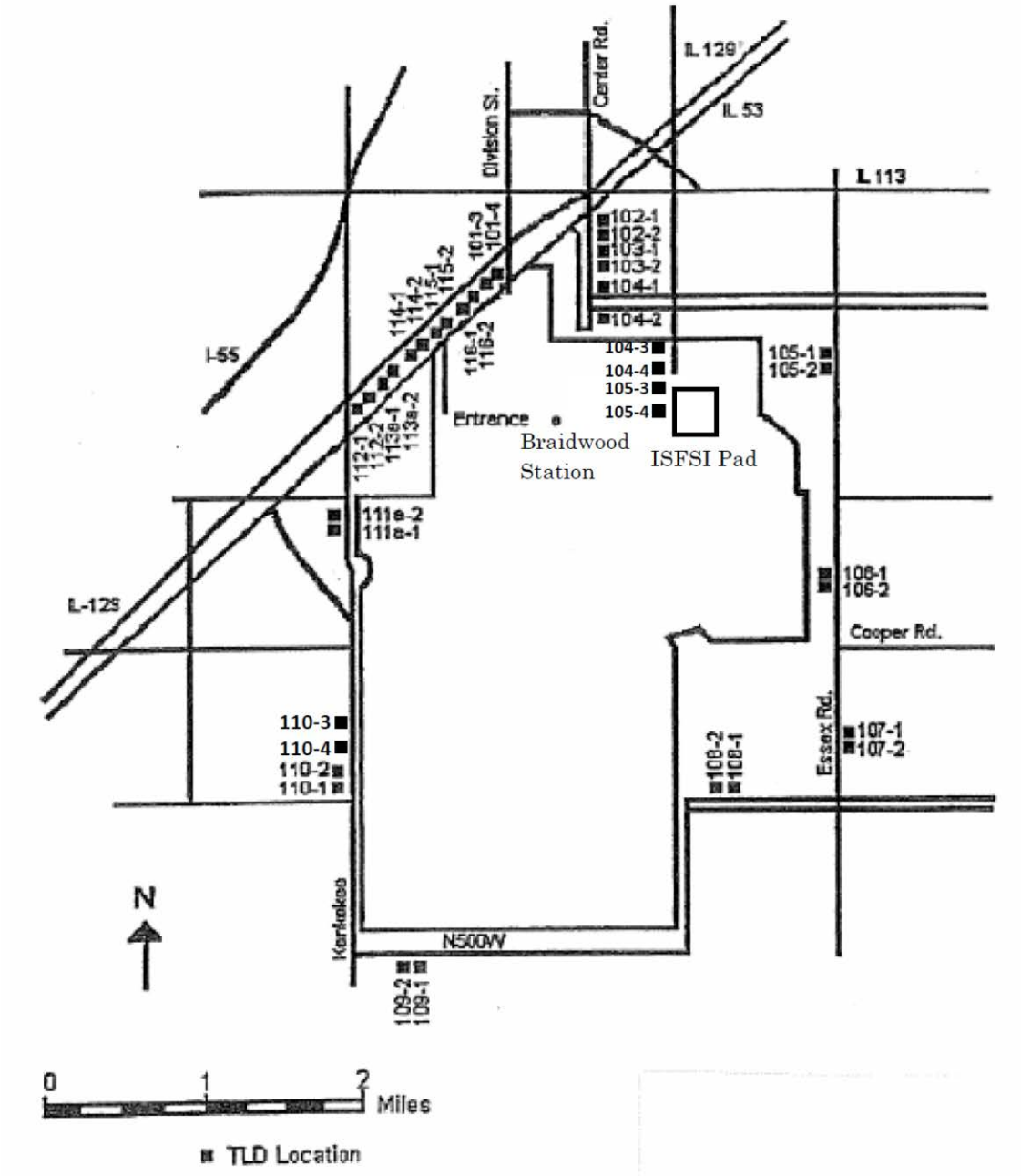

Figure B-1
Inner Ring and Other TLD Locations of the
Braidwood Station, 2011

APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

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Table C-IX.1 QUARTERLY DLR RESULTS FOR BRAIDWOOD STATION, 2011

RESULTS IN UNITS OF MROENTGEN/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-02-1	19.8 ± 1.9	19	21	19	20
BD-02-2	20.3 ± 1.9	20	21	19	21
BD-03-1	20.8 ± 3.0	19	22	20	22
BD-03-2	21.5 ± 4.8	19	23	20	24
BD-04-1	20.5 ± 2.6	19	22	20	21
BD-04-2	20.0 ± 2.8	18	21	20	21
BD-05-1	21.0 ± 3.3	19	23	21	21
BD-05-2	20.5 ± 3.5	19	22	19	22
BD-06-1	20.3 ± 3.0	19	22	19	21
BD-06-2	20.0 ± 3.3	18	20	20	22
BD-19-1	20.8 ± 3.0	20	22	19	22
BD-19-2	20.8 ± 3.0	19	22	20	22
BD-20-1	21.0 ± 2.3	20	22	20	22
BD-20-2	20.8 ± 1.9	20	21	20	22
BD-21-1	20.0 ± 2.8	18	21	20	21
BD-21-2	20.5 ± 3.5	20	20	19	23
BD-101-3	20.0 ± 3.7	18	22	19	21
BD-101-4	20.8 ± 3.4	20	23	19	21
BD-102-1	19.3 ± 3.4	17	20	19	21
BD-102-2	20.8 ± 2.5	19	22	21	21
BD-103-1	21.8 ± 2.5	20	23	22	22
BD-103-2	21.8 ± 1.0	21	22	22	22
BD-104-1	19.5 ± 2.6	18	21	19	20
BD-104-2	19.0 ± 3.7	17	21	18	20
BD-104-3	22.0 ± 2.0	-	23	22	21
BD-104-4	21.0 ± 3.5	-	20	20	23
BD-105-1	20.3 ± 3.4	18	22	20	21
BD-105-2	20.8 ± 5.7	21	21	17	24
BD-105-3	18.3 ± 3.1	-	18	17	20
BD-105-4	20.7 ± 4.2	-	20	19	23
BD-106-1	20.3 ± 3.4	18	22	20	21
BD-106-2	20.3 ± 1.9	19	21	20	21
BD-107-1	20.8 ± 3.0	19	22	20	22
BD-107-2	20.0 ± 4.6	18	22	18	22
BD-108-1	19.8 ± 1.9	19	21	19	20
BD-108-2	20.5 ± 1.2	20	21	20	21
BD-109-1	24.3 ± 8.4	20	30	23	24
BD-109-2	22.3 ± 5.0	19	23	22	25
BD-110-1	21.3 ± 5.5	18	24	20	23
BD-110-2	20.5 ± 3.8	18	22	20	22
BD-110-3	19.3 ± 2.3	-	20	18	20
BD-110-4	20.7 ± 3.1	-	21	19	22
BD-112-1	20.5 ± 3.8	18	22	20	22

Table C-IX.1 QUARTERLY DLR RESULTS FOR BRAIDWOOD STATION, 2011

RESULTS IN UNITS OF MROENTGEN/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-112-2	21.0 ± 2.3	20	22	20	22
BD-114-1	20.0 ± 2.8	20	22	19	19
BD-114-2	19.8 ± 2.5	18	21	20	20
BD-115-1	20.8 ± 3.4	19	23	20	21
BD-115-2	20.3 ± 1.9	19	21	20	21
BD-116-1	20.3 ± 1.9	20	21	19	21
BD-116-2	21.0 ± 2.8	22	22	19	21
BD-201-1	23.3 ± 1.9	22	24	23	24
BD-201-2	22.5 ± 6.2	20	22	21	27
BD-202-1	19.5 ± 2.6	18	21	19	20
BD-202-2	20.0 ± 4.3	17	20	21	22
BD-203-1	22.3 ± 3.0	23	23	20	23
BD-203-2	19.8 ± 3.0	18	21	19	21
BD-204-1	19.3 ± 1.0	19	20	19	19
BD-204-2	18.8 ± 1.9	18	18	19	20
BD-205-1	20.0 ± 4.3	18	23	19	20
BD-205-2	20.0 ± 2.8	18	21	20	21
BD-206-1	22.5 ± 3.8	21	23	21	25
BD-206-2	20.8 ± 3.0	19	22	20	22
BD-207-1	19.0 ± 2.8	17	20	19	20
BD-207-2	20.3 ± 4.4	18	21	19	23
BD-208-1	20.5 ± 2.6	19	22	20	21
BD-208-2	19.8 ± 3.0	18	21	19	21
BD-209-1	23.8 ± 6.2	21	28	22	24
BD-209-2	24.5 ± 2.6	23	25	24	26
BD-210-1	22.5 ± 3.5	21	24	21	24
BD-210-2	21.0 ± 2.3	20	22	20	22
BD-211-1	25.0 ± 3.7	23	26	24	27
BD-211-2	24.8 ± 2.5	23	25	25	26
BD-212-3	22.5 ± 2.0	23	23	21	23
BD-212-4	23.8 ± 1.9	23	25	23	24
BD-213-3	20.8 ± 3.0	19	22	20	22
BD-213-4	20.0 ± 2.3	19	21	19	21
BD-214-1	20.3 ± 4.1	18	22	19	22
BD-214-2	24.3 ± 6.4	22	(1)	23	28
BD-215-1	20.0 ± 1.6	19	21	20	20
BD-215-2	19.3 ± 1.9	18	20	19	20
BD-216-1	22.8 ± 3.8	20	23	24	24
BD-216-2	21.5 ± 3.8	19	23	21	23
BD-111A-1	21.3 ± 1.9	20	22	22	21
BD-111A-2	20.0 ± 2.8	20	19	19	22
BD-113A-1	20.8 ± 2.5	19	22	21	21
BD-113A-2	20.8 ± 5.0	18	21	20	24

(1) SEE 2011 PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-X.2 MEAN QUARTLY TLD RESULTS FOR THE INNER RING, OUTER RING, OTHER CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2011

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

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL	ISFSI
JAN-MAR	19.1 ± 2.4	19.8 ± 4.0	19.1 ± 1.5	19.0 ± 0.0	-
APR-JUN	22.0 ± 3.5	22.3 ± 4.1	21.4 ± 1.7	22.5 ± 1.4	20.3 ± 3.3
JUL-SEP	19.9 ± 2.6	20.7 ± 3.7	19.6 ± 1.3	20.0 ± 0.0	19.2 ± 3.4
OCT-DEC	21.5 ± 2.6	22.7 ± 4.8	21.5 ± 1.5	23.0 ± 2.8	21.5 ± 2.8

TABLE C-X.2 MEAN QUARTLY TLD RESULTS FOR THE INNER RING, OUTER RING, OTHER, CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2011

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATION

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	128	17	30	20.6 ± 3.7
OUTER RING	127	17	28	21.4 ± 4.7
OTHER	56	18	23	20.4 ± 2.6
CONTROL	8	19	24	21.1 ± 3.8
ISFSI	18	17	23	20.3 ± 3.6

INNER RING STATIONS - BD-101-3, BD-101-4, BD-102-1, BD-102-2, BD-103-1, BD-103-2, BD-104-1, BD-104-2, BD-105-1, BD-105-2, BD-106-1, BD-106-2, BD-107-1, BD-107-2, BD-108-1, BD-108-2, BD-109-1, BD-109-2, BD-110-1, BD-110-2, BD-111A-1, BD-111A-2, BD-112-1, BD-112-2, BD-113A-1, BD-113A-2, BD-114-1, BD-114-2, BD-115-1, BD-115-2, BD-116-1, BD-116-2

OUTER RING STATIONS - BD-201-1, BD-201-2, BD-202-1, BD-202-2, BD-203-1, BD-203-2, BD-204-1, BD-204-2, BD-205-1, BD-205-2, BD-206-1, BD-206-2, BD-207-1, BD-207-2, BD-208-1, BD-208-2, BD-209-1, BD-209-2, BD-210-1, BD-210-2, BD-211-1, BD-211-2, BD-212-3, BD-212-4, BD-213-3, BD-213-4, BD-214-1, BD-214-2, BD-215-1, BD-215-2, BD-216-1, BD-216-2

OTHER STATIONS - BD-02-1, BD-02-2, BD-04-1, BD-04-2, BD-05-1, BD-05-2, BD-06-1, BD-06-2, BD-19-1, BD-19-2, BD-20-1, BD-20-2, BD-21-1, BD-21-2

CONTROL STATIONS - BD-03-1, BD-03-2,

ISFSI STATIONS - BD-104-3, BD-104-4, BD-105-3, BD-105-4, BD-110-3, BD-110-4

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APPENDIX B

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

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TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2012

Location	Location Description	Distance & Direction From Site
A. Surface Water		
BD-10	Kankakee River Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-38	Main Drainage Ditch (indicator)	1.5 miles SE
BD-40	Braidwood Station Cooling Lake (indicator)	Onsite
BD-55	North Pond Fatlan Site (Indicator)	0.6 miles NE
BD-56	South Pond Fatlan Site (indictor)	0.6 miles NE
B. Drinking (Potable) Water		
BD-22	Wilmington (indicator)	6.0 miles NE
C. Ground/Well Water		
BD-13	Braidwood City Hall Well (indicator)	1.7 miles NNE
BD-34	Gibson Well (indicator)	4.7 miles E
BD-35	Joly Well (indicator)	4.7 miles E
BD-36	Hutton Well (indicator)	4.7 miles E
BD-37	Nurczyk Well (indicator)	4.7 miles E
BD-50	Skole Well (indicator)	4.7 miles E
BD-51	Fatlan Well (indicator)	0.6 miles NE
BD-54	Cash Well (indicator)	0.9 miles NE
D. Milk - bi-weekly / monthly		
BD-17	Halpin's Dairy (indicator)	5.5 miles SSW
BD-18	Biros' Farm (control)	8.7 miles W
E. Air Particulates / Air Iodine		
BD-02	Custer Park (indicator)	5.0 miles E
BD-03	County Line Road (control)	6.2 miles ESE
BD-04	Essex (indicator)	4.8 miles SSE
BD-05	Gardner (indicator)	5.5 miles SW
BD-06	Godley (indicator)	0.5 miles WSW
BD-19	Nearsite NW (indicator)	0.3 miles NW
BD-20	Nearsite N (indicator)	0.6 miles N
BD-21	Nearsite NE (indicator)	0.5 miles NE
F. Fish		
BD-25	Kankakee River, Upstream (control)	9.6 miles E
BD-28	Kankakee River, Discharge (indicator)	5.4 miles E
BD-41	Cooling Lake (indicator)	1.0 mile E
G. Sediment		
BD-10	Kankakee River, Downstream (indicator)	5.4 miles NE
BD-57	Circulating Water Blowdown Discharge (indicator)	5.4 miles E
H. Food Products		

