WOLF CREEK
NUCLEAR OPERATING CORPORATION

April 24, 2017

Cynthia R. Hafenstine
Manager Nuclear and Regulatory Affairs

RA 17-0035

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket No. 50-482: 2016 Annual Radiological Environmental Operating Report

To Whom It May Concern:

The purpose of this letter is to submit the enclosed Annual Radiological Environmental Operating Report, which is being submitted pursuant to Wolf Creek Generating Station (WCGS) Technical Specification 5.6.2. This report covers radiological environmental monitoring for WCGS for the period of January 1, 2016, through December 31, 2016.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4204.

Sincerely,

Cynthia R. Hafenstine

Cynthia R. Hafenstine

CRH/rlt

Enclosure

cc: K. M. Kennedy (NRC), w/e
B. K. Singal (NRC), w/e
N. H. Taylor (NRC), w/e
Senior Resident Inspector (NRC), w/e

IE25
NRR

Wolf Creek Generating Station

2016 Annual Radiological Environmental Operating Report

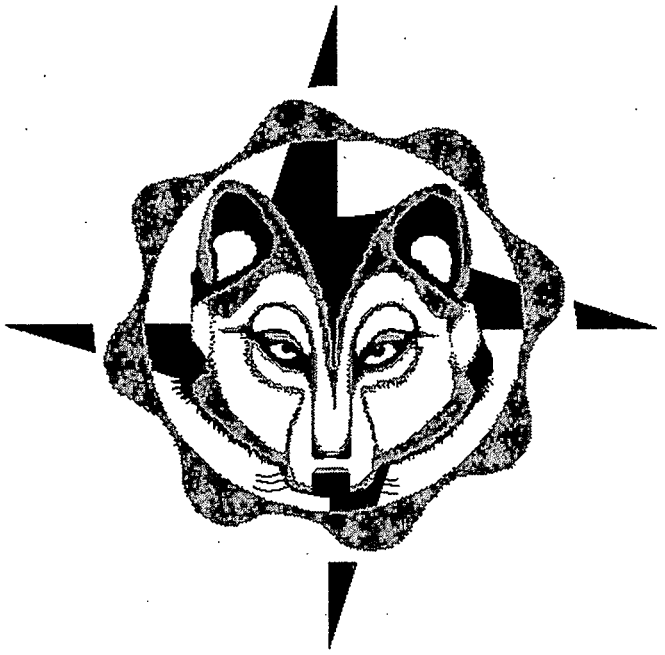
(171 pages)

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

2016 ANNUAL RADIOLOGICAL

ENVIRONMENTAL OPERATING REPORT



April 15, 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF CHARTS

EXECUTIVE SUMMARY

Plant-related activation, corrosion, or fission products were not detected during 2016 in air particulate filters, radioiodine canisters, ground water, broadleaf vegetation, shoreline sediment, crops, bottom sediment, aquatic vegetation, terrestrial vegetation or soil samples. Activation, corrosion or fission products attributable to plant operation were detected during 2016 in drinking water, surface water, fish, and deer samples.

Nuclides detected in Radiological Environmental Monitoring Program (REMP) samples were below applicable Nuclear Regulatory Commission (NRC) reporting levels.

Based upon the REMP results, it was concluded station operations had no significant radiological impact on the health and safety of the public or the environment.

INTRODUCTION

The 2016 Annual Radiological Environmental Operating Report for Wolf Creek Generating Station (WCGS) covers the period from January 1 through December 31, 2016. WCGS is located in Coffey County, Kansas, approximately five miles northeast of Burlington, Kansas.

Fuel loading commenced at WCGS on March 12, 1985. The operational phase of the REMP began with initial criticality on May 22, 1985, and the first detectable quantities of radioactivity were reported in plant effluents in June 1985.

This report contains a description of the REMP conducted by Wolf Creek Nuclear Operating Corporation (WCNOC), a discussion of monitoring program results, the revisions or changes to the program, program deviations, the Interlaboratory Comparison Program and a comparison to the Radioactive Effluent Release Program. The Interlaboratory Comparison Program results, a summary of results in the NRC Branch Technical Position specified format, the individual sample results, and the Land Use Census Report are included as appendices.

I. PROGRAM DESCRIPTION

Radiological environmental monitoring samples were collected according to the schedule in WCGS procedure AP 07B-004, *Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)*. Radiological environmental monitoring program samples were collected by the WCGS Environmental Management group and were analyzed by Environmental, Inc. Landauer, Inc. processed the environmental optically stimulated luminescence (OSL) dosimeters. Table 1 identifies the exposure pathway/sample type, number of samples and sample locations, sample collection frequency, and the type and frequency of analysis. Table 2 lists the sample location identifiers, distances and directions from the plant. Samples in addition to those required by AP 07B-004 were also obtained and analyzed.

The following is a description of the sampling and analysis program by individual pathways.

A. Airborne Pathway

Low volume air sampling pumps with digital flow meters continuously sampled air through 47 mm glass fiber particulate filters and radioiodine canisters, respectively. The air particulate filters and radioiodine canisters were collected weekly. Gross beta analysis was performed weekly on the air particulate filters. Gamma isotopic analysis was also performed quarterly on the air particulate filters. Radioiodine canisters were analyzed weekly for I-131.