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2012

Location	Location Description	Distance & Direction From Site
Quadrant 1	Clark Farm	3.8 miles ENE
Quadrant 2	W.F. Soltwisch	4.5 miles SSE
Quadrant 3	Terri Schultz	4.8 miles SSW
Quadrant 4	Bruce Sinkular	1.9 miles NNW
Control	Gorman Farm	9.0 miles NE
I. Environmental Dosimetry - OSLD		
Site Boundary		
BD-101-3 and -4		0.5 miles N
BD-102-1 and -2		1.1 miles NNE
BD-103-1 and -2		1.0 mile NE
BD-104-1 and -2		0.7 miles ENE
BD-105-1 and -2		2.2 miles E
BD-106-1 and -2		2.5 miles ESE
BD-107-1 and -2		3.2 miles SE
BD-108-1 and -2		3.2 miles SSE
BD-109-1 and -2		3.8 miles S
BD-110-1 and -2		2.8 miles SSW
BD-111a-1 and -2		1.4 miles SW
BD-112-1 and -2		0.7 miles WSW
BD-113a-1 and -2		0.5 miles W
BD-114-1 and -2		0.4 miles WNW
BD-115-1 and -2		0.3 miles NW
BD-116-1		0.4 miles NNW
BD-116-2		0.5 miles NNW
Intermediate Distance		
BD-201-1 and -2		4.2 miles N
BD-202-1 and -2		4.8 miles NNE
BD-203-1 and -2		4.9 miles NE
BD-204-1 and -2		4.3 miles ENE
BD-205-1 and -2		4.0 miles E
BD-206-1 and -2		4.5 miles ESE
BD-207-1 and -2		4.5 miles SE
BD-208-1 and -2		4.5 miles SSE
BD-209-1 and -2		4.8 miles S
BD-210-1 and -2		5.3 miles SSW
BD-211-1 and -2		4.8 miles SW
BD-212-3 and -4		5.0 miles WSW
BD-213-3 and -4		4.8 miles W
BD-214-1 and -2		4.3 miles WNW
BD-215-1 and -2		4.5 miles NW
BD-216-1 and -2		4.0 miles NNW
Other		
BD-02-1 and -2	Custer Park (indicator)	5.0 miles E
BD-04-1 and -2	Essex (indicator)	4.8 miles SSE
BD-05-1 and -2	Gardner (indicator)	5.5 miles SW
BD-06-1 and -2	Godley (indicator)	0.5 miles WSW
BD-19-1 and -2	Nearsite NW (indicator)	0.3 miles NW
BD-20-1 and -2	Nearsite N (indicator)	0.6 miles N
BD-21-1 and -2	Nearsite NE (indicator)	0.5 miles NE
I. Environmental Dosimetry – OSLD (cont'd)		

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2012

Location	Location Description	Distance & Direction From Site
Control		
BD-03-1 and -2	13000 W. Road	6.2 miles ESE
ISFSI		
BD-104-3 and -4		0.7 miles ENE
BD-105-3 and -4		0.7 miles ENE
BD-110-3 and -4		2.8 miles SSW

Distance in Miles from the Braidwood Station ISFSI Pad, 2012

Sector	Residence Miles
(N) W	0.7
(P) WNW	0.7
(Q) NW	0.7
(R) NNW	0.7

Distance in Miles from the Braidwood Station Reactor Buildings, 2012

Sector	Residence Miles	Livestock Miles	Milk Farm Miles
(A) N	0.5	2.6	-
(B) NNE	0.9	-	-
(C) NE	0.7	0.9	-
(D) ENE	0.8	3.3	-
(E) E	1.5	2.3	-
(F) ESE	2.2	2.3	-
(G) SE	2.7	2.7	-
(H) SSE	4.5	-	-
(J) S	4.2	4.8	-
(K) SSW	1.3	5.3	5.5
(L) SW	0.4	1.2	-
(M) WSW	0.5	-	-
(N) W	0.4	1.6	-
(P) WNW	0.4	-	-
(Q) NW	0.4	-	-
(R) NNW	0.4	-	-

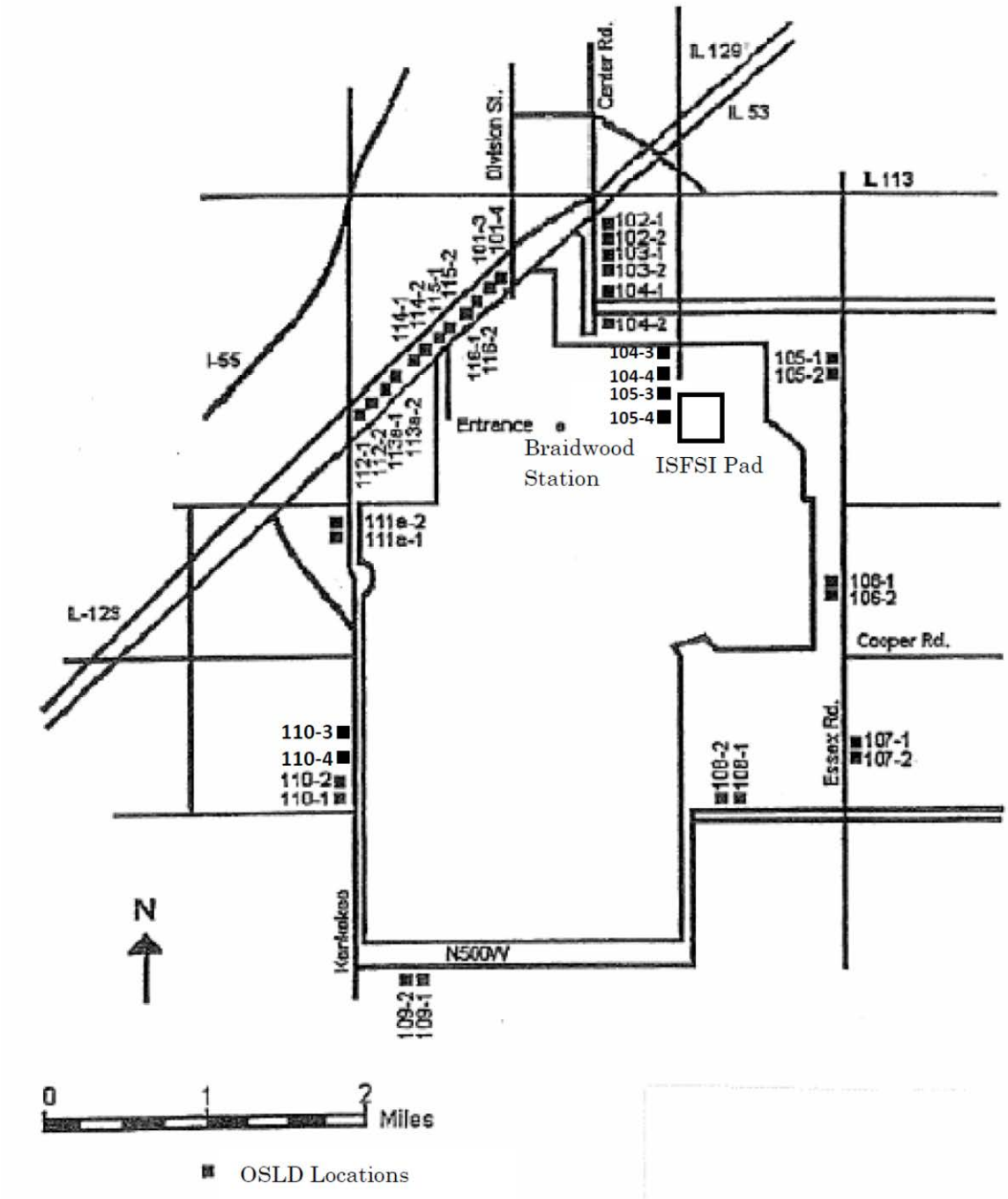

Figure B-1
Inner Ring and Other OSLD Locations of the
Braidwood Station, 2012

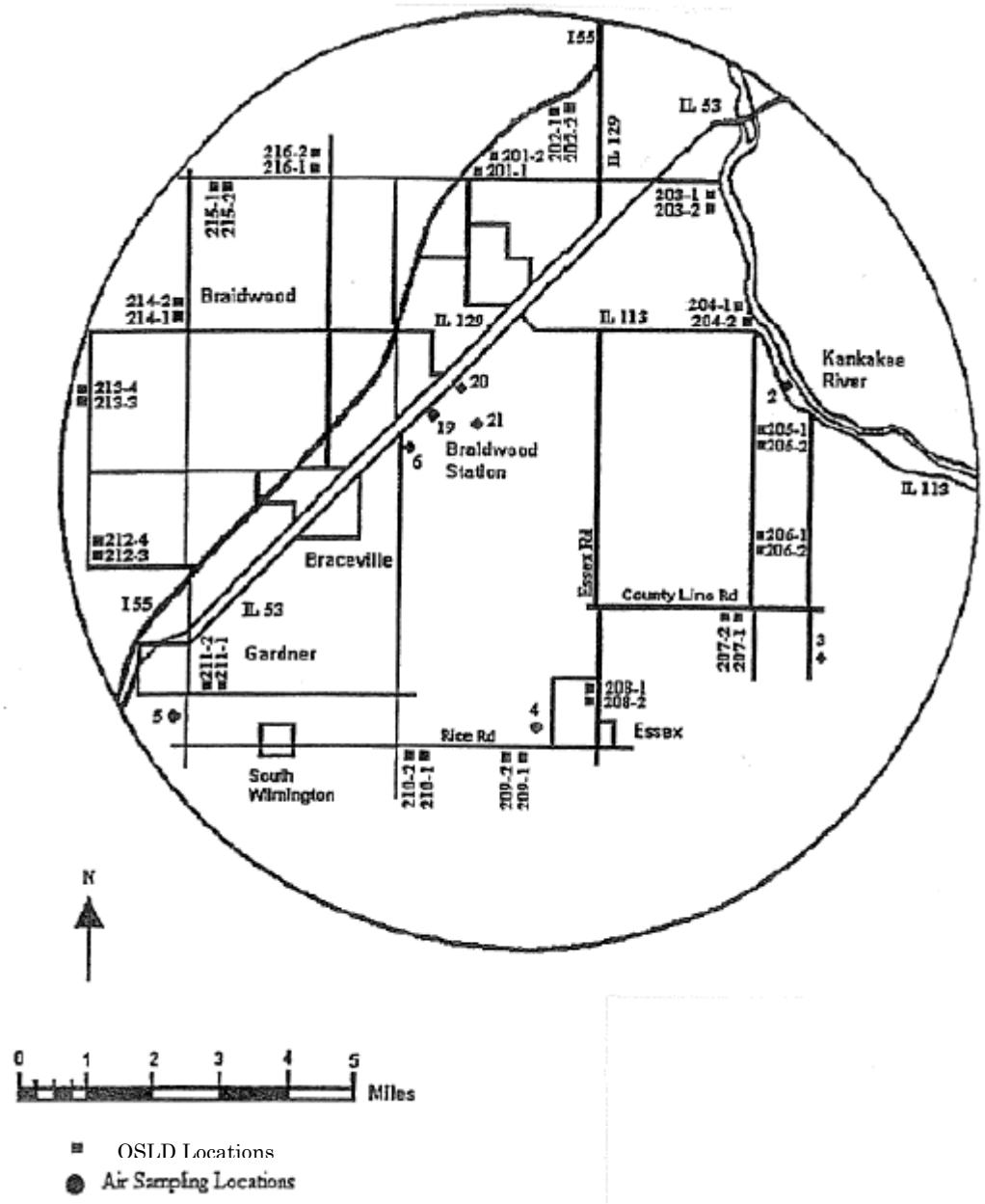

Figure B-2
Fixed Air Sampling and Outer Ring OSLD Locations
of the Braidwood Station, 2012

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APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

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Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2012

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-02-1	19.7 ± 2.4	20.0	20.8	19.8	18.0
BD-02-2	20.3 ± 3.5	20.0	22.8	19.5	18.8
BD-03-1	20.1 ± 3.3	22.0	20.8	19.4	18.2
BD-03-2	20.4 ± 1.9	21.0	20.8	20.9	19.0
BD-04-1	18.3 ± 3.1	19.0	20.0	17.7	16.5
BD-04-2	18.8 ± 2.1	19.0	20.2	18.0	17.9
BD-05-1	20.0 ± 1.5	20.0	21.0	19.2	19.8
BD-05-2	20.0 ± 2.4	21.0	21.1	18.9	19.1
BD-06-1	18.7 ± 2.4	19.0	20.0	18.6	17.1
BD-06-2	19.2 ± 3.0	19.0	21.4	18.4	18.1
BD-19-1	20.2 ± 4.7	20.0	23.6	18.3	18.9
BD-19-2	20.0 ± 2.3	21.0	20.9	19.4	18.6
BD-20-1	19.3 ± 3.6	19.0	21.3	19.7	17.0
BD-20-2	20.3 ± 2.9	20.0	22.4	19.5	19.3
BD-21-1	19.7 ± 2.6	19.0	21.5	19.6	18.6
BD-21-2	19.8 ± 3.0	22.0	19.6	18.6	19.0
BD-101-3	18.8 ± 2.6	18.0	20.5	19.0	17.5
BD-101-4	19.2 ± 5.6	(1)	22.2	18.9	16.6
BD-102-1	19.2 ± 3.7	19.0	21.1	20.0	16.8
BD-102-2	20.9 ± 2.4	21.0	22.5	20.0	20.0
BD-103-1	19.0 ± 3.1	17.0	20.6	19.8	18.6
BD-103-2	19.3 ± 1.6	20.0	19.9	18.9	18.4
BD-104-1	17.5 ± 1.7	17.0	18.7	16.8	17.5
BD-104-2	18.0 ± 2.7	17.0	19.2	19.2	16.7
BD-104-3	19.8 ± 2.8	20.0	20.5	20.8	17.7
BD-104-4	19.4 ± 1.7	19.0	20.5	19.5	18.5
BD-105-1	18.3 ± 4.9	16.0	21.4	19.2	16.7
BD-105-2	19.0 ± 2.8	19.0	20.9	18.3	17.6
BD-105-3	20.4 ± 3.0	20.0	21.9	21.3	18.5
BD-105-4	25.2 ± 2.5	25.0	25.7	26.5	23.5
BD-106-1	17.1 ± 2.0	18.0	(1)	17.2	16.0
BD-106-2	18.8 ± 2.3	18.0	20.5	18.7	18.1
BD-107-1	19.3 ± 2.9	20.0	20.9	17.7	18.4
BD-107-2	18.8 ± 5.9	17.0	22.4	19.8	15.8
BD-108-1	17.8 ± 5.0	19.0	19.8	18.3	14.2
BD-108-2	19.6 ± 2.7	20.0	20.8	19.8	17.6
BD-109-1	22.3 ± 4.6	21.0	24.8	23.5	19.7
BD-109-2	22.2 ± 0.8	22.0	22.4	22.6	21.7
BD-110-1	18.9 ± 1.3	19.0	19.4	19.2	17.9
BD-110-2	18.4 ± 0.6	18.0	18.6	18.6	18.3
BD-110-3	19.4 ± 3.8	19.0	21.6	19.9	17.0
BD-110-4	19.9 ± 3.1	20.0	20.9	20.9	17.6
BD-112-1	18.0 ± 3.2	17.0	20.4	17.2	17.4

(1) SEE 2012 PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2012

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-112-2	18.1 ± 1.6	18.0	19.2	18.0	17.2
BD-114-1	20.0 ± 4.2	18.0	22.9	19.7	19.2
BD-114-2	18.7 ± 3.1	18.0	20.5	19.2	16.9
BD-115-1	19.1 ± 3.1	18.0	21.4	18.4	18.7
BD-115-2	18.9 ± 2.1	19.0	20.3	18.3	17.9
BD-116-1	20.4 ± 2.5	21.0	21.2	20.8	18.5
BD-116-2	19.2 ± 2.2	18.0	20.6	18.9	19.1
BD-201-1	24.7 ± 1.5	25.0	25.2	25.1	23.6
BD-201-2	21.0 ± 2.0	20.0	21.3	22.2	20.4
BD-202-1	19.8 ± 4.7	20.0	22.8	19.1	17.2
BD-202-2	19.5 ± 3.5	18.0	21.7	20.0	18.1
BD-203-1	19.4 ± 2.5	19.0	20.4	20.4	17.8
BD-203-2	18.6 ± 3.7	17.0	21.0	19.0	17.3
BD-204-1	18.3 ± 3.3	18.0	20.2	18.8	16.3
BD-204-2	18.0 ± 1.4	18.0	18.9	17.3	17.6
BD-205-1	18.5 ± 3.2	19.0	19.4	19.3	16.1
BD-205-2	18.0 ± 3.0	17.0	19.4	19.2	16.5
BD-206-1	19.1 ± 2.8	19.0	20.9	18.8	17.5
BD-206-2	18.2 ± 2.7	17.0	19.6	19.1	17.1
BD-207-1	18.4 ± 3.4	17.0	20.9	17.9	17.9
BD-207-2	17.3 ± 1.8	18.0	16.0	17.4	17.8
BD-208-1	18.4 ± 1.8	18.0	19.6	18.6	17.5
BD-208-2	18.7 ± 2.0	18.0	19.1	19.9	17.8
BD-209-1	23.0 ± 2.2	22.0	24.5	23.0	22.5
BD-209-2	24.2 ± 1.2	24.0	24.4	24.8	23.4
BD-210-1	21.4 ± 4.1	20.0	24.1	21.9	19.7
BD-210-2	20.1 ± 2.0	20.0	21.5	19.8	19.1
BD-211-1	23.7 ± 5.0	22.0	27.4	23.0	22.4
BD-211-2	24.6 ± 2.0	25.0	25.7	24.0	23.5
BD-212-3	18.8 ± 2.8	19.0	20.5	18.4	17.1
BD-212-4	23.8 ± 2.9	23.0	25.6	24.2	22.3
BD-213-3	18.5 ± 2.7	19.0	19.9	18.4	16.7
BD-213-4	18.4 ± 3.5	18.0	20.7	18.3	16.5
BD-214-1	19.0 ± 3.6	18.0	21.1	(1)	17.9
BD-214-2	21.4 ± 2.8	22.0	22.9	20.8	19.7
BD-215-1	18.0 ± 2.7	19.0	18.8	18.2	16.1
BD-215-2	17.9 ± 1.5	18.0	18.8	17.5	17.1
BD-216-1	20.8 ± 2.7	22.0	22.0	19.4	19.9
BD-216-2	21.1 ± 1.8	21.0	22.3	20.9	20.2
BD-111A-1	17.6 ± 1.9	18.0	18.6	17.2	16.4
BD-111A-2	18.1 ± 2.8	19.0	16.2	19.2	17.8
BD-113A-1	18.8 ± 2.2	19.0	19.7	19.1	17.2
BD-113A-2	17.8 ± 4.1	16.0	20.7	17.5	16.8

(1) SEE 2012 PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2012

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

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL	ISFSI
JAN-MAR	18.5 ± 3.0	19.7 ± 4.6	19.9 ± 1.9	21.5 ± 1.4	20.5 ± 4.5
APR-JUN	20.6 ± 3.2	21.5 ± 5.0	21.2 ± 2.3	20.8 ± 0.0	21.9 ± 3.9
JUL-SEP	19.0 ± 2.8	20.2 ± 4.5	18.9 ± 1.4	20.2 ± 2.1	21.5 ± 5.1
OCT-DEC	17.7 ± 2.8	18.8 ± 4.7	18.3 ± 1.9	18.6 ± 1.1	18.8 ± 4.7

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER, CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2012

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATION

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	126	14.2	24.8	19.0 ± 3.6
OUTER RING	127	16.0	27.4	20.0 ± 5.1
OTHER	56	16.5	23.6	19.6 ± 2.8
CONTROL	8	18.2	22.0	20.3 ± 2.5
ISFSI	24	17.0	26.5	20.7 ± 4.9

INNER RING STATIONS - BD-101-3, BD-101-4, BD-102-1, BD-102-2, BD-103-1, BD-103-2, BD-104-1, BD-104-2, BD-105-1, BD-105-2, BD-106-1, BD-106-2, BD-107-1, BD-107-2, BD-108-1, BD-108-2, BD-109-1, BD-109-2, BD-110-1, BD-110-2, BD-111A-1, BD-111A-2, BD-112-1, BD-112-2, BD-113A-1, BD-113A-2, BD-114-1, BD-114-2, BD-115-1, BD-115-2, BD-116-1, BD-116-2

OUTER RING STATIONS - BD-201-1, BD-201-2, BD-202-1, BD-202-2, BD-203-1, BD-203-2, BD-204-1, BD-204-2, BD-205-1, BD-205-2, BD-206-1, BD-206-2, BD-207-1, BD-207-2, BD-208-1, BD-208-2, BD-209-1, BD-209-2, BD-210-1, BD-210-2, BD-211-1, BD-211-2, BD-212-3, BD-212-4, BD-213-3, BD-213-4, BD-214-1, BD-214-2, BD-215-1, BD-215-2, BD-216-1, BD-216-2

OTHER STATIONS - BD-02-1, BD-02-2, BD-04-1, BD-04-2, BD-05-1, BD-05-2, BD-06-1, BD-06-2, BD-19-1, BD-19-2, BD-20-1, BD-20-2, BD-21-1, BD-21-2,

CONTROL STATIONS - BD-03-1, BD-03-2

ISFSI STATIONS - BD-104-3, BD-104-4, BD-105-3, BD-105-4, BD-110-3, BD-110-4

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APPENDIX B

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

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TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2013

Location	Location Description	Distance & Direction From Site
A. Surface Water		
BD-10	Kankakee River Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-38	Main Drainage Ditch (indicator)	1.5 miles SE
BD-40	Braidwood Station Cooling Lake (indicator)	Onsite
BD-55	North Pond Fatlan Site (indicator)	0.6 miles NE
BD-56	South Pond Fatlan Site (indictor)	0.6 miles NE
B. Drinking (Potable) Water		
BD-22	Wilmington (indicator)	6.0 miles NE
C. Ground/Well Water		
BD-13	Braidwood City Hall Well (indicator)	1.7 miles NNE
BD-34	Gibson Well (indicator)	4.7 miles E
BD-35	Joly Well (indicator)	4.7 miles E
BD-36	Hutton Well (indicator)	4.7 miles E
BD-37	Nurczyk Well (indicator)	4.7 miles E
BD-50	Skole Well (indicator)	4.7 miles E
BD-51	Fatlan Well (indicator)	0.6 miles NE
BD-54	Cash Well (indicator)	0.9 miles NE
D. Milk - bi-weekly / monthly		
BD-17	Halpin's Dairy (indicator)	5.5 miles SSW
BD-18	Biros' Farm (control)	8.7 miles W
E. Air Particulates / Air Iodine		
BD-02	Custer Park (indicator)	5.0 miles E
BD-03	County Line Road (control)	6.2 miles ESE
BD-04	Essex (indicator)	4.8 miles SSE
BD-05	Gardner (indicator)	5.5 miles SW
BD-06	Godley (indicator)	0.5 miles WSW
BD-19	Nearsite NW (indicator)	0.3 miles NW
BD-20	Nearsite N (indicator)	0.6 miles N
BD-21	Nearsite NE (indicator)	0.5 miles NE
F. Fish		
BD-25	Kankakee River, Upstream (control)	9.6 miles E
BD-28	Kankakee River, Discharge (indicator)	5.4 miles E
BD-41	Cooling Lake (indicator)	1.0 mile E
G. Sediment		
BD-10	Kankakee River, Downstream (indicator)	5.4 miles NE
BD-25	Kankakee River Upstream (control)	9.6 miles E
BD-57	Circulating Water Blowdown Discharge (indicator)	5.4 miles E

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2013

Location	Location Description	Distance & Direction From Site
H. Food Products		
Quadrant 1	Clark Farm	3.8 miles ENE
Quadrant 2	W.F. Soltwisch	4.5 miles SSE
Quadrant 3	Terri Schultz	4.8 miles SSW
Quadrant 4	Bruce Sinkular	1.9 miles NNW
Control	Gorman Farm	9.0 miles NE
I. Environmental Dosimetry - OSLD		
Site Boundary		
BD-101-3 and -4		0.5 miles N
BD-102-1 and -2		1.1 miles NNE
BD-103-1 and -2		1.0 mile NE
BD-104-1 and -2		0.7 miles ENE
BD-105-1 and -2		2.2 miles E
BD-106-1 and -2		2.5 miles ESE
BD-107-1 and -2		3.2 miles SE
BD-108-1 and -2		3.2 miles SSE
BD-109-1 and -2		3.8 miles S
BD-110-1 and -2		2.8 miles SSW
BD-111a-1 and -2		1.4 miles SW
BD-112-1 and -2		0.7 miles WSW
BD-113a-1 and -2		0.5 miles W
BD-114-1 and -2		0.4 miles WNW
BD-115-1 and -2		0.3 miles NW
BD-116-1		0.4 miles NNW
BD-116-2		0.5 miles NNW
Intermediate Distance		
BD-201-1 and -2		4.2 miles N
BD-202-1 and -2		4.8 miles NNE
BD-203-1 and -2		4.9 miles NE
BD-204-1 and -2		4.3 miles ENE
BD-205-1 and -2		4.0 miles E
BD-206-1 and -2		4.5 miles ESE
BD-207-1 and -2		4.5 miles SE
BD-208-1 and -2		4.5 miles SSE
BD-209-1 and -2		4.8 miles S
BD-210-1 and -2		5.3 miles SSW
BD-211-1 and -2		4.8 miles SW
BD-212-3 and -4		5.0 miles WSW
BD-213-3 and -4		4.8 miles W
BD-214-1 and -2		4.3 miles WNW
BD-215-1 and -2		4.5 miles NW
BD-216-1 and -2		4.0 miles NNW
Other		
BD-02-1 and -2	Custer Park (indicator)	5.0 miles E
BD-04-1 and -2	Essex (indicator)	4.8 miles SSE
BD-05-1 and -2	Gardner (indicator)	5.5 miles SW
BD-06-1 and -2	Godley (indicator)	0.5 miles WSW
BD-19-1 and -2	Nearsite NW (indicator)	0.3 miles NW
BD-20-1 and -2	Nearsite N (indicator)	0.6 miles N
BD-21-1 and -2	Nearsite NE (indicator)	0.5 miles NE

TABLE B-1: Radiological Environmental Monitoring Program - Sampling Locations, Distance and Direction, Braidwood Station, 2013

Location	Location Description	Distance & Direction From Site
I. Environmental Dosimetry – OSLD (cont'd)		
Control		
BD-03-1 and -2	13000 W. Road	6.2 miles ESE
ISFSI		
BD-104-3 and -4		0.7 miles ENE
BD-105-3 and -4		0.7 miles ENE
BD-110-3 and -4		2.8 miles SSW

Distance in Miles from the Braidwood Station ISFSI Pad, 2013

Sector	Residence Miles
(N) W	0.7
(P) WNW	0.7
(Q) NW	0.7
(R) NNW	0.7

Distance in Miles from the Braidwood Station Reactor Buildings, 2013

Sector	Residence Miles	Livestock Miles	Milk Farm Miles
(A) N	0.5	2.6	-
(B) NNE	0.9	-	-
(C) NE	0.7	0.9	-
(D) ENE	0.8	3.3	-
(E) E	1.5	2.3	-
(F) ESE	2.2	2.3	-
(G) SE	2.7	2.7	-
(H) SSE	4.5	-	-
(J) S	4.2	4.8	-
(K) SSW	1.3	5.3	5.5
(L) SW	0.4	1.2	-
(M) WSW	0.5	-	-
(N) W	0.4	1.6	-
(P) WNW	0.4	-	-
(Q) NW	0.4	-	-
(R) NNW	0.4	-	-