Air samples were collected from six locations. The indicator locations sampled included 2, 18, 32, 37 and 49. A control location near the intersection of 20th Road and Yearling Road (location 53) was also sampled. Indicator sample locations are shown in Figure 1 and the control sample location is shown in Figure 5.

B. Direct Radiation Pathway

Optically stimulated luminescence (OSL) dosimeters were used continuously at 42 locations during the sample year to measure direct radiation. The OSLs were typically positioned roughly 3 to 4 feet above the ground in plastic thermostat boxes. Three OSLs were placed at each designated location. The OSLs were changed out quarterly and analyzed quarterly for gamma dose. Transit dose was measured and subtracted from the ambient dose. Indicator OSL sample locations are illustrated in Figure 2 and control sample locations are shown in Figure 5. Control sample locations were 39 (Beto Junction) and 53 (near the intersection of 20th Road and Yearling Road).

C. Waterborne Pathway

Gamma isotopic analysis was performed on the water samples. In addition to gamma isotopic analysis, analysis for I-131 was performed monthly on drinking water and quarterly on ground water samples. Gross beta analysis was performed monthly on drinking water samples. Tritium analysis was performed monthly for surface water and quarterly for drinking water. Tritium analysis was also performed quarterly on ground water samples. Four surface water samples from the Coffey County Lake Spillway (SP) location and four surface water samples from the John Redmond Reservoir (JRR) location were also analyzed for Fe-55. The waterborne pathway sample locations are shown in Figures 3 and 5.

Monthly grab samples of surface water were collected from the John Redmond Reservoir (JRR) control location and from the Coffey County Lake Spillway (SP) indicator location.

Quarterly grab samples of ground water were collected from seven wells. Six locations (C-10, C-49, F-1, G-2, J-1 and J-2) located hydrologically down gradient from the site were used as indicator sample locations. Location B-12 located hydrologically up gradient from the site was used as a control location.

Drinking water was sampled at the water treatment facilities in the towns of Iola (indicator sample location IO-DW) and Burlington (control sample location BW-15). The Iola facility is located downstream of the Neosho River-Wolf Creek confluence and the Burlington facility is located upstream of the Neosho River-Wolf Creek confluence. Composite samples were obtained monthly from automatic samplers at each location. The automatic drinking water samplers collected approximately 27 milliliters of water every two hours.

Shoreline sediments were sampled semiannually. Gamma isotopic analyses were performed on the shoreline sediment samples. Shoreline sediment sample locations were the Coffey County Lake discharge cove (DC) indicator location and the John Redmond Reservoir (JRR) control location.

D. Ingestion Pathway

Milk was not collected during the sample year. The Land Use Census did not identify any locations producing milk for human consumption within five miles of the plant.

Fish were sampled semiannually from the indicator sample location Coffey County Lake (CCL) and from the tail waters of John Redmond Reservoir (JRR) control sample location. These sample locations are identified in Figure 4. Gamma isotopic analyses were performed on the boneless meat portions of the fish. Several species of game fish and rough fish were sampled. Fish were also analyzed for tritium.

Broadleaf vegetation samples were collected monthly when available during the growing season. Indicator (A-3, B-1, and H-2) location gardens (Figure 4) and a control (D-2) location garden (Figure 5) were sampled. Gamma isotopic analyses were performed on these samples.

Irrigated crop samples were obtained from indicator locations (NR-D1) and (NR-D2) downstream of the confluence of Wolf Creek and the Neosho River. Irrigated crops were also sampled from control location NR-U1. Gamma isotopic analysis was performed on each sample. Crop sample locations are identified on Figure 5.

E. Additional Samples Collected (not required by AP 07B-004)

Duplicate ground water grab samples were obtained quarterly from indicator location C-49 and were labeled L-49. These duplicate samples served as laboratory quality checks. Gamma isotopic analysis, I-131 analysis and tritium analysis were performed on the ground water samples.

Bottom sediment samples were collected from indicator sample locations at the Discharge Cove (DC), Environmental Education Area (EEA), Essential Service Water (ESW) channel, Makeup Discharge Structure (MUDS), Stringtown Cemetery (SC), Ultimate Heat Sink (UHS), and the control sample location at John Redmond Reservoir (JRR). Gamma isotopic analyses were performed on the bottom sediment samples. Fourteen samples collected from indicator locations were also analyzed for Fe-55. Two samples collected from UHS indicator locations were also analyzed for Ni-63, Sr-89 and Sr-90 activity. Four bottom sediment samples were collected as part of a cooperative sampling effort with the Kansas Department of Health and Environment (KDHE). The sample locations are identified on Figure 3.

Aquatic vegetation was collected from indicator locations Environmental Education Area (EEA) and Makeup Discharge Structure (MUDS). Gamma isotopic analyses were performed on the aquatic vegetation samples. These samples were collected as part of a cooperative sampling effort with the KDHE. The sample locations are identified on Figure 3.