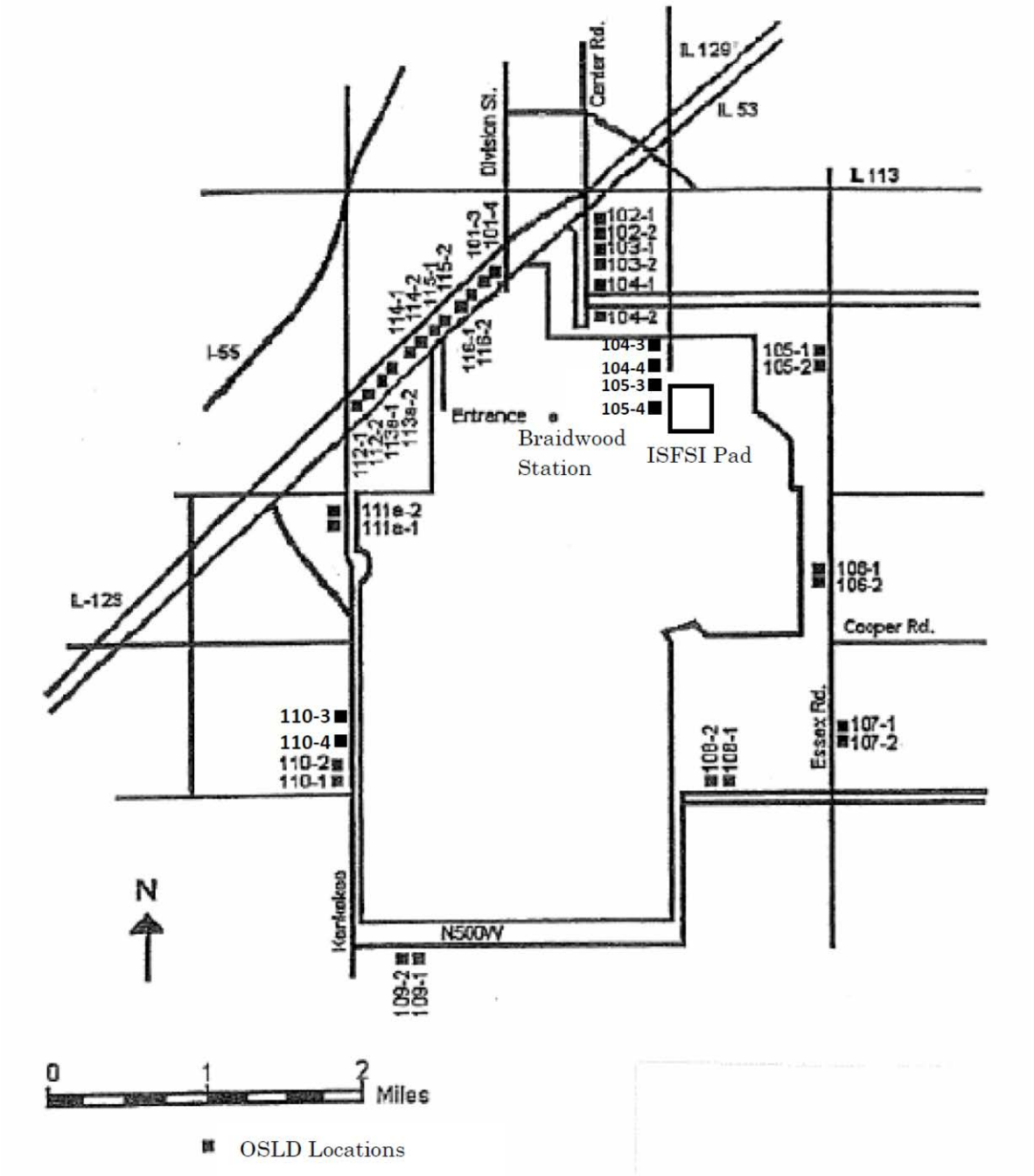

Figure B-1
Inner Ring and Other OSLD Locations of the
Braidwood Station, 2013

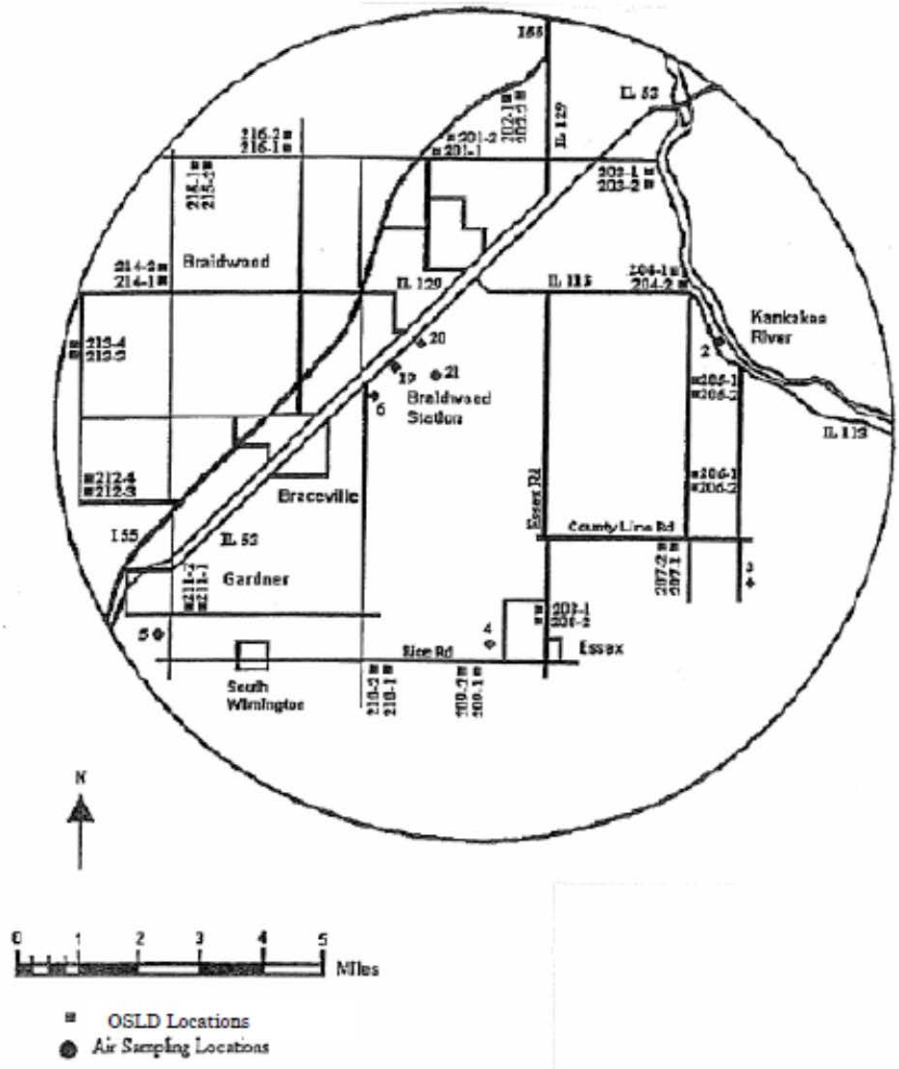

Figure B-2
Fixed Air Sampling and Outer Ring OSLD Locations
of the Braidwood Station, 2013

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APPENDIX C

DATA TABLES AND FIGURES
PRIMARY LABORATORY

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Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2013

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-02-1	19.4 ± 4.9	16.6	19.5	19.0	22.6
BD-02-2	19.1 ± 4.4	16.9	17.9	19.9	21.8
BD-03-1	19.5 ± 4.3	17.1	18.4	20.3	22.0
BD-03-2	19.8 ± 4.1	17.3	18.8	21.4	21.5
BD-04-1	18.6 ± 4.5	16.9	16.9	18.9	21.7
BD-04-2	18.2 ± 5.6	16.1	15.9	18.7	21.9
BD-05-1	19.5 ± 3.6	17.4	19.0	19.9	21.7
BD-05-2	19.4 ± 4.4	17.0	18.4	19.9	22.1
BD-06-1	17.9 ± 3.8	16.0	17.7	17.4	20.5
BD-06-2	18.3 ± 4.3	16.0	17.2	19.0	20.9
BD-19-1	19.3 ± 4.2	17.3	17.8	20.3	21.7
BD-19-2	20.4 ± 4.8	17.3	20.4	20.9	23.1
BD-20-1	19.2 ± 3.7	17.3	18.2	19.9	21.5
BD-20-2	19.5 ± 5.0	17.3	17.8	20.1	22.8
BD-21-1	18.6 ± 3.9	17.0	16.8	19.7	20.7
BD-21-2	19.0 ± 4.7	16.8	17.2	20.6	21.5
BD-101-3	19.5 ± 4.0	17.6	18.5	19.8	22.2
BD-101-4	19.3 ± 3.4	17.3	18.8	19.7	21.4
BD-102-1	18.3 ± 4.1	16.6	16.7	19.1	20.8
BD-102-2	20.6 ± 6.1	18.1	18.6	21.0	24.8
BD-103-1	18.8 ± 3.6	16.2	19.1	19.2	20.5
BD-103-2	20.1 ± 3.5	17.8	19.7	21.8	21.1
BD-104-1	18.4 ± 6.7	14.8	(1)	18.8	21.5
BD-104-2	18.3 ± 3.4	16.6	18.2	17.6	20.6
BD-104-3	20.8 ± 4.4	17.8	20.6	21.5	23.1
BD-104-4	20.9 ± 7.4	16.9	18.7	23.2	24.7
BD-105-1	18.0 ± 5.1	15.6	16.8	18.2	21.5
BD-105-2	18.8 ± 5.1	16.8	16.5	19.8	21.9
BD-105-3	21.9 ± 6.2	17.6	21.7	23.8	24.5
BD-105-4	22.7 ± 3.0	21.5	21.9	22.5	24.8
BD-106-1	17.2 ± 4.5	14.7	17.3	16.7	20.2
BD-106-2	18.0 ± 4.5	15.4	18.0	17.7	20.9
BD-107-1	17.5 ± 5.1	14.1	16.9	19.1	19.8
BD-107-2	18.1 ± 4.3	16.1	16.3	20.0	19.8
BD-108-1	18.1 ± 4.3	15.4	18.7	17.8	20.6
BD-108-2	18.9 ± 4.6	16.0	18.5	19.7	21.5
BD-109-1	22.2 ± 5.9	19.2	20.8	22.8	26.1
BD-109-2	21.5 ± 5.5	18.7	19.6	23.0	24.5
BD-110-1	17.9 ± 4.6	15.4	17.1	18.0	20.9
BD-110-2	17.9 ± 4.7	15.5	17.2	17.9	21.1
BD-110-3	19.6 ± 4.9	16.8	18.5	20.9	22.3
BD-110-4	19.3 ± 6.2	16.8	17.3	19.5	23.6
BD-112-1	18.3 ± 4.2	16.0	17.5	18.8	21.0

(1) SEE 2013 PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

Table C-X.1 QUARTERLY OSLD RESULTS FOR BRAIDWOOD STATION, 2013

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATIONS

STATION CODE	MEAN ± 2 S.D.	JAN - MAR	APR - JUN	JUL - SEP	OCT - DEC
BD-112-2	18.6 ± 5.1	16.1	17.5	18.6	22.1
BD-114-1	19.6 ± 5.5	17.5	18.3	19.1	23.6
BD-114-2	18.4 ± 4.2	16.8	16.7	19.0	21.1
BD-115-1	18.9 ± 3.2	16.9	18.3	19.8	20.5
BD-115-2	19.0 ± 4.7	17.2	17.5	18.8	22.3
BD-116-1	19.7 ± 3.5	18.0	19.0	19.6	22.1
BD-116-2	19.5 ± 4.2	17.4	18.7	19.3	22.4
BD-201-1	24.3 ± 7.1	20.5	(1)	24.7	27.6
BD-201-2	20.8 ± 5.9	17.7	(1)	21.3	23.5
BD-202-1	18.7 ± 5.2	16.6	17.3	18.5	22.4
BD-202-2	19.0 ± 4.5	16.7	17.8	19.4	21.9
BD-203-1	19.3 ± 4.5	16.1	19.6	19.9	21.4
BD-203-2	18.1 ± 3.4	16.5	16.8	19.3	19.8
BD-204-1	17.6 ± 4.5	14.6	18.0	17.7	20.0
BD-204-2	18.1 ± 5.6	15.2	18.2	17.0	21.8
BD-205-1	18.1 ± 5.1	15.5	16.5	19.3	21.1
BD-205-2	16.8 ± 2.7	15.9	16.2	18.4	(1)
BD-206-1	19.4 ± 4.6	16.9	18.2	20.1	22.2
BD-206-2	19.3 ± 4.3	16.6	18.9	19.7	21.8
BD-207-1	17.8 ± 5.2	14.4	17.1	19.2	20.3
BD-207-2	18.3 ± 4.8	15.8	17.2	18.7	21.4
BD-208-1	18.6 ± 4.4	16.3	17.8	18.8	21.5
BD-208-2	19.0 ± 5.1	17.0	17.2	19.2	22.5
BD-209-1	22.9 ± 4.4	20.6	21.9	23.2	25.8
BD-209-2	24.7 ± 6.4	21.4	23.8	24.4	29.1
BD-210-1	20.1 ± 2.8	19.9	19.2	19.2	22.2
BD-210-2	21.8 ± 6.1	17.6	21.6	23.4	24.6
BD-211-1	23.4 ± 5.1	20.0	23.6	23.8	26.2
BD-211-2	24.1 ± 6.2	19.6	24.6	26.3	25.9
BD-212-3	20.1 ± 5.1	16.6	20.6	20.4	22.7
BD-212-4	23.5 ± 5.2	20.6	22.8	23.9	26.8
BD-213-3	17.3 ± 3.2	15.3	17.5	17.2	19.2
BD-213-4	17.9 ± 5.1	15.5	16.8	17.7	21.4
BD-214-1	19.2 ± 6.3	15.8	17.3	20.9	22.6
BD-214-2	22.2 ± 5.5	18.5	21.9	23.3	25.0
BD-215-1	18.5 ± 3.7	16.2	17.9	20.0	20.0
BD-215-2	18.0 ± 4.9	15.4	16.5	19.3	20.7
BD-216-1	20.5 ± 4.7	18.0	19.4	20.9	23.5
BD-216-2	20.5 ± 3.5	18.5	21.5	21.5	(1)
BD-111A-1	18.2 ± 4.3	15.5	18.1	18.5	20.7
BD-111A-2	19.2 ± 5.6	15.4	18.8	20.4	22.0
BD-113A-1	18.6 ± 4.5	16.4	17.6	18.8	21.6
BD-113A-2	18.9 ± 3.8	16.7	17.8	20.4	20.5

(1) SEE 2013 PROGRAM EXCEPTIONS SECTION FOR EXPLANATION

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2013

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

COLLECTION PERIOD	INNER RING ± 2 S.D.	OUTER RING	OTHER	CONTROL	ISFSI
JAN-MAR	16.5 ± 2.4	17.2 ± 3.9	16.9 ± 1.0	17.2 ± 0.3	17.9 ± 3.6
APR-JUN	18.0 ± 2.1	19.1 ± 4.9	17.9 ± 2.3	18.6 ± 0.6	19.8 ± 3.8
JUL-SEP	19.3 ± 2.8	20.5 ± 4.8	19.6 ± 1.8	20.9 ± 1.6	21.9 ± 3.2
OCT-DEC	21.6 ± 2.8	22.8 ± 5.0	21.8 ± 1.5	21.8 ± 0.7	23.8 ± 2.0

TABLE C-X.2 MEAN QUARTLY OSLD RESULTS FOR THE INNER RING, OUTER RING, OTHER, CONTROL AND ISFSI LOCATIONS FOR BRAIDWOOD STATION, 2013

RESULTS IN UNITS OF MREM/QUARTER ± 2 STANDARD DEVIATION

LOCATION	SAMPLES ANALYZED	PERIOD MINIMUM	PERIOD MAXIMUM	PERIOD MEAN ± 2 S.D.
INNER RING	127	14.1	26.1	18.9 ± 4.5
OUTER RING	124	14.4	29.1	19.9 ± 6.2
OTHER	56	15.9	23.1	19.0 ± 4.1
CONTROL	8	17.1	22.0	19.6 ± 3.9
ISFSI	24	16.8	24.8	20.9 ± 5.5

INNER RING STATIONS - BD-101-3, BD-101-4, BD-102-1, BD-102-2, BD-103-1, BD-103-2, BD-104-1, BD-104-2, BD-105-1, BD-105-2, BD-106-1, BD-106-2, BD-107-1, BD-107-2, BD-108-1, BD-108-2, BD-109-1, BD-109-2, BD-110-1, BD-110-2, BD-111A-1, BD-111A-2, BD-112-1, BD-112-2, BD-113A-1, BD-113A-2, BD-114-1, BD-114-2, BD-115-1, BD-115-2, BD-116-1, BD-116-2

OUTER RING STATIONS - BD-201-1, BD-201-2, BD-202-1, BD-202-2, BD-203-1, BD-203-2, BD-204-1, BD-204-2, BD-205-1, BD-205-2, BD-206-1, BD-206-2, BD-207-1, BD-207-2, BD-208-1, BD-208-2, BD-209-1, BD-209-2, BD-210-1, BD-210-2, BD-211-1, BD-211-2, BD-212-3, BD-212-4, BD-213-3, BD-213-4, BD-214-1, BD-214-2, BD-215-1, BD-215-2, BD-216-1, BD-216-2

OTHER STATIONS - BD-02-1, BD-02-2, BD-04-1, BD-04-2, BD-05-1, BD-05-2, BD-06-1, BD-06-2, BD-19-1, BD-19-2, BD-20-1, BD-20-2, BD-21-1, BD-21-2,

CONTROL STATIONS - BD-03-1, BD-03-2

ISFSI STATIONS - BD-104-3, BD-104-4, BD-105-3, BD-105-4, BD-110-3, BD-110-4

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APPENDIX H

ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

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Docket No: 50-456
50-457

BRAIDWOOD STATION
UNITS 1 and 2

Annual Radiological
Groundwater Protection Program Report

1 January through 31 December 2014

Prepared By

Teledyne Brown Engineering
Environmental Services

Braidwood Station
Braceville, IL 60407

May 2015

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Appendices

I. Summary and Conclusions

In 2014, Exelon continued a comprehensive program that evaluates the impact of station operations on groundwater and surface water in the vicinity of Braidwood Station. This evaluation involved numerous station personnel and contractor support personnel. This report covers groundwater and surface water samples collected from the environment, both on and off station property, in 2014. During that time period, 751 analyses were performed on 275 samples from 72 locations.

In assessing all the data gathered for this report, it was concluded that the operation of Braidwood Station had no adverse radiological impact on the environment.

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective Lower Limits of Detection (LLDs) as specified in the Offsite Dose Calculation Manual (ODCM) in any of the groundwater or surface water samples. In the case of tritium, Exelon specified that its laboratories achieve a lower limit of detection 10 times less than Braidwood's ODCM and 100 times less than federal regulation.

Strontium-89/90 was not detected at a concentration greater than the LLD of 10.0 and 1.0 picoCuries per liter (pCi/L) respectively in any of the groundwater samples tested.

No tritium was detected in the groundwater or surface water samples at concentrations greater than the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) of 20,000 pCi/L. Low levels of tritium were detected in groundwater and surface water at concentrations greater than the LLD of 200 pCi/L in 73 of 267 analyses. The tritium concentrations ranged from 164 ± 101 pCi/L to 4,020 ± 453 pCi/L. The tritium that was detected in the groundwater or surface water is believed to be the result of isolated historical releases and/or background from external sources greater than 200 pCi/L.