Terrestrial vegetation (grass) was sampled from the Environmental Education Area (EEA) indicator sample location. Gamma isotopic analysis was performed on the grass sample. This sample was collected as part of a cooperative sampling effort with the KDHE. The sample location is identified on Figure 4.

Soil was sampled from the Environmental Education Area (EEA) indicator sample location. Gamma isotopic analysis was performed on the soil sample. This sample was collected as part of a cooperative sampling effort with the KDHE. The sample location is identified on Figure 4.

A deer was sampled from indicator sample location R2.0. Gamma isotopic analysis and tritium analysis was performed on the deer sample. This sample was collected as part of a cooperative sampling effort with the KDHE. The sample location is identified on Figure 4.

II. DISCUSSION OF RESULTS

Analysis results for pathways are summarized in Appendix B using the format described in Radiological Assessment Branch Technical Position, Revision 1, November 1979 (NRC Generic Letter 79-065). Results for individual samples are listed in Appendix C.

A. Airborne Pathway

Chart 1 graphically illustrates weekly gross beta results for the sample year. Chart 2 represents the gross beta historical airborne smoothed averages of indicator sample locations and control sample locations. Charts 1 and 2 demonstrate how closely the indicator and control sample locations tracked together. Chart 2 reveals a seasonal cyclic trend; the gross beta values peak in the winter months (December or January) and decrease to a low point in the spring months (May or June). This trend is expected and is attributed to seasonal meteorological changes, i.e., changes in prevailing winds and precipitation.

The gross beta results of 2016 were compared to pre-operational monitoring results of 1983 and 1984. The weekly gross beta analyses range for 1983 and 1984 was 0.0064 to 0.084 pCi/m^3. The 2016 weekly gross beta analyses range for indicator locations was 0.009 to 0.056 pCi/m^3. The 2016 weekly gross beta analyses range was within the 1983 and 1984 pre-operational range. Additionally, the annual mean for indicator locations for 2016 (0.025 pCi/m^3) was lower than the annual mean for 1983 (0.032 pCi/m^3).

The gross beta results for the indicator locations were also compared to the control location. The annual mean for indicator locations for 2016 (0.025 pCi/m^3) was the same as the annual mean of the control location (0.025 pCi/m^3). The indicator location with the highest gross beta annual mean was location 37 (0.026 pCi/m^3) and was slightly higher than the annual mean of the control location (0.025 pCi/m^3).

Naturally occurring Be-7 activity was detected, as was the case during pre-operational monitoring. In 1984, the range for Be-7 detected activity was 0.024 to 0.211 pCi/m^3 for indicator locations and the annual mean for indicator locations was 0.069 pCi/m^3. In 2016, the range for Be-7 detected activity was 0.065 to 0.107 pCi/m^3 for indicator locations and the annual mean for indicator locations was 0.081 pCi/m^3. The control location annual mean for Be-7 detected activity (0.083 pCi/m^3) was slightly higher than the annual mean of the indicator locations (0.081 pCi/m^3). The indicator location with the highest annual mean of detected Be-7 activity (0.084 pCi/ m^3) was location 32.

I-131 activity was not detected in the weekly analysis of radioiodine canisters at any location.

The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2016 in air particulate filters and radioiodine canisters. No unusual trends were noted.

B. Direct Radiation Pathway

Quarterly OSL dosimeter results for each location are shown in Table 3. Measured values have been converted to a standardized 90-day quarter.

The annual mean of indicator sample locations in 2016 was 18.1 mR per standardized 90-day quarter. The annual mean of the control sample locations in 2016 was 18.7 mR per standardized 90-day quarter.

For pre-operational comparison, in 1981, the annual mean of indicator sample locations was 18.9 mR per standardized 90-day quarter and the annual mean for the control sample locations was 17.1 mR per standardized 90-day quarter. It should be noted WCGS changed from thermoluminescence dosimeters (TLD) to optically stimulated luminescence (OSL) dosimeters in 2008.

The indicator sample location with the highest annual mean was location 38 (21.1 mR per standardized 90-day quarter) which is slightly higher than the annual mean of the control sample locations (18.7 mR per standardized 90-day quarter).

Based upon Condition Report 00027489, improvements were made in measuring and subtracting transit dose in 2010. As expected, the OSL results have increased since 2010. Chart 3 visibly displays the increase of the OSL results. Chart 3 also displays how closely the indicator and control location OSL dosimeter results are for 2016.

Chart 4 displays the TLD nearsite sample locations (1, 2, 7-9, 11-14, 18, 26, 27, 29, 30, 37 and 38) and the control sample locations (locations 39 and 48) for the preoperational years through 2007.

C. Waterborne Pathway

(1) Surface Water

Tritium, attributable to WCGS operation, was detected in surface water samples collected from the Coffey County Lake spillway (SP) indicator sample location. The annual mean for detected tritium activity at the SP location was 10,461 pCi/L and the range was 7,971 to 12,300 pCi/L. The detected tritium activity was below the 30,000 pCi/L AP 07B-004 reporting level. Chart 5 illustrates the yearly averages of surface water tritium data for the SP location. Chart 5 indicates the average tritium concentration of the SP location has reached equilibrium. Tritium activity was not detected in samples obtained from the control sample location John Redmond Reservoir (JRR).

During pre-operational radiological environmental monitoring, measured radiological activity was not detected in surface water samples.

The AP 07B-004 required lower limits of detection were met. Radionuclides were not detected by the gamma isotopic analyses or by Fe-55 analyses.

Tritium was the only activity detected during 2016 in surface water samples and no unusual trends were noted.

(2) Ground Water

The AP 07B-004 required lower limits of detection were met for I-131, tritium and gamma isotopic analyses. Radioactivity was not detected in any ground water samples. No unusual trends were noted. Plant-related activation, corrosion or fission products were not detected during 2016 in ground water samples.

(3) Drinking Water

Gross beta activity was detected in drinking water samples collected from the indicator sample location and in samples collected from the control sample location. The annual mean of the indicator sample location gross beta activity (2.9 pCi/L) was slightly higher when compared to the annual mean of the control sample location gross beta activity (2.7 pCi/L). The 2016 annual means of gross beta activity for both the indicator and control sample locations were lower than those of the pre-operational monitoring year of 1984. In 1984, the annual mean of the indicator sample location gross beta activity was 7.5 pCi/L and the annual mean of the control sample location gross beta activity was 6.4 pCi/L.

Chart 6 illustrates the drinking water gross beta results for the last five years and how closely the gross beta results compared for the indicator and control sample locations.

Tritium activity (228 pCi/L) was detected in the second quarter of 2016 at the indicator location. The detected tritium activity was well below the 20,000 pCi/L AP 07B-004 reporting level. Condition Report 00106475 concluded due to low Neosho River flows, coupled with wave overlap discharges from Coffey County Lake, Coffey County Lake was a plausible source. Tritium activity was not detected in 2016 at the control location. In 1984 (pre-operational), tritium activity was not detected in any drinking water samples.

The AP 07B-004 required lower limits of detection were met. Radionuclides were not detected by the I-131 or gamma isotopic analyses. No unusual trends were noted.

(4) Shoreline Sediment

Naturally occurring K-40 was detected in shoreline sediment samples collected from the DC (indicator sample location) and JRR (control sample location). K-40 was also detected during pre-operational shoreline sediment monitoring.

Cs-137 activity (120.1 and 199.8 pCi/kg, dry) was detected in the two shoreline sediment samples collected from the DC indicator location. Cs-137 activity (112.9 pCi/kg, dry) was also detected in one of the shoreline sediment samples collected from the JRR control sample location.

Cs-137 activity was detected in pre-operational shoreline sediment samples. Cs-137 activity detected in shoreline sediment samples collected from the DC location from 1982 to 1984 was in the range of 224 to 437 pCi/kg. The decay corrected range of pre-operational Cs-137 activity detected is approximately 108 to 205 pCi/kg. The detected Cs-137 activity in the shoreline sediment samples collected from the DC indicator location was likely due to fallout since Cs-134 activity was not detected, which would be expected if the occurrence of Cs-137 was attributed to

a newly produced fission product, since Cs-137 activity was also detected at the JRR control sample location and since the detected Cs-137 activity was within the decay corrected pre-operational range.

No other radionuclides were detected in the DC or JRR shoreline sediment samples during 2016. The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2016 in shoreline sediment samples and no unusual trends were noted.

D. Ingestion Pathway

(1) Milk

Milk was not collected during the sample year since no indicator locations within five miles of the plant were identified during the Land Use Census.

(2) Fish

Naturally occurring K-40 activity was detected in fish samples obtained from the Coffey County Lake (CCL) indicator sample location and in fish samples obtained from the JRR control sample location. K-40 activity was also detected during pre-operational fish monitoring.

Fish samples were also analyzed for tritium. Fish samples collected from Coffey County Lake had tritium activity detected (7,274 pCi/kg annual mean). The detected tritium activity was attributable to plant operation. An adult consuming 21 kilograms of fish, at the maximum measured tritium concentration (8,243 pCi/kg), would receive a committed effective dose equivalent of 0.011 mRem.

Tritium activity was not detected in the control location samples collected from JRR.

No other radionuclides were detected in fish samples during 2016. The AP 07B-004 required lower limits of detection were met and no unusual trends were noted.

(3) Broadleaf Vegetation

Gamma analyses of broadleaf vegetation samples obtained from indicator and control sample locations detected naturally occurring Be-7 and K-40. Be-7 and K-40 activity were also detected pre-operationally.

No other radionuclides were detected in broadleaf vegetation samples collected during the year. The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2016 in broadleaf vegetation samples and no unusual trends were noted.

(4) Crop Samples

Gamma analysis detected naturally occurring K-40 activity to be present in the samples collected from the indicator sample locations and in the samples collected from the control sample location. K-40 activity was also detected during pre-operational crop monitoring. K-40 was the only activity detected in the crop samples.

The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2016 in crop samples and no unusual trends were noted.

E. Additional Samples Collected (not required by AP 07B-004)

(1) Bottom Sediment

Gamma analysis detected naturally occurring K-40 activity to be present in the samples collected from the indicator sample locations and in the samples collected from the control sample location. K-40 activity was also detected during pre-operational bottom sediment monitoring.