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater and surface water samples throughout the sampling year in 2014. Gross Alpha (dissolved) was detected in two groundwater and surface water samples. The concentrations ranged from 0.9 to 21.3 pCi/L. Gross Alpha (suspended) was detected in two groundwater samples. The concentrations ranged from 2.8 to 4.0 pCi/L. Gross Beta (dissolved) was detected in 53 groundwater and surface water samples. The concentrations ranged from 1.0 to 49.3 pCi/L. Gross Beta (suspended) was detected in three groundwater samples. The concentrations ranged from 2.5 to 7.2 pCi/L.

Hard-To-Detect, or difficult to measure nuclides, were not sampled or analyzed in 2014.

II. Introduction

Braidwood Station, a two-unit PWR station is located in Will County, Illinois, fifteen (15) miles south-southwest of Joliet, Illinois. Each reactor is designed to have a capacity of 3,587 thermal megawatts. Units No. 1 went critical on May 29, 1987 and Unit No. 2 went critical on March 8, 1988. The station has been designed to keep releases to the environment at levels below those specified in the regulations.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) and Environmental Inc. Midwest Labs (EIML) on samples collected in 2014.

A. Objective of the Radiological Groundwater Protection Program (RGPP)

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

1. Identify suitable locations to monitor and evaluate potential impacts from station operations to preclude radiological impact to the environment and potential drinking water sources.

2. Understand the local hydrogeologic regime in the vicinity of the station and maintain up-to-date knowledge of flow patterns on the surface and shallow subsurface.

3. Perform routine water sampling and radiological analysis of water from selected locations.

4. Report new leaks, spills, or other detections with potential radiological significance to stakeholders in a timely manner.

5. Regularly assess analytical results to identify adverse trends.

6. Take necessary corrective actions to protect groundwater resources.

B. Implementation of the Objectives

The objectives identified have been implemented at Braidwood Station as discussed below:

1. Exelon identified locations to monitor and evaluated potential impacts from station operations.

2. The Braidwood Station reports describe the local hydrogeologic regime. Periodically, the flow patterns on the surface and shallow subsurface are updated based on ongoing measurements.

3. Braidwood Station will continue to perform routine sampling and radiological analysis of water from selected locations.

4. Braidwood Station has implemented procedures to identify and report new leaks, spills, or other detections with potential radiological significance in a timely manner.

5. Braidwood Station staff and consulting hydrogeologist assess analytical results on an ongoing basis to identify adverse trends.

C. Program Description

1. Sample Collection

Sample locations can be found in Table A-1 and Figures A-1 through A-3, Appendix A.

Groundwater and Surface Water

Samples of groundwater and surface water are collected, managed, transported and analyzed in accordance with EPA methods. Sample locations, sample collection frequencies and analytical frequencies are managed in accordance with approved station procedures. Contractor and/or station personnel are trained in the collection, preservation management and shipment of samples as well as in documentation of sampling events. Analytical laboratories are subject to internal quality assurance programs, industry cross-check programs as well as nuclear industry audits. Station personnel review and evaluate all analytical data as it is received. Additionally, analytical data results are reviewed by an independent hydrogeologist for adverse trends or changes to hydrogeologic conditions.

D. Characteristics of Tritium (H-3)

Tritium is a radioactive isotope of hydrogen. Its chemical properties are the same as hydrogen. Tritiated water behaves the same as ordinary water in both the environment and the body. Tritiated water can be taken into the body by drinking water, breathing air, eating food or absorption through the skin. Once tritiated water enters the body, it disperses quickly and is uniformly distributed. Tritiated water is excreted primarily through urine with a clearance rate characterized by an effective biological half-life of about 14 days. With such a short biological half-life, an acute ingestion would be cleared rapidly. Organically bound tritium (tritium that is incorporated into carbon containing compounds) can remain in the body for a longer period.

Tritium is produced naturally in the upper atmosphere when cosmic rays interact with air molecules. Tritium is also produced during nuclear weapons explosions, as a by-product in reactors producing electricity and in special production reactors. Like normal water, tritiated water is colorless and odorless. Tritiated water behaves chemically and physically like non-tritiated water in the subsurface and therefore tritiated water will travel at the same velocity as non tritiated groundwater.

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by Teledyne Brown Engineering (TBE) and Environmental Incorporated Midwest Laboratory (EIML) to analyze the environmental samples for radioactivity for the Braidwood Station RGPP in 2014.
In order to achieve the stated objectives, the current program includes the following analyses:

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

2. Concentrations of strontium in groundwater and surface water.

3. Concentrations of tritium in groundwater and surface water.

4. Concentrations of Gross Alpha and Gross Beta (Dissolved and Suspended) in groundwater and surface water.

5. Concentrations of Am-241 in groundwater.

6. Concentrations of Cm-242 and Cm-243/244 in groundwater.

7. Concentrations of Pu-238 and Pu-239/240 in groundwater.

8. Concentrations of U-234, U-235 and U-238 in groundwater.

9. Concentrations of Fe-55 in groundwater.

10. Concentrations of Ni-63 in groundwater.

B. Data Interpretation

The radiological data collected prior to Braidwood Station becoming operational were used as a baseline with which these operational data

were compared. For the purpose of this report, Braidwood Station was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

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

2. Laboratory Measurements Uncertainty

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

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

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

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

   For groundwater and surface water 14 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 and La-140 were reported.

C. Background Analysis

A pre-operational radiological environmental monitoring program (pre-operational REMP) was conducted to establish background radioactivity levels prior to operation of the Station. The environmental media sampled and analyzed during the pre-operational REMP were atmospheric radiation, fall-out, domestic water, surface water, marine life

and foodstuffs. The results of the monitoring were detailed in the report entitled, Environmental Radiological Monitoring for Braidwood Nuclear Power Station Commonwealth Edison Company, Annual Report 1986, May 1987.

1. Background Concentrations of Tritium

The purpose of the following discussion is to summarize background measurements of tritium in various media performed by others.

a. Tritium Production

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

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

b. Precipitation Data

Precipitation samples are routinely collected at stations around the world for the analysis of tritium and other radionuclides. Two publicly available databases that provide tritium concentrations in precipitation are Global Network of Isotopes in Precipitation (GNIP) and USEPA’s RadNet database. GNIP provides tritium precipitation concentration data for samples collected world wide from 1960 to 2014.

RadNet provides tritium precipitation concentration data for samples collected at stations through out the U.S. from 1960 up to and including 2014. Based on GNIP data for sample stations located in the U.S. Midwest, tritium concentrations peaked around 1963. This peak, which approached 10,000 pCi/L for some stations, coincided with the atmospheric testing of thermonuclear weapons. Tritium concentrations in surface water showed a sharp decline up until 1975 followed by a gradual decline since that time. Tritium concentrations in Midwest precipitation have typically been below 100 pCi/L since around 1980. Tritium concentrations in wells may still be above the 200 pCi/L detection limit from the external causes described above. Water from previous years and decades is naturally captured in groundwater, so some well water sources today are affected by the surface water from the 1960s that was elevated in tritium.

c. Surface Water Data

Tritium concentrations are routinely measured in large surface water bodies, including Lake Michigan and the Mississippi River. Illinois surface water data were typically less than 100 pCi/L.

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

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

IV. Results and Discussion

A. Missed Sample

Exelon maintains a RGPP as part of the nuclear industry's voluntary groundwater protection initiative as described in

NEI 07-07. As part of this program, samples are obtained routinely from monitoring wells and surface waters at Braidwood based on the frequencies outlined in station procedures.

According to the Station RGPP, the following remediation wells were not sampled in 2014; BL-11, MW-11, MW-2, MW-4, MW-7, MW-BW-201S, MW-BW-202S, MW-BW-203S, VB-10-1, MW-134D, MW-BW-130D, MW-BW-141D, MW-BW-142D, MW-BW-143D, MW-BW-207I, 0WM31P, RW-10, RW-5, RW-6, RW-7, and RW-9. Additionally one surface water sample was missed in 2014; Ditch (DS-2). The Station RGPP requires the wells designated as detection wells to be sampled and analyzed for tritium on a quarterly basis. The aforementioned locations were not sampled during one or more of the quarters in 2014. Reasons for lack of sampling include well condition deficiencies, low well production, frozen water preventing sampling and remediation pumps not working.

The Station RGPP also requires designated detection wells be analyzed for gamma-radionuclides, gross-alpha and beta, and strontium 89/90 on an annual basis. Remediation well RW-9 did not have these analyses performed during 2014. The sample was not able to be obtained because RW-9 was not operating.

B. Groundwater Results

Groundwater

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

Tritium

Samples from all locations were analyzed for tritium activity. Tritium values ranged from the lower detection limit to 4,020 pCi/l These wells are located onsite and are not available as a drinking water source. Some contamination still exists and monitoring is ongoing (Table B-I.1, Appendix B).

Strontium

Strontium-89 and Strontium-90 were analyzed for in 63 samples. Strontium-89 was less than the required detection limit of 10.0 pCi/liter. Strontium-90 was less than the required detection limit of 1.0 pCi/liter (Table B-I.1, Appendix B).

Gross Alpha and Beta (dissolved and suspended)

Gross Alpha and Gross Beta analyses in the dissolved and suspended fractions were performed on groundwater and surface water samples throughout the sampling year in 2014. Gross Alpha (dissolved) was detected in two groundwater and surface water samples. The concentrations ranged from 0.9 to 21.3 pCi/L. Gross Alpha (suspended) was detected in two groundwater samples. The concentrations ranged from 2.8 to 4.0 pCi/L. Gross Beta (dissolved) was detected in 53 groundwater and surface water samples. The concentrations ranged from 1.0 to 49.3 pCi/L. Gross Beta (suspended) was detected in three groundwater samples. The concentrations ranged from 2.5 to 7.2 pCi/L. Gross alpha and gross beta are routinely seen in environmental samples and are not necessarily attributable to Station's effluents (Table B-I.1, Appendix B).

Hard-To-Detect

Hard-To-Detect analyses were not performed in 2014 (Table B-I.3, Appendix B).

Gamma Emitters

Naturally occurring K-40 was detected in two samples. The concentrations ranged from 64 to 185 pCi/L. No other gamma emitting nuclides were detected in any of the samples analyzed. (Table B–I.2, Appendix B)

C. Surface Water Results

Surface Water

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

Tritium

Samples from all locations were analyzed for tritium activity (Table B-II.1, Appendix B). Tritium values ranged from the minimum detection limit to 255 pCi/l.

Strontium

Strontium-89 and Strontium-90 were analyzed for in two samples. Strontium-89 was less than the required detection limit of 10.0 pCi/liter. Strontium-90 was less than the required detection limit of 1.0 pCi/liter (Table B-II.1, Appendix B).

Gamma Emitters

No gamma emitting nuclides were detected in any of the samples analyzed (Table B–II.2, Appendix B).

D. Drinking Water Well Survey

Requested drinking water wells near Braidwood Station were sampled on a quarterly basis in 2014.

E. Summary of Results – Inter-Laboratory Comparison Program

Inter-Laboratory Comparison Program results for TBE are presented in the AREOR.

F. Leaks, Spills, and Releases

There are no new previously unidentified leaks or plumes at Braidwood Station.

G. Trends and Analyses

Monitoring of remediation activities indicate that tritium concentrations in affected areas have remained relatively unchanged since 2010. Tritium has been routinely detected in samples from remediation well RW-6 since 2008, however sampling results from the 3rd and 4th quarter of 2014 show a significant increase over the 2nd quarter 2014 results when tritium concentration measurements were less than LLD.

Tritium concentrations measured in RW-6 are likely due to the migration of a known plume, caused by identified historic spills and leaks at the Station.

H. Investigations

There were no investigations that took place in 2014 as a result of groundwater sample result. Location RW-6 will continue to be monitored to evaluate whether the elevated results in the 3rd and 4th quarter of 2014 were due to the migration of a former plume or if there is a potential release from the blowdown line.

I. Actions Taken

1. Compensatory Actions

   No compensatory actions were initiated in 2014.

2. Installation of Monitoring Wells

   No new monitoring wells were installed in 2014.

3. Actions to Recover/Reverse Plumes

   No actions were undertaken to recover/reverse plumes in 2014.

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APPENDIX A

LOCATION DESIGNATION

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TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Braidwood Station, 2014

Station Code	Sample Description
BL-03	Monitoring Well
BL-06	Monitoring Well
BL-06D	Monitoring Well
BL-09D	Monitoring Well
BL-10D	Monitoring Well
BL-11	Monitoring Well
BL-11D	Monitoring Well
BL-12D	Monitoring Well
BL-13D	Monitoring Well
BL-14D	Monitoring Well
BL-15D	Monitoring Well
BL-16D	Monitoring Well
BL-17D	Monitoring Well
BL-18D	Monitoring Well
BL-21	Monitoring Well
BL-22	Monitoring Well
BL-23	Monitoring Well
BL-24	Monitoring Well
BL-25	Monitoring Well
BL-26	Monitoring Well
BL-27	Monitoring Well
D-2D	Surface Water
D-3D	Surface water
DITCH (DS-2)	Surface Water
EXELON POND	Surface Water
F-1D	Monitoring Well
F-3D	Monitoring Well
F-3DR	Monitoring Well
F-4D	Monitoring Well
F-5D	Monitoring Well
F-6D	Monitoring Well
F-8D	Monitoring Well
F-9D	Monitoring Well
MW-102R	Monitoring Well
MW-103	Monitoring Well
MW-105	Monitoring Well
MW-105D	Monitoring Well
MW-106D	Monitoring Well
MW-107	Monitoring Well
MW-109D	Monitoring Well
MW-11	Monitoring Well
MW-110	Monitoring Well
MW-111	Monitoring Well
MW-111DR	Monitoring Well
MW-112D	Monitoring Well
MW-113	Monitoring Well
MW-113DR	Monitoring Well
MW-13	Monitoring Well
MW-130D	Monitoring Well
MW-131D	Monitoring Well
MW-132D	Monitoring Well

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Braidwood Station, 2014

Station Code	Sample Description
MW-133D	Monitoring Well
MW-134D	Monitoring Well
MW-135D	Monitoring Well
MW-136D	Monitoring Well
MW-137D	Monitoring Well
MW-138D	Monitoring Well
MW-139D	Monitoring Well
MW-14	Monitoring Well
MW-140D	Monitoring Well
MW-141D	Monitoring Well
MW-142D	Monitoring Well
MW-143D	Monitoring Well
MW-144D	Monitoring Well
MW-145D	Monitoring Well
MW-154	Monitoring Well
MW-155	Monitoring Well
MW-156	Monitoring Well
MW-158D	Monitoring Well
MW-159D	Monitoring Well
MW-160D	Monitoring Well
MW-161D	Monitoring Well
MW-162D	Monitoring Well
MW-2	Monitoring Well
MW-22	Monitoring Well
MW-4	Monitoring Well
MW-5	Monitoring Well
MW-6	Monitoring Well
MW-7	Monitoring Well
MW-9	Monitoring Well
MW-BW-201BD	Monitoring Well
MW-BW-201I	Monitoring Well
MW-BW-201S	Monitoring Well
MW-BW-202I	Monitoring Well
MW-BW-202S	Monitoring Well
MW-BW-203I	Monitoring Well
MW-BW-203S	Monitoring Well
MW-BW-204I	Monitoring Well
MW-BW-205I	Monitoring Well
MW-BW-206I	Monitoring Well
MW-BW-207I	Monitoring Well
MW-BW-208BD	Monitoring Well
OWM31P	Monitoring Well
P-2D	Monitoring Well
P-4D	Monitoring Well
P-5D	Monitoring Well
P-13D	Monitoring Well
P-14D	Monitoring Well
RW-10	Monitoring Well
RW-5	Monitoring Well

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Braidwood Station, 2014

Station Code	Sample Description
RW-6	Monitoring Well
RW-7	Monitoring Well
RW-8	Monitoring Well
RW-9	Monitoring Well
S-1D	Monitoring Well
S-2D	Monitoring Well
S-4	Monitoring Well
S-4D	Monitoring Well
S-5	Monitoring Well
S-6	Monitoring Well
S-7D	Monitoring Well
S-8	Monitoring Well
S-8DR	Monitoring Well
SG-BW-105	Surface Water
SG-BW-106	Surface Water
SW-101	Surface Water
SW-102 POINT C	Surface Water
SW-103	Surface Water
SW-104 A DITCH	Surface Water
TB-20	Monitoring Well
TB-20D	Monitoring Well
TB-21	Monitoring Well
TB-21D	Monitoring Well
TB-22	Monitoring Well
TB-22D	Monitoring Well
TB-23	Monitoring Well
TB-23D	Monitoring Well
TB-24	Monitoring Well
TB-24D	Monitoring Well
TB-25	Monitoring Well
TB-25D	Monitoring Well
TB-26D	Monitoring Well
VB10-1	Monitoring Well
VB10-1R	Monitoring Well
VB1-1	Monitoring Well
VB1-10	Monitoring Well
VB1-10D	Monitoring Well
VB11-1	Monitoring Well
VB1-11	Monitoring Well
VB1-11D	Monitoring Well
VB1-12D	Monitoring Well
VB1-2	Monitoring Well
VB1-2D	Monitoring Well
VB1-3	Monitoring Well
VB1-3D	Monitoring Well
VB1-4	Monitoring Well
VB1-4D	Monitoring Well
VB1-5	Monitoring Well
VB1-5D	Monitoring Well

TABLE A-1: Radiological Groundwater Protection Program - Sampling Locations, Braidwood Station, 2014

Station Code	Sample Description
VB1-6	Monitoring Well
VB1-6D	Monitoring Well
VB1-7	Monitoring Well
VB1-7D	Monitoring Well
VB1-8	Monitoring Well
VB1-8D	Monitoring Well
VB1-9	Monitoring Well
VB1-9D	Monitoring Well
VB2-10	Monitoring Well
VB2-10D	Monitoring Well
VB2-11	Monitoring Well
VB2-11D	Monitoring Well
VB2-12	Monitoring Well
VB2-12D	Monitoring Well
VB2-13	Monitoring Well
VB2-13D	Monitoring Well
VB2-14	Monitoring Well
VB2-14D	Monitoring Well
VB2-15D	Monitoring Well
VB2-16	Monitoring Well
VB2-16D	Monitoring Well
VB2-17	Monitoring Well
VB2-17D	Monitoring Well
VB2-2D	Monitoring Well
VB2-5D	Monitoring Well
VB2-6D	Monitoring Well
VB2-7D	Monitoring Well
VB2-9D	Monitoring Well
VB3-10D	Monitoring Well
VB3-2	Monitoring Well
VB3-4D	Monitoring Well
VB3-7D	Monitoring Well
VB3-9D	Monitoring Well
VB4-1	Monitoring Well
VB4-5D	Monitoring Well
VB4-6D	Monitoring Well
VB5-2	Monitoring Well
VB6-1	Monitoring Well
VB7-1	Monitoring Well
VB8-2R	Monitoring Well
VB9-1	Monitoring Well

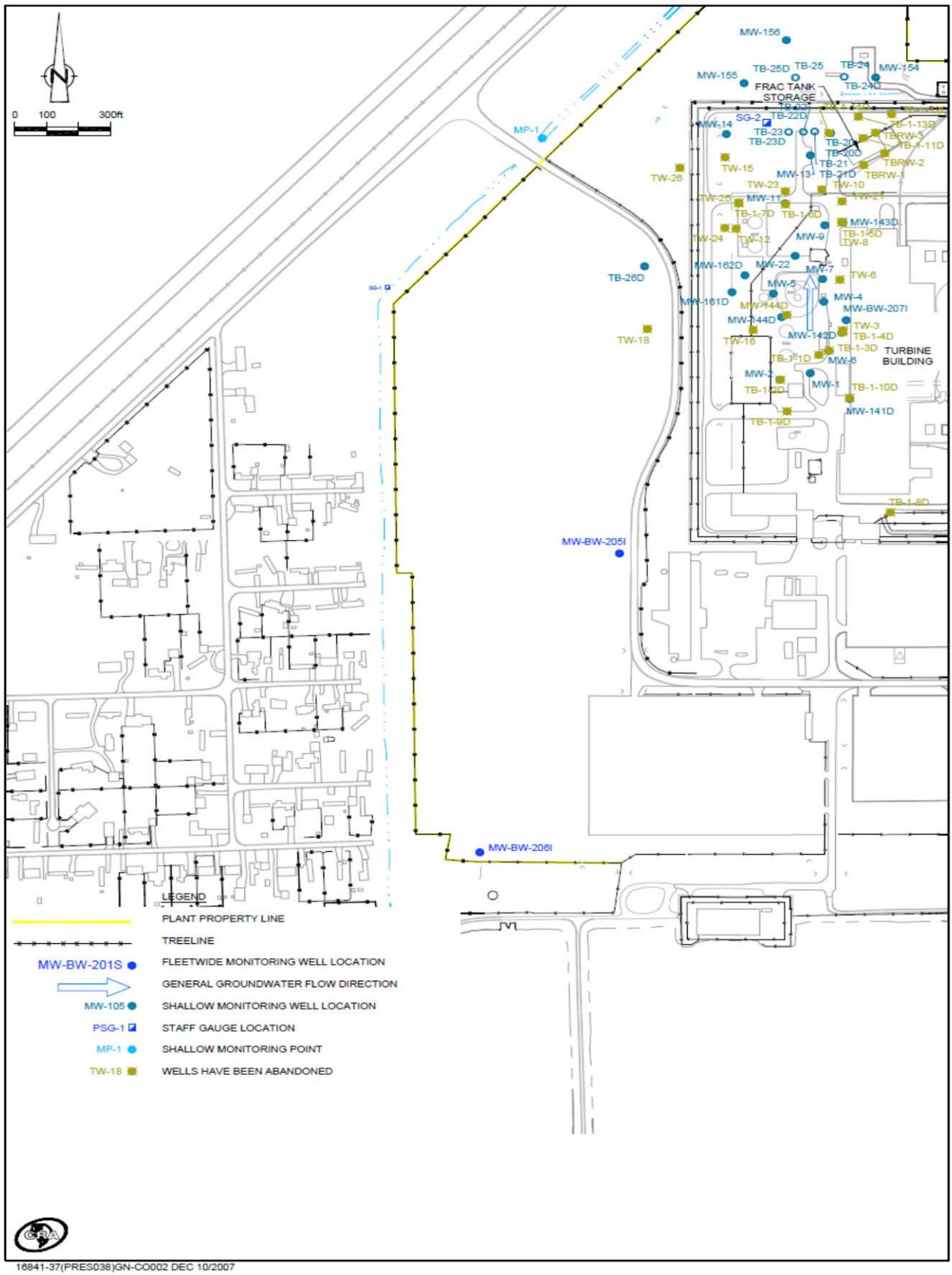

Figure A-1
Sampling Locations near the Site Boundary of Braidwood Station, 2014

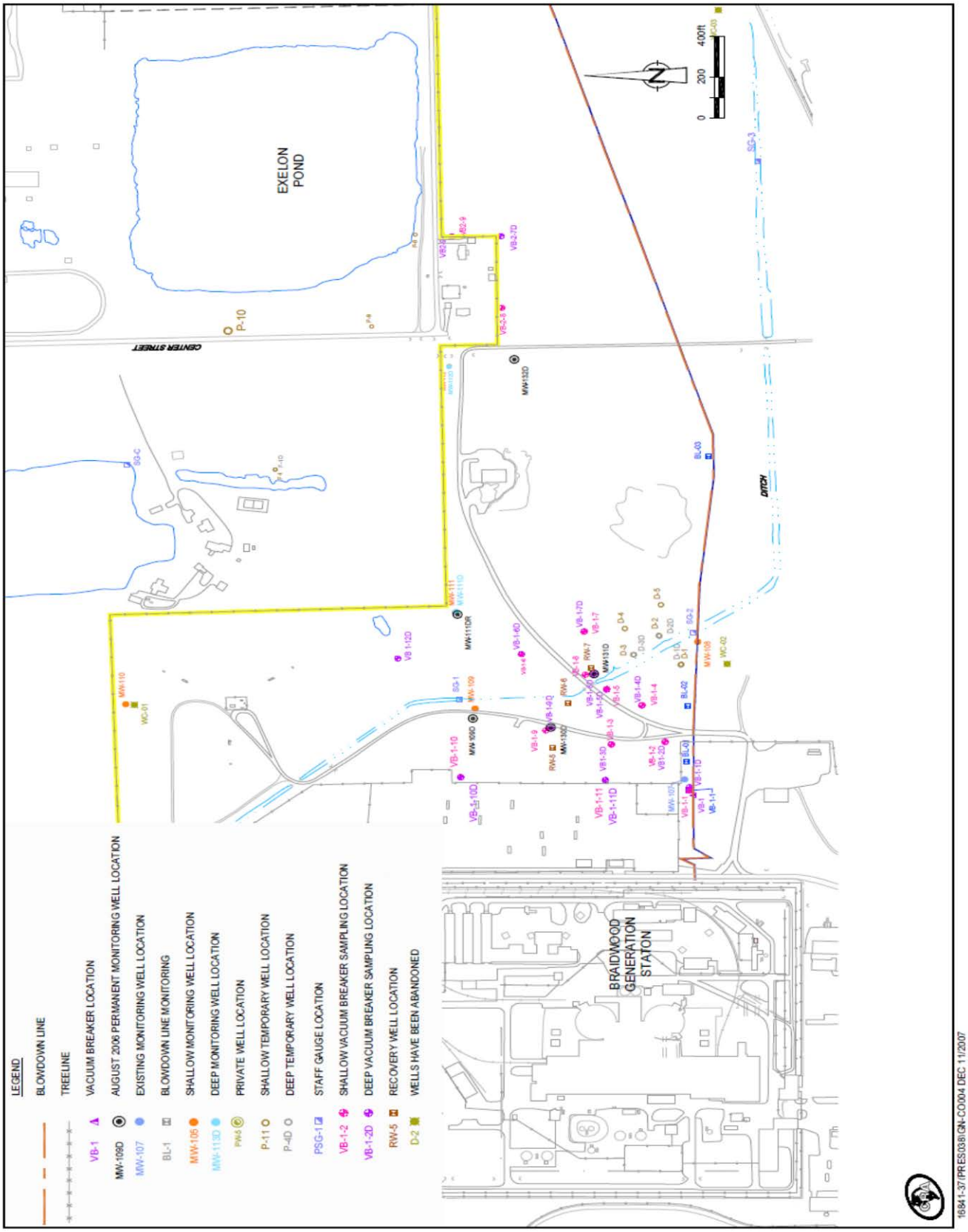

Figure A-2
Sampling Locations near the Site Boundary of Braidwood Station, 2014

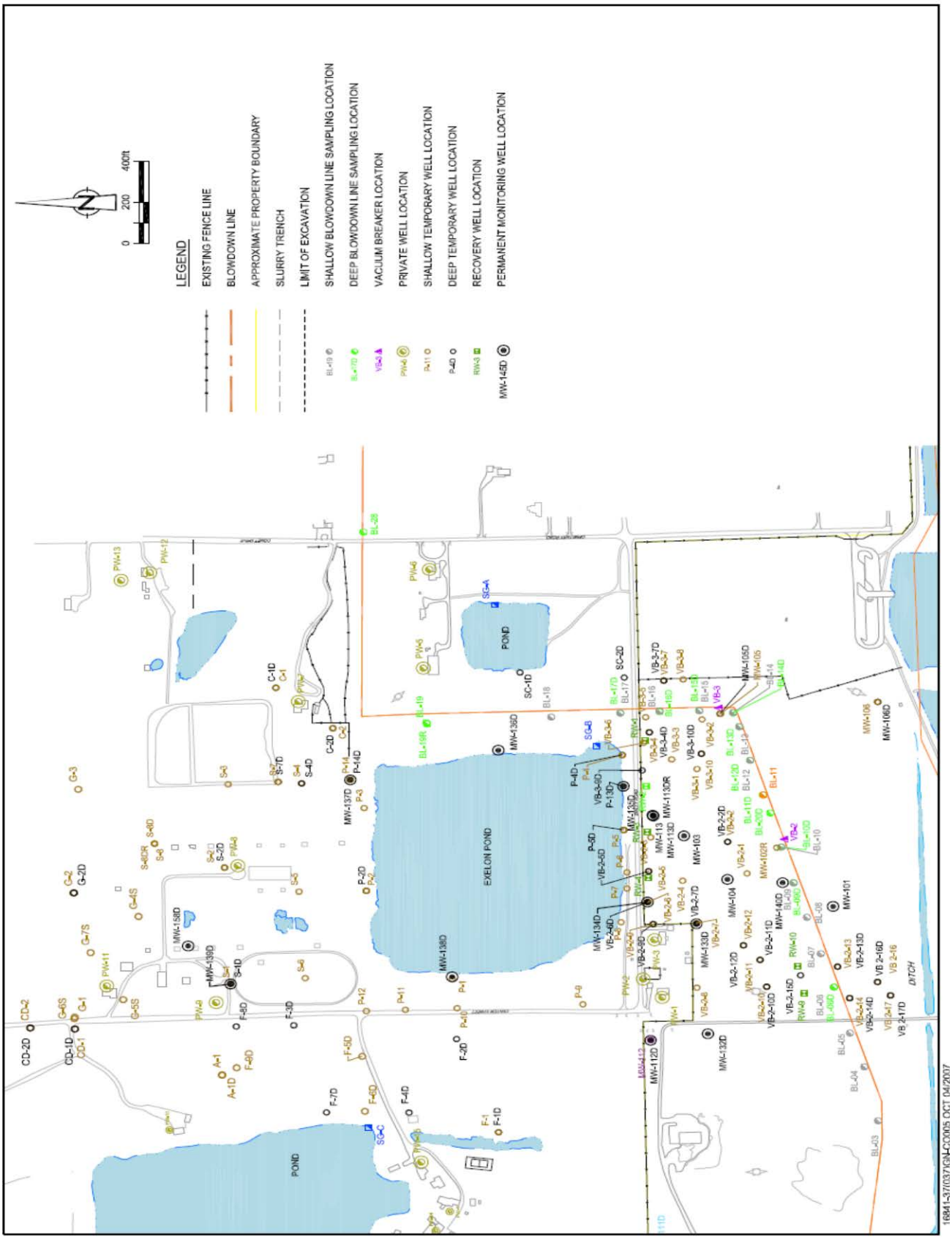

Figure A-3
Distant Sampling Locations of the Braidwood Station, 2014

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APPENDIX B

DATA TABLES

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TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
BL-03	03/21/14	< 174						
BL-03	06/13/14	< 181						
BL-03	07/22/14	< 192						
BL-03	12/03/14	< 187						
BL-11	04/22/14	< 166						
BL-11	06/09/14	< 182						
BL-11	07/23/14	< 185						
BL-11	11/20/14	< 154						
F-1D	03/12/14	< 174						
F-1D	06/19/14	< 185						
F-1D	09/23/14	< 192						
F-1D	12/10/14	< 153						
F-3DR	03/12/14	< 175						
F-3DR	06/20/14	< 187						
F-3DR	09/24/14	< 190						
F-3DR	12/10/14	< 152						
F-4D	03/12/14	< 175						
F-4D	06/19/14	< 187						
F-4D	09/23/14	< 184						
F-4D	12/08/14	< 152						
F-5D	03/12/14	< 174						
F-5D	06/19/14	< 184						
F-5D	09/22/14	< 191						
F-5D	12/08/14	< 152						
F-6D	03/12/14	< 172						
F-6D	06/19/14	< 197						
F-6D	09/24/14	< 188						
F-6D	12/08/14	< 153						
F-8D	03/12/14	< 171						
F-8D	06/20/14	< 187						
F-8D	09/24/14	< 187						
F-8D	12/10/14	164 ± 101						
F-9D	03/14/14	< 185						
F-9D	06/20/14	< 185						
F-9D	09/24/14	< 187						
F-9D	12/10/14	< 152						
MW-102R	03/18/14	< 178						
MW-102R	06/13/14	< 180						
MW-102R	07/22/14	< 193						
MW-102R	12/03/14	< 190						
MW-103	03/18/14	< 177						
MW-103	06/03/14	< 191	< 4.9	< 1.0	< 0.4	4.0 ± 1.4	< 0.9	2.5 ± 1.4
MW-103	07/23/14	< 195						
MW-103	11/19/14	< 154						
MW-109D	03/20/14	< 165						
MW-109D	06/06/14	< 185	< 6.1	< 0.5	< 1.4	< 0.8	1.8 ± 1.1	< 1.5
MW-109D	07/25/14	< 191						
MW-109D	11/07/14	< 192						
MW-11	04/17/14	279 ± 124						
MW-11	05/18/14	368 ± 140	< 7.6	< 0.8	< 0.7	< 0.9	2.1 ± 0.9	< 2.0
MW-11	09/11/14	< 190						
MW-11	11/10/14	211 ± 129						
MW-111DR	03/20/14	< 169						
MW-111DR	06/24/14	< 195	< 7.0	< 0.9	< 0.5	< 0.9	< 1.0	< 2.0