Cs-137 activity was detected in two samples obtained from indicator locations (range 72.6 to 85.7 pCi/kg, dry). Cs-137 activity was also detected in a sample obtained from the control sample location (138.0 pCi/kg, dry).

Cs-137 activity was detected in pre-operational samples. The Cs-137 activity detected in 2016 indicator sample location bottom sediment samples was within the pre-operational range. (Cs-137 activity detected in 1981 and 1982 was in the range of 79 to 953 pCi/kg. The decay corrected range of pre-operational Cs-137 activity detected is approximately 35 to 426 pCi/kg.)

The detected Cs-137 activity in the samples collected from the indicator sample locations was likely due to fallout since the measured activity is within the decay corrected range of pre-operational Cs-137 detected activity. Additionally, Cs-137 activity was also detected in a sample obtained from the JRR control location (138 pCi/kg, dry).

Chart 7 plots the Cs-137 detected activity from the discharge cove indicator sample location and JRR control sample location bottom sediment samples. The detected Cs-137 activity measured from the discharge cove location reflects a decreasing trend. The Chart 7 trendline indicates Cs-137 activity detected at the JRR control location has also been decreasing. Chart 7 also displays that in recent years, the detected Cs-137 activity for the JRR and DC sample locations overlap.

Fe-55 activity was not detected in the fourteen samples obtained from indicator sample locations.

Analysis for the Hard-to-Detect radionuclides was performed on two indicator location samples. Sr-90 activity (55.5 pCi/kg, dry) was detected in one bottom sediment sample collected from the Ultimate Heat Sink (UHS) area.

Sr-90 activity was detected in pre-operational soil samples. (Sr-90 activity detected in February 1985 soil samples was in the range of 85 to 380 pCi/kg. The decay corrected range of pre-operational Sr-90 activity detected is approximately 40 to 179 pCi/kg.) The detected Sr-90 activity in the bottom sediment collected from the UHS indicator sample location is likely due to fallout since the activity is within the decay corrected pre-operational range.

No other radionuclides were detected in bottom sediment samples. Plant-related activation, corrosion, or fission products were not detected during 2016 in bottom sediment samples and no unusual trends were noted.

(2) Aquatic Vegetation

Gamma analyses of aquatic vegetation samples obtained from indicator sample locations detected naturally occurring Be-7 and K-40. Be-7 and K-40 activity were also detected during pre-operational monitoring.

No other radionuclides were detected in aquatic vegetation samples. Plant-related activation, corrosion, or fission products were not detected during 2016 in aquatic vegetation samples and no unusual trends were noted.

(3) Shoreline Sediment

Naturally occurring K-40 was detected in the shoreline sediment samples collected from the EEA indicator sample location. K-40 was also detected during pre-operational shoreline sediment monitoring.

Cs-137 activity (96.9 and 270.8 pCi/kg, dry) was detected in the two shoreline sediment samples collected from the EEA indicator location. Cs-137 activity (112.9 pCi/kg) was also detected in one of the shoreline sediment samples collected from the JRR control sample location.

Cs-137 activity was detected in pre-operational shoreline sediment samples. Cs-137 activity detected in shoreline sediment samples collected from the DC location from 1982 to 1984 was in the range of 224 to 437 pCi/kg. The decay corrected range of pre-operational Cs-137 activity detected is approximately 108 to 205 pCi/kg. The detected Cs-137 activity in the shoreline sediment samples collected from the EEA indicator location was likely due to fallout since Cs-134 activity was not detected, which would be expected if the occurrence of Cs-137 was attributed to a newly produced fission product, and since Cs-137 activity was also detected at the JRR control sample location.

No other radionuclides were detected in the EEA shoreline sediment samples during 2016. Plant-related activation, corrosion, or fission products were not detected during 2016 and no unusual trends were noted.

(4) Terrestrial Vegetation

Naturally occurring Be-7 and K-40 activity was detected in the terrestrial vegetation indicator location sample. No other radionuclides were detected in terrestrial vegetation. Plant-related activation, corrosion or fission products were not detected during 2016 in terrestrial vegetation and no unusual trends were noted.

(5) Soil

Naturally occurring K-40 activity was detected in the soil sample obtained from the EEA indicator location. K-40 activity was also detected during pre-operational soil monitoring.

Cs-137 activity was detected in the soil sample obtained from the EEA indicator location. Data was reviewed for soil samples collected pre-operationally. The detected Cs-137 activity range from February of 1985 was 255 to 2,160 pCi/kg. The decay corrected range of pre-operational Cs-137 activity detected in soil is approximately 124 to 1,053 pCi/kg. The detected Cs-137

activity in soil sampled in 2016 (99.5 pCi/kg, dry) is below the decay corrected pre-operational range and is likely due to fallout.

Plant-related activation, corrosion, or fission products were not detected during 2016 in soil samples and no unusual trends were noted.

(6) Deer

Naturally occurring K-40 activity was detected in the deer sample obtained from the indicator location.

Tritium activity (169 pCi/kg) was also detected in the deer sample. The detected tritium activity was attributable to plant operation.