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
MW-111DR	07/25/14	< 195						
MW-111DR	11/07/14	< 194						
MW-112D	03/21/14	< 161						
MW-112D	06/13/14	< 182	< 6.3	< 0.6	< 1.7	< 0.8	2.3 ± 1.2	< 1.5
MW-112D	07/25/14	< 195						
MW-112D	11/07/14	< 192						
MW-113	03/18/14	< 177						
MW-113	06/13/14	< 183	< 5.2	< 0.6	< 1.4	< 0.8	< 1.5	< 1.5
MW-113	07/23/14	< 194						
MW-113	11/19/14	< 149						
MW-130D	04/22/14	< 171						
MW-130D	06/06/14	< 175	< 5.8	< 0.5	< 1.8	< 0.8	7.1 ± 1.5	< 1.5
MW-130D	07/25/14	< 191						
MW-130D	11/07/14	< 195						
MW-131D	03/20/14	< 162						
MW-131D	06/12/14	< 185	< 5.3	< 0.6	< 1.6	< 0.8	4.2 ± 1.3	< 1.5
MW-131D	07/25/14	< 195						
MW-131D	11/07/14	< 191						
MW-134D	04/22/14	< 168						
MW-134D	06/03/14	< 190	< 6.2	< 0.5	< 0.6	< 0.9	2.6 ± 0.8	< 2.0
MW-134D	07/23/14	< 190						
MW-134D	11/19/14	< 179						
MW-135D	03/14/14	< 182	< 4.5	< 0.6	< 2.6	< 1.2	< 2.4	< 1.6
MW-135D	06/19/14	< 188	< 3.6	< 0.6	< 0.5	< 0.4	< 1.4	< 1.6
MW-135D	09/23/14	< 190	< 5.1	< 0.8	< 0.4	< 0.4	< 1.5	< 1.7
MW-135D	12/09/14	< 152	< 2.3	< 0.6	< 2.0	< 1.1	< 2.5	< 1.5
MW-136D	03/13/14	< 186	< 2.9	< 0.5	< 2.5	< 0.7	< 2.7	< 1.5
MW-136D	06/19/14	< 184	< 3.5	< 0.8	< 1.2	< 1.0	1.0 ± 0.5	< 2.4
MW-136D	09/23/14	< 192	< 4.5	< 0.7	< 1.1	< 0.4	4.3 ± 1.2	< 1.7
MW-136D	12/09/14	< 155	< 3.4	< 0.8	< 1.7	< 1.1	1.7 ± 0.9	< 1.5
MW-137D	03/13/14	< 181	< 3.2	< 0.4	< 0.7	< 0.7	1.7 ± 0.8	< 1.5
MW-137D	06/19/14	< 185	< 3.6	< 0.9	< 1.9	< 0.4	2.0 ± 0.9	< 1.6
MW-137D	09/23/14	< 183	< 6.1	< 0.8	< 1.1	< 0.4	2.4 ± 0.9	< 1.7
MW-137D	12/09/14	< 153	< 3.8	< 0.7	< 0.8	< 1.1	1.6 ± 0.9	< 1.5
MW-138D	03/14/14	< 186	< 3.3	< 0.6	< 1.1	< 1.2	< 2.8	< 1.6
MW-138D	06/19/14	< 183	< 5.3	< 0.7	< 2.6	< 0.4	3.5 ± 1.1	< 1.6
MW-138D	09/23/14	< 190	< 5.2	< 0.6	< 0.9	< 0.4	4.6 ± 1.5	< 1.7
MW-138D	12/09/14	< 154	< 4.3	< 0.9	< 2.5	< 3.8	< 3.1	< 2.8
MW-139D	03/13/14	< 186	< 3.1	< 0.6	< 0.8	< 0.7	16.8 ± 1.4	< 1.5
MW-139D	06/20/14	< 186	< 4.9	< 0.7	< 0.8	< 0.4	17.9 ± 1.5	< 1.6
MW-139D	09/23/14	< 190	< 4.6	< 0.6	< 1.2	< 0.4	23.7 ± 2.3	< 1.7
MW-139D	12/09/14	< 153	< 3.4	< 0.7	< 0.8	< 1.1	23.4 ± 1.5	< 1.5
MW-141D	04/23/14	434 ± 132						
MW-141D	05/22/14	351 ± 139	< 4.5	< 0.9	< 4.2	< 2.2	40.0 ± 5.5	< 4.6
MW-141D	09/16/14	607 ± 151						
MW-141D	11/19/14	409 ± 127						
MW-142D	04/02/14	1290 ± 182						
MW-142D	05/10/14	1180 ± 180	< 8.9	< 0.7	< 5.3	< 2.2	27.1 ± 5.7	< 4.6
MW-142D	09/16/14	933 ± 170						
MW-142D	12/20/14	1120 ± 178						
MW-143D	04/23/14	347 ± 123						
MW-143D	05/22/14	421 ± 141	< 9.0	< 1.0	< 1.0	< 0.9	4.7 ± 1.1	< 2.0
MW-143D	09/12/14	311 ± 137						
MW-143D	11/14/14	< 192						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
MW-144D	03/17/14	3390 ± 383						
MW-144D	04/23/14	2580 ± 303						
MW-144D	05/30/14	3390 ± 389	< 8.1	< 0.7	< 0.7	< 0.9	4.6 ± 0.9	< 2.0
MW-144D	09/16/14	2990 ± 350						
MW-144D	11/10/14	1580 ± 219						
MW-145D	03/14/14	217 ± 124	< 3.8	< 0.8	< 1.1	< 1.2	< 1.8	< 1.6
MW-145D	06/20/14	< 185	< 3.4	< 1.0	< 0.5	< 0.5	< 1.1	< 1.7
MW-145D	09/22/14	< 182	< 5.4	< 0.7	< 0.3	< 0.4	< 1.1	< 1.7
MW-145D	12/10/14	< 154	< 2.7	< 0.6	< 0.6	< 1.1	< 1.1	< 1.5
MW-154	06/12/14	193 ± 127	< 7.8	< 0.9	< 0.6	< 0.3	1.3 ± 0.6	< 1.6
MW-154	09/23/14	277 ± 109	< 7.1	< 0.6	< 0.4	< 1.1	1.9 ± 0.6	< 1.5
MW-154	12/05/14	342 ± 135			< 0.9	< 0.3	1.9 ± 0.6	< 1.7
MW-155	06/12/14	< 185	< 5.7	< 0.7	< 1.0	< 0.3	2.4 ± 0.8	< 1.6
MW-155	09/23/14	191 ± 104	< 9.9	< 0.6	< 1.1	< 1.1	5.2 ± 1.2	< 1.5
MW-155	12/05/14	< 186			< 1.1	< 0.3	2.6 ± 0.7	< 1.7
MW-158D	03/13/14	< 180	< 3.5	< 0.7	< 2.2	< 0.7	28.7 ± 3.1	< 1.5
MW-158D	06/20/14	< 186	< 3.4	< 0.8	< 0.7	< 0.4	34.3 ± 1.8	< 1.6
MW-158D	09/23/14	< 194	< 5.4	< 0.9	< 1.1	< 0.4	21.2 ± 1.5	< 1.7
MW-158D	12/09/14	< 151	< 3.6	< 0.6	< 0.8	< 1.8	32.4 ± 1.7	< 1.8
MW-159D	06/09/14	< 191	< 3.6	< 0.8	< 0.9	< 0.9	5.6 ± 1.2	< 1.4
MW-159D	09/24/14	229 ± 109	< 6.3	< 0.5	< 0.6	< 1.1	2.5 ± 0.8	< 1.5
MW-159D	12/04/14	< 189			< 6.1	< 3.7	3.7 ± 1.4	< 2.7
MW-162D	03/12/14	800 ± 149						
MW-162D	04/23/14	932 ± 157						
MW-162D	05/22/14	929 ± 168	< 9.5	< 0.7	< 0.8	< 0.9	4.1 ± 1.0	< 2.0
MW-162D	09/11/14	858 ± 167						
MW-162D	11/10/14	554 ± 150						
MW-2	04/17/14	349 ± 124						
MW-2	05/10/14	325 ± 139	< 9.3	< 0.8	< 0.7	< 0.9	7.4 ± 1.0	< 2.0
MW-2	09/16/14	< 192						
MW-2	11/11/14	200 ± 127						
MW-4	04/17/14	497 ± 136						
MW-4	05/10/14	535 ± 147	< 7.2	< 0.6	< 2.5	< 0.9	4.0 ± 1.4	< 2.0
MW-4	09/12/14	474 ± 143						
MW-4	09/24/14	481 ± 120						
MW-4	11/14/14	585 ± 151						
MW-5	03/25/14	722 ± 155						
MW-5	04/24/14	687 ± 146						
MW-5	05/22/14	389 ± 142	< 8.2	< 0.9	0.9 ± 0.5	< 0.9	1.1 ± 0.7	< 2.0
MW-5	09/16/14	522 ± 148						
MW-5	11/10/14	268 ± 134						
MW-6	03/17/14	1560 ± 207						
MW-6	04/17/14	1060 ± 172						
MW-6	05/22/14	927 ± 169	< 4.9	< 0.9	< 5.7	< 2.2	11.6 ± 5.2	< 4.6
MW-6	09/16/14	596 ± 153						
MW-6	12/20/14	417 ± 142						
MW-7	04/17/14	473 ± 125						
MW-7	06/09/14	256 ± 129	< 3.5	< 0.8	< 0.6	2.8 ± 1.3	2.2 ± 0.7	7.2 ± 1.6
MW-7	09/11/14	239 ± 131						
MW-7	11/20/14	268 ± 120						
MW-BW-201S	04/24/14	529 ± 135						
MW-BW-201S	05/30/14	574 ± 152	< 9.7	< 0.7	< 1.4	< 0.9	11.1 ± 1.4	< 2.0
MW-BW-201S	09/17/14	287 ± 136						
MW-BW-201S	11/11/14	359 ± 138						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
MW-BW-202S	04/23/14		316 ± 124						
MW-BW-202S	05/30/14		< 192	< 4.2	< 0.9	< 2.4	< 0.9	10.6 ± 1.6	< 2.0
MW-BW-202S	09/11/14		234 ± 134						
MW-BW-202S	11/14/14		243 ± 132						
MW-BW-203S	04/24/14		245 ± 116						
MW-BW-203S	05/30/14		246 ± 130	< 9.0	< 0.9	< 0.6	< 0.9	6.3 ± 1.0	< 2.0
MW-BW-203S	09/11/14		< 193						
MW-BW-203S	11/14/14		< 190						
MW-BW-207I	04/24/14		526 ± 135						
MW-BW-207I	05/30/14		501 ± 149	< 5.3	< 0.8	< 4.7	< 2.2	15.1 ± 5.5	< 4.6
MW-BW-207I	09/16/14		716 ± 159						
MW-BW-207I	12/20/14		889 ± 165						
OWM31P	04/24/14		< 171						
OWM31P	06/09/14		< 188	< 9.3	< 1.0	21.3 ± 3.0	< 0.5	49.3 ± 2.4	< 1.6
OWM31P	09/17/14		< 183						
OWM31P	11/11/14		< 193						
P-2D	03/14/14		< 182						
P-2D	06/19/14		< 186						
P-2D	09/23/14		< 192						
P-2D	12/09/14		< 156						
PW-006	01/31/14		< 177						
PW-006	04/09/14		< 184						
PW-006	07/22/14		< 188						
PW-006	10/13/14		< 162						
PW-006A	04/09/14		< 181						
PW-006A	07/22/14		< 189						
PW-006A	10/13/14		< 160						
PW-006P	01/31/14		< 178						
PW-006P	04/09/14		< 182						
PW-006P	07/22/14		< 190						
PW-006P	10/13/14		< 163						
PW-011	01/31/14		< 174						
PW-011	04/09/14		< 184						
PW-011	07/22/14		< 189						
PW-011	10/13/14		< 161						
PW-015	04/09/14		< 184						
PW-015	07/22/14		< 190						
PW-015	10/13/14		< 159						
PW-016	04/09/14		< 181						
PW-016	07/22/14		< 188						
PW-016	10/13/14		< 160						
PW-13	01/31/14		< 173						
PW-13	04/09/14		< 181						
PW-13	07/22/14		< 191						
PW-13	10/13/14		< 158						
RW-10	06/13/14		< 183	< 5.1	< 0.7	< 1.4	< 0.3	3.1 ± 1.1	< 1.6
RW-10	07/22/14		< 195						
RW-10	12/03/14		< 191						
RW-5	06/06/14		< 183	< 5.3	< 0.6	< 1.1	< 0.8	< 1.4	< 1.5
RW-5	07/25/14		< 195						
RW-5	12/05/14		< 192						
RW-6	06/06/14		< 182	< 4.8	< 0.5	< 1.5	< 0.3	3.1 ± 1.3	< 1.6
RW-6	07/29/14	Original	4020 ± 451						
RW-6	07/29/14	Reanalysis	3350 ± 378						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE		H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
RW-6	07/29/14	Recount	4020 ± 453						
RW-6	12/20/14		3220 ± 372						
RW-7	06/06/14		< 183	< 6.1	< 0.7	< 1.3	< 0.3	3.0 ± 1.1	< 1.6
RW-7	07/25/14		< 194						
RW-7	12/03/14	Original	392 ± 141						
RW-7	12/03/14	Reanalysis	286 ± 133						
RW-7	12/03/14	Recount	236 ± 109						
RW-9	07/22/14		< 152						
RW-9	12/20/14		< 187						
SC-1D	01/31/14		< 174						
SC-2D	01/31/14		< 176						
VB-10-1R	03/12/14		< 171						
VB-10-1R	06/18/14		< 193						
VB-10-1R	09/22/14		< 184						
VB-10-1R	12/08/14		< 148						
VB1-1	03/21/14		< 164						
VB1-1	06/12/14		< 182	< 5.5	< 0.5	< 1.5	< 0.8	7.9 ± 1.4	< 1.5
VB1-1	07/29/14		< 194						
VB1-1	11/07/14		< 191						
VB-11-1	03/12/14		< 180						
VB-11-1	06/19/14		< 190						
VB-11-1	09/23/14		< 186						
VB-11-1	12/09/14		< 154						
VB3-2	03/18/14		< 176						
VB3-2	06/12/14		< 183						
VB3-2	07/23/14		< 192						
VB3-2	11/19/14		< 151						
VB-4-1	03/12/14		< 171						
VB-4-1	06/19/14		< 200						
VB-4-1	09/22/14		< 179						
VB-4-1	12/08/14		< 152						
VB-5-2	03/14/14		< 183						
VB-5-2	06/19/14		< 190						
VB-5-2	09/22/14		< 185						
VB-5-2	12/09/14		< 151						
VB-6-1	03/13/14		< 186						
VB-6-1	06/18/14		< 191						
VB-6-1	09/22/14		< 182						
VB-6-1	12/08/14		< 151						
VB-7-1	03/13/14		< 184						
VB-7-1	06/18/14		< 192						
VB-7-1	09/22/14		< 185						
VB-7-1	12/08/14		< 155						
VB-8-2R	03/13/14		< 181						
VB-8-2R	06/18/14		< 188						
VB-8-2R	09/22/14		< 183						
VB-8-2R	12/08/14		< 151						
VB-9-1	03/12/14		< 172						
VB-9-1	06/18/14		< 197						
VB-9-1	09/22/14		< 185						
VB-9-1	12/08/14		< 153						