An adult consuming 72.6 kilograms of deer meat, at the measured tritium concentration (169 pCi/kg), would receive a committed effective dose equivalent of 0.001 mRem.

No other radionuclides were detected in the deer sample. No unusual trends were identified.

III. PROGRAM REVISIONS/CHANGES

No revisions or changes were made to AP 07B-004, *Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)* during 2016.

IV. PROGRAM DEVIATIONS

Air Samples

The following air sample locations failed to meet the requirement for "continuous sampler operation." As described in footnote (1) of procedure AP 07B-004, *Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)*, Table 5-1, deviations are permitted from the required sampling schedule due to malfunction of sampling equipment and other legitimate reasons. Discrepancies greater than five percent between Total Military Time and Total Digital Flow Meter Time, which resulted in a loss of air sample collected, are listed in the following table.

Location	Sample Period	Percent Discrepancy/ Hours Unavailable	Explanation of Deviation/Comments Condition Report Number
53	04/25/16 – 05/03/16	10 / 20	Power Outage / Condition Report 00104353
49	06/29/16 – 07/05/16	6.5 / 9	Power Outage / Condition Report 00105612
37	09/06/16 – 09/12/16	7.7 / 11	Power Outage / Condition Report 00107073

Drinking Water Samples

Drinking water was not continuously collected at the Burlington control sample location during the 04-04-16 to 05-04-16 sample period since the sampler intake bay was empty due to water

treatment plant maintenance. It was estimated that water was not sampled for approximately seven days during the sample period. Sufficient water was collected for the monthly composite sample. Condition Report 00104401 was generated to document the condition.

Ground Water Protection

The following information is being provided in association with the Nuclear Energy Institute (NEI) Groundwater Protection Industry Initiative:

Describe offsite ground water or surface water sample results that exceeded the REMP reporting criteria that were voluntarily communicated to State/Local officials during the calendar year – None.

V. INTERLABORATORY COMPARISON PROGRAM

Environmental, Inc., Midwest Laboratory was contracted to perform radiological analysis of environmental samples for WCNOC. The lab participated in the intercomparison studies administered by Environmental Resources Associates. Appendix A is the Interlaboratory Comparison Program Results for Environmental, Inc., Midwest Laboratory. Intercomparison results, in-house spikes, blanks, duplicates and mixed analyte performance evaluation program results are also contained in Appendix A.

VI. COMPARISON TO THE RADIOACTIVE EFFLUENT RELEASE PROGRAM

As described in the section discussing radioisotopes found in fish from Coffey County Lake, dose that may be received as a result of tritium released from WCGS is comparable with the theoretical doses calculated by the Radioactive Effluent Release Program.

The theoretical doses calculated by the Radioactive Effluent Release Program assume a person drinks the water from Coffey County Lake and eats the fish from Coffey County Lake. Based upon these assumptions the dose to man from both pathways was calculated to be 0.177 mRem for 2016.

Using sample data obtained from the REMP, an adult drinking 2 liters per day of surface water from Coffey County Lake, using the average tritium activity (10,461 pCi/L), would receive a committed effective dose equivalent of 0.478 mRem per year. For an adult eating 21 kg of fish per year from Coffey County Lake, using the average tritium activity (7,274 pCi/kg), would receive a committed effective dose equivalent of 0.010 mRem per year. Based upon the REMP results, the dose from both pathways was calculated to be 0.488 mRem per year.

It should be noted Coffey County Lake is not used as a drinking water source. Calculating the dose to man for tritium detected in the Coffey County Lake surface water is for comparison purposes only.

The tritium dose values are being compared on a qualitative basis. It is not expected that the annual doses, as calculated in the Radioactive Effluent Release Report, would compare directly to those calculated from the REMP. The Radioactive Effluent Release Report provides a "snap shot" of potential dose resulting from the year's releases. The REMP data indicates the accumulated result of releasing tritium into the lake since the start of plant operation.

TABLE 1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM DESCRIPTION (SAMPLE COLLECTION SPECIFIED BY AP 07B-004)

EXPOSURE PATHWAY/ SAMPLE TYPE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLE COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
AIRBORNE	**(See Figures 1 & 5)**		
Radioiodine and Particulates	Samples from six locations	Continuous sampler operation with sample collection weekly, or more frequently if required, by dust loading.	Analyze radioiodine canister weekly for I-131
	Samples from locations near the site boundary in three sectors having the highest calculated annual average D/Q and one supplemental location (Locations 2, 18, 37, or 49 on Figure 1)		Analyze particulate filter weekly for gross beta activity; perform quarterly gamma isotopic analysis composite (by location)
	Sample from the vicinity of a community having the highest calculated annual average D/Q (Location 32 on Figure 1, New Strawn)		
	Sample from a control location 9.5 to 18.5 miles distant in a low ranked D/Q sector (Location 53 on Figure 5)		

TABLE 1 (Cont.)

EXPOSURE PATHWAY/ SAMPLE TYPE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLE COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
DIRECT RADIATION	**(See Figures 2 & 5)**		
	39 routine monitoring stations with two or more dosimeters measuring dose continuously, placed as follows: An inner ring of stations, one in each meteorological sector 0-3 mile range from the site (Locations 1, 7, 9, 11-13, 18, 26, 27, 29, 30, 37, 38, 46, & 49 on Figure 2). An outer ring of stations, one in each meteorological sector in the 3 to 5 mile range from the site (Locations 4, 5, 15-17, 19, 22-25, 32, 34-36, 50 & 51 on Figure 2). Four sectors [A, B, G & J] contain an additional station (Locations 2, 8, 14 & 20). The balance of the stations to be placed in special interest areas such as population centers (Locations 23, 32 & 52), nearby residences	Quarterly	Gamma dose quarterly

TABLE 1 (Cont.)

EXPOSURE PATHWAY/ SAMPLE TYPE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLE COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
DIRECT RADIATION (cont.)	(many locations are near a residence), schools (Locations 23 & 52), Wilson Cadman Wildlife Education Area (44), CCL Public Fishing Area (46) and in two areas to serve as control stations 10-20 miles distant from the site (Locations 39 and 53 on Figure 5).		
WATERBORNE	(See Figure 3)		
Surface	One sample upstream (Location JRR on Figure 3) and one sample downstream (Location SP on Figure 3).	Monthly grab sample	Monthly gamma isotopic analysis and composite for tritium analysis quarterly
Ground	Samples from one or two sources only if likely to be affected. Indicator samples at locations hydrologically down-gradient of the site (Locations C-10, C-49, F-1, G-2, J-1 and J-2 on Figure 3); control sample at a location hydrologically upgradient of the site (Location B-12 on Figure 3).	Quarterly grab sample	Quarterly gamma isotopic analysis and tritium analysis

TABLE 1 (Cont.)

EXPOSURE PATHWAY/ SAMPLE TYPE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLE COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
WATERBORNE (cont.)			
Drinking	Sample of municipal water supply at an indicator location downstream of the Neosho River-Wolf Creek confluence (Location IO-DW on Figure 5); control sample from location upstream of the Neosho River-Wolf Creek confluence (Location BW-15 on Figure 3).	Monthly Composite	Monthly gamma isotopic analysis and gross beta analysis of composite sample. Quarterly tritium analysis of composites.
Shoreline Sediment	One sample from the vicinity of Coffey County Lake discharge cove (Location DC on Figure 3); control sample from John Redmond Reservoir (Location JRR on Figure 3).	Semiannually	Semiannual gamma isotopic analysis
INGESTION	(See Figures 4 & 5)		
Milk	Samples from milking animals at three indicator locations within 5 miles of the site having the highest dose potential (currently there are no locations producing milk for human consumption within 5 miles of the site); one sample from a control location greater than 10 miles from the site if indicator locations are sampled.	Semimonthly April to November; monthly December-March	Gamma isotopic analysis and I-131 analysis of each sample

TABLE 1 (Cont.)

EXPOSURE PATHWAY/ SAMPLE TYPE	NUMBER OF SAMPLES AND SAMPLE LOCATIONS	SAMPLE COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
INGESTION (cont.)			
Fish	Indicator samples of 1 to 3 recreationally important species from Coffey County Lake; control samples of similar species from John Redmond Reservoir spillway (Figure 4).	Semiannually	Gamma isotopic analysis on edible portions
Broadleaf Vegetation	Samples of available broadleaf vegetation from two indicator locations (using the criteria from the "Land Use Census" section) with highest calculated annual average D/Q (Locations A-3 and Q-6 and alternate locations B-1, H-2, N-1 and R-2 on Figure 4); sample of similar broadleaf vegetation from a control location 9.5 to 18.5 miles distant in a low ranked D/Q sector (Location D-2 on Figure 5).	Monthly when available	Gamma isotopic analysis on edible portions
Irrigated Crops	Sample of crops irrigated with water from the Neosho River downstream of the Neosho River - Wolf Creek confluence (locations will vary from year to year, e.g., Location NR-D1 and NR-D2 on Figure 5).	At time of harvest	Gamma isotopic analysis on edible portions

TABLE 2
SAMPLE LOCATION IDENTIFIERS, DISTANCES (Miles) AND DIRECTIONS (Sectors)

Sample Type	Location Identifier	Distance from Reactor	Direction	Sector
Air Particulates and Radioiodine	2	2.7	N	A
	18	3.0	SSE	H
	32	3.1	WNW	P
	37	2.0	NNW	R
	49	0.8	NNE	B
	53	10.8	ENE	D
Dosimeters	1	1.4	N	A
	2	2.7	N	A
	4	4.0	NNE	B
	5	4.1	NE	C
	7	2.1	NE	C
	8	1.7	NNE	B
	9	2.0	ENE	D
	11	1.7	E	E
	12	1.9	ESE	F
	13	1.6	SE	G
	14	2.5	SE	G
	15	4.6	ESE	F
	16	4.3	E	E
	17	3.7	SE	G
	18	3.0	SSE	H
	19	3.9	SSE	H
	20	3.3	S	J
	22	3.9	SSW	K
	23	4.3	SW	L
	24	4.1	WSW	M
	25	3.4	W	N
	26	2.4	WSW	M
	27	2.2	SW	L
	29	2.7	SSW	K
	30	2.5	W	N
	32	3.1	WNW	P
	34	4.4	NW	Q
	35	4.6	NNW	R
	36	4.2	N	A
	37	2.0	NNW	R
	38	1.2	NW	Q
	39	13.1	N	A
	41	0.8	NNW	R
	42	0.8	SSE	H
	43	0.7	WNW	P
	44	3.0	NNW	R