TABLE B-I.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MW-103	06/03/14	< 14	< 22	< 1	< 1	< 4	< 1	< 2	< 1	< 2	< **128**	< 1	< 1	< **69**	< **24**
MW-109D	06/06/14	< 22	< 24	< 1	< 2	< 5	< 1	< 2	< 2	< 3	< **670**	< 1	< 1	< **202**	< **63**
MW-11	05/18/14	< 18	< 24	< 1	< 2	< 5	< 1	< 2	< 2	< 3	< **510**	< 1	< 1	< **171**	< **49**
MW-111DR	06/24/14	< 14	< 9	< 1	< 1	< 3	< 1	< 2	< 1	< 3	< **39**	< 1	< 1	< 32	< 10
MW-112D	06/13/14	< 19	< 9	< 1	< 2	< 5	< 1	< 3	< 2	< 4	< **350**	< 1	< 1	< **144**	< **50**
MW-113	06/13/14	< 14	< 21	< 1	< 1	< 4	< 1	< 1	< 1	< 2	< **248**	< 1	< 1	< **95**	< **35**
MW-130D	06/06/14	< 20	< 7	< 1	< 2	< 5	< 1	< 2	< 2	< 3	< **604**	< 1	< 1	< **171**	< **55**
MW-131D	06/12/14	< 16	64 ± 36	< 1	< 1	< 4	< 1	< 2	< 2	< 3	< **344**	< 1	< 1	< **129**	< **46**
MW-134D	06/03/14	< 10	< 13	< 1	< 1	< 2	< 1	< 1	< 1	< 2	< **113**	< 0	< 1	< 49	< 15
MW-135D	03/14/14	< 58	< 62	< 7	< 6	< 14	< 8	< 13	< 7	< 11	< 9	< 7	< 6	< 31	< 8
MW-135D	06/19/14	< 26	< 40	< 2	< 3	< 6	< 3	< 5	< 3	< 5	< 7	< 2	< 2	< 16	< 5
MW-135D	09/23/14	< 35	< 38	< 3	< 3	< 8	< 3	< 7	< 4	< 7	< 13	< 3	< 4	< 26	< 7
MW-135D	12/09/14	< 32	< 24	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 24	< 7
MW-136D	03/13/14	< 62	< 181	< 6	< 5	< 12	< 8	< 14	< 6	< 13	< 11	< 6	< 7	< 28	< 12
MW-136D	06/19/14	< 28	< 60	< 3	< 3	< 7	< 3	< 6	< 3	< 5	< 7	< 3	< 3	< 18	< 5
MW-136D	09/23/14	< 42	< 85	< 4	< 5	< 11	< 4	< 7	< 5	< 8	< 14	< 4	< 4	< 29	< 9
MW-136D	12/09/14	< 45	< 40	< 5	< 5	< 11	< 5	< 11	< 5	< 9	< 14	< 4	< 5	< 33	< 11
MW-137D	03/13/14	< 55	< 62	< 6	< 7	< 14	< 9	< 15	< 8	< 13	< 13	< 7	< 6	< 26	< 9
MW-137D	06/19/14	< 37	< 85	< 4	< 4	< 7	< 4	< 8	< 4	< 7	< 11	< 4	< 4	< 23	< 9
MW-137D	09/23/14	< 36	< 75	< 4	< 4	< 9	< 4	< 8	< 4	< 8	< 12	< 4	< 4	< 28	< 9
MW-137D	12/09/14	< 34	< 70	< 3	< 4	< 7	< 4	< 7	< 4	< 6	< 10	< 3	< 3	< 25	< 7
MW-138D	03/14/14	< 59	< 68	< 6	< 7	< 13	< 7	< 12	< 7	< 12	< 12	< 6	< 8	< 28	< 9
MW-138D	06/19/14	< 35	< 64	< 3	< 4	< 8	< 4	< 6	< 4	< 6	< 10	< 3	< 4	< 24	< 6
MW-138D	09/23/14	< 43	< 84	< 4	< 5	< 10	< 4	< 10	< 5	< 9	< 15	< 5	< 5	< 29	< 11
MW-138D	12/09/14	< 41	< 67	< 4	< 4	< 9	< 5	< 8	< 5	< 7	< 11	< 4	< 4	< 28	< 10
MW-139D	03/13/14	< 65	< 50	< 6	< 6	< 10	< 9	< 13	< 5	< 14	< 11	< 6	< 7	< 24	< 12
MW-139D	06/20/14	< 41	185 ± 60	< 4	< 4	< 9	< 4	< 8	< 5	< 8	< 11	< 4	< 4	< 27	< 8
MW-139D	09/23/14	< 44	< 41	< 4	< 4	< 8	< 4	< 8	< 5	< 9	< 14	< 4	< 5	< 33	< 8
MW-139D	12/09/14	< 38	< 77	< 4	< 4	< 9	< 4	< 7	< 5	< 8	< 12	< 4	< 4	< 27	< 10
MW-141D	05/22/14	< 15	< 9	< 1	< 1	< 4	< 1	< 2	< 1	< 3	< **332**	< 1	< 1	< **105**	< **37**
MW-142D	05/10/14	< 21	< 6	< 1	< 2	< 5	< 1	< 2	< 2	< 3	< **1250**	< 1	< 1	< **251**	< **77**
MW-144D	05/30/14	< 38	< 49	< 2	< 3	< 11	< 2	< 5	< 3	< 7	< **598**	< 2	< 2	< **238**	< **77**
MW-145D	03/14/14	< 61	< 168	< 6	< 7	< 10	< 7	< 14	< 7	< 12	< 10	< 7	< 6	< 27	< 12
MW-145D	06/20/14	< 38	< 44	< 5	< 5	< 11	< 4	< 8	< 5	< 9	< 10	< 4	< 5	< 24	< 8

BOLDED VALUES INDICATE LLD COULD NOT BE MET DUE TO AGE OF SAMPLE AT TIME OF RECEIPT AT LABORATORY

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
MW-145D	09/22/14	< 32	< 28	< 4	< 3	< 8	< 3	< 7	< 4	< 6	< 13	< 3	< 4	< 26	< 10
MW-145D	12/10/14	< 37	< 71	< 4	< 4	< 9	< 4	< 9	< 4	< 7	< 12	< 4	< 4	< 26	< 9
MW-154	06/12/14	< 38	< 42	< 2	< 3	< 10	< 2	< 4	< 3	< 6	< **867**	< 2	< 2	< **281**	< **89**
MW-154	09/23/14	< 51	< 53	< 3	< 4	< 13	< 2	< 5	< 5	< 8	< **2007**	< 2	< 2	< **508**	< **180**
MW-154	12/05/14	< 29	< 65	< 3	< 3	< 6	< 3	< 6	< 3	< 6	< 10	< 3	< 3	< 21	< 7
MW-155	06/12/14	< 29	< 30	< 2	< 3	< 8	< 1	< 4	< 3	< 5	< **673**	< 2	< 2	< **239**	< **81**
MW-155	09/23/14	< 39	< 15	< 2	< 4	< 11	< 2	< 4	< 4	< 6	< **1517**	< 2	< 2	< **397**	< **128**
MW-155	12/05/14	< 30	< 65	< 3	< 3	< 8	< 3	< 7	< 3	< 6	< 9	< 3	< 3	< 20	< 8
MW-158D	03/13/14	< 63	< 55	< 9	< 9	< 14	< #	< 16	< 7	< 13	< 11	< 7	< 8	< 39	< 10
MW-158D	06/20/14	< 38	< 37	< 4	< 5	< 9	< 5	< 10	< 5	< 8	< 10	< 4	< 5	< 27	< 8
MW-158D	12/09/14	< 42	< 33	< 4	< 4	< 10	< 4	< 9	< 4	< 7	< 13	< 4	< 5	< 28	< 8
MW-159D	06/09/14	< 8	< 5	< 0	< 1	< 2	< 0	< 1	< 1	< 1	< **70**	< 0	< 1	< 40	< 11
MW-159D	09/24/14	< 55	< 24	< 3	< 5	< 17	< 3	< 6	< 5	< 10	< **1780**	< 2	< 3	< **547**	< **198**
MW-159D	12/04/14	< 29	< 27	< 3	< 3	< 7	< 3	< 6	< 3	< 6	< 11	< 3	< 3	< 25	< 7
MW-162D	05/22/14	< 13	< 6	< 1	< 1	< 3	< 1	< 1	< 1	< 2	< **379**	< 1	< 1	< **118**	< **27**
MW-2	05/10/14	< 15	< 6	< 1	< 1	< 4	< 1	< 2	< 2	< 2	< **863**	< 1	< 1	< **208**	< **46**
MW-4	05/10/14	< 30	< 15	< 2	< 3	< 9	< 1	< 3	< 3	< 5	< **1491**	< 1	< 1	< **347**	< **139**
MW-5	05/22/14	< 14	< 17	< 1	< 1	< 4	< 1	< 1	< 1	< 2	< **330**	< 1	< 1	< **123**	< **31**
MW-6	05/22/14	< 20	< 8	< 1	< 2	< 6	< 1	< 2	< 2	< 3	< **458**	< 1	< 1	< **150**	< **46**
MW-7	06/09/14	< 11	< 6	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< **65**	< 1	< 1	< 42	< 12
MW-BW-201S	05/30/14	< 16	< 9	< 1	< 2	< 5	< 1	< 2	< 2	< 3	< **231**	< 1	< 1	< **107**	< **32**
MW-BW-202S	05/30/14	< 13	< 5	< 1	< 1	< 3	< 1	< 2	< 1	< 2	< **188**	< 1	< 1	< **84**	< **17**
MW-BW-203S	05/30/14	< 16	< 7	< 1	< 1	< 3	< 1	< 2	< 2	< 2	< **240**	< 1	< 1	< **101**	< **28**
MW-BW-207I	05/30/14	< 12	< 7	< 1	< 1	< 3	< 1	< 1	< 1	< 2	< **186**	< 1	< 1	< **90**	< **25**
OWM31P	06/09/14	< 9	< 4	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< **50**	< 0	< 1	< 31	< 9
P-2D	03/14/14	< 54	< 51	< 5	< 5	< 11	< 6	< 11	< 8	< 9	< 9	< 6	< 7	< 28	< 9
P-2D	06/19/14	< 37	< 80	< 4	< 4	< 9	< 4	< 9	< 4	< 8	< 11	< 4	< 4	< 27	< 8
P-2D	09/23/14	< 35	< 75	< 3	< 4	< 7	< 4	< 6	< 4	< 6	< 12	< 3	< 4	< 27	< 8
P-2D	12/09/14	< 39	< 33	< 4	< 4	< 8	< 4	< 8	< 5	< 7	< 13	< 3	< 4	< 29	< 7
RW-10	06/13/14	< 34	< 15	< 2	< 3	< 8	< 2	< 4	< 3	< 6	< **690**	< 2	< 2	< **259**	< **82**
RW-5	06/06/14	< 16	< 7	< 1	< 1	< 4	< 1	< 2	< 1	< 3	< **522**	< 1	< 1	< **161**	< **45**
RW-6	06/06/14	< 45	< 40	< 2	< 4	< 12	< 2	< 5	< 5	< 8	< **1495**	< 2	< 2	< **429**	< **129**
RW-7	06/06/14	< 33	< 26	< 2	< 3	< 10	< 2	< 4	< 4	< 6	< **1255**	< 2	< 2	< **354**	< **113**

BOLDED VALUES INDICATE LLD COULD NOT BE MET DUE TO AGE OF SAMPLE AT TIME OF RECEIPT AT LABORATORY

TABLE B-I.2 **CONCENTRATIONS OF GAMMA EMITTERS IN GROUNDWATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
VB1-1	06/12/14	< 12	< 15	< 1	< 1	< 3	< 1	< 1	< 1	< 2	< **226**	< 1	< 1	< **98**	< **27**

BOLDED VALUES INDICATE LLD COULD NOT BE MET DUE TO AGE OF SAMPLE AT TIME OF RECEIPT AT LABORATORY

TABLE B-I.3 **CONCENTRATIONS OF HARD TO DETECTS IN GROUNDWATER SAMPLES COLLECTED AS PART OF THE RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM, BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

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

NONE FOR 2014

TABLE B-II.1 **CONCENTRATIONS OF TRITIUM, STRONTIUM, GROSS ALPHA, AND GROSS BETA IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	H-3	Sr-89	Sr-90	Gr-A (Dis)	Gr-A (Sus)	Gr-B (Dis)	Gr-B (Sus)
DITCH (DS-2)	04/16/14	< 170						
DITCH (DS-2)	06/12/14	< 181	< 5.0	< 0.6	< 2.0	< 0.3	5.3 ± 1.4	< 1.6
DITCH (DS-2)	07/29/14	< 152						
DITCH (DS-2)	11/07/14	< 193						
SG-BW-105	01/31/14	< 171						
SG-BW-105	04/09/14	< 185						
SG-BW-105	07/22/14	< 194						
SG-BW-105	10/13/14	< 158						
SW-102 POINT C	03/21/14	< 165						
SW-102 POINT C	06/09/14	< 188	< 6.0	< 0.5	< 2.7	< 1.2	4.4 ± 2.1	4.6 ± 2.1
SW-102 POINT C	09/24/14	255 ± 109						
SW-102 POINT C	11/20/14	< 172						

TABLE B-II.2 **CONCENTRATIONS OF GAMMA EMITTERS IN SURFACE WATER SAMPLES COLLECTED IN THE VICINITY OF BRAIDWOOD STATION, 2014**

RESULTS IN UNITS OF PCI/LITER ± 2 SIGMA

SITE	COLLECTION DATE	Be-7	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140
DITCH (DS-2)	06/12/14	< 33	< 29	< 2	< 3	< 9	< 2	< 4	< 3	< 6	< **766**	< 2	< 2	< **267**	< **86**
SW-102 POINT C	06/09/14	< 40	< 41	< 2	< 4	< 12	< 2	< 5	< 4	< 7	< **1096**	< 2	< 2	< **354**	< **112**

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