TABLE 2 (Cont.)
SAMPLE LOCATION IDENTIFIERS, DISTANCES (Miles) AND DIRECTIONS (Sectors)

Sample Type	Location Identifier	Distance from Reactor	Direction	Sector
Dosimeters	46	1.6	WNW	P
	49	0.8	NNE	B
	50	3.6	ENE	D
	51	4.3	S	J
	52	3.6	SW	L
	53	10.8	ENE	D
Surface Water	JRR	3.7	W	N
	SP	3.2	SSE	H
Ground Water	B-12	1.9	NNE	B
	C-10	2.7	W	N
	C-49/L-49	2.8	SW	L
	F-1	2.5	ESE	F
	G-2	3.6	SE	G
	J-1	3.8	S	J
	J-2	4.3	S	J
Drinking Water	BW-15	3.9	SW	L
	IO-DW	26.1	SSE	H
Shoreline Sediment	DC	0.8	WNW	P
	EEA	3.0	NNW	R
	JRR	3.6	W	N
Fish	CCL	0.6	E to NNW	E to R
	JRR	3.7	W	N
Food/Garden	A-3	2.6	N	A
	B-1	0.8	NNE	B
	D-2	14.8	ENE	D
	H-2	3.0	SSE	H
Crops	NR-D1	8.9	S	J
	NR-D2	11.5	S	J
	NR-U1	4.0	SSW	K
Bottom Sediment	DC	0.9	WNW	P
	EEA	3.0	NNW	R
	ESW	0.5	E	E
	JRR	3.7	W	N
	MUDS	1.5	WNW	P
	SC	0.8	NNW	R
	UHS	0.6	E	E
Aquatic Vegetation	EEA	3.0	NNW	R
	MUDS	1.5	WNW	P

TABLE 2 (Cont.)
SAMPLE LOCATION IDENTIFIERS, DISTANCES (Miles) AND DIRECTIONS (Sectors)

Sample Type	Location Identifier	Distance from Reactor	Direction	Sector
Terrestrial Vegetation	EEA	3.0	NNW	R
Soil	EEA	3.0	NNW	R
Meat (Deer)	R2.0	1.0	NW	Q

TABLE 3
OSL Dosimeter Results
(mR/Standardized 90-day Quarter)

Location	Qtr. 1 (mR)	Qtr. 2 (mR)	Qtr. 3 (mR)	Qtr. 4 (mR)	Total Annual Exposure (mR)
1	21.8	18.3	19.4	16.5	76.0
2	17.6	17.4	18.3	18.0	71.3
4	20.4	20.4	19.7	21.0	81.5
5	16.4	17.3	16.7	18.5	68.9
7	18.2	16.5	18.2	17.0	69.9
8	20.2	20.1	18.7	22.5	81.5
9	15.9	17.6	14.7	14.6	62.8
11	18.7	19.0	18.2	21.5	77.4
12	18.8	19.5	19.2	17.5	75.0
13	19.3	19.5	18.1	21.5	78.4
14	20.3	19.0	17.2	19.5	76.0
15	17.4	18.1	17.2	20.5	73.2
16	18.3	16.7	16.7	20.5	72.2
17	18.8	16.7	16.7	16.5	68.7
18	17.4	20.9	16.7	17.0	72.0
19	19.3	19.3	21.9	21.0	81.5
20	18.8	19.8	17.5	19.5	75.6
22	20.8	20.6	17.5	21.1	80.0
23	18.1	18.6	16.9	19.5	73.1
24	20.9	18.1	17.9	19.8	76.7
25	14.6	14.3	15.9	15.6	60.4
26	17.4	15.7	16.5	16.9	66.5
27	18.6	16.9	19.4	19.3	74.2
29	15.9	15.7	13.3	16.9	61.8
30	20.4	17.8	16.0	19.3	73.5
32	16.6	17.5	15.9	17.8	67.8
34	19.4	21.0	18.2	20.0	78.6
35	20.0	17.3	17.7	20.5	75.5
36	16.4	17.2	18.1	21.0	72.7
37	15.6	18.2	17.4	17.5	68.7
38	20.6	20.0	21.9	22.0	84.5
39	16.4	18.1	17.1	17.0	68.6
41	16.1	17.4	18.1	17.0	68.6
42	13.1	11.8	11.8	11.6	48.3
43	10.5	11.7	11.8	13.7	47.7
44	19.1	20.0	17.9	19.0	76.0
46	17.6	18.2	17.9	19.6	73.3
49	15.4	15.8	17.9	14.0	63.1
50	20.4	19.8	19.7	22.0	81.9
51	19.8	19.0	19.9	17.5	76.2
52	18.9	20.9	17.9	20.3	78.0
53	19.7	19.0	21.1	21.5	81.3

FIGURE 1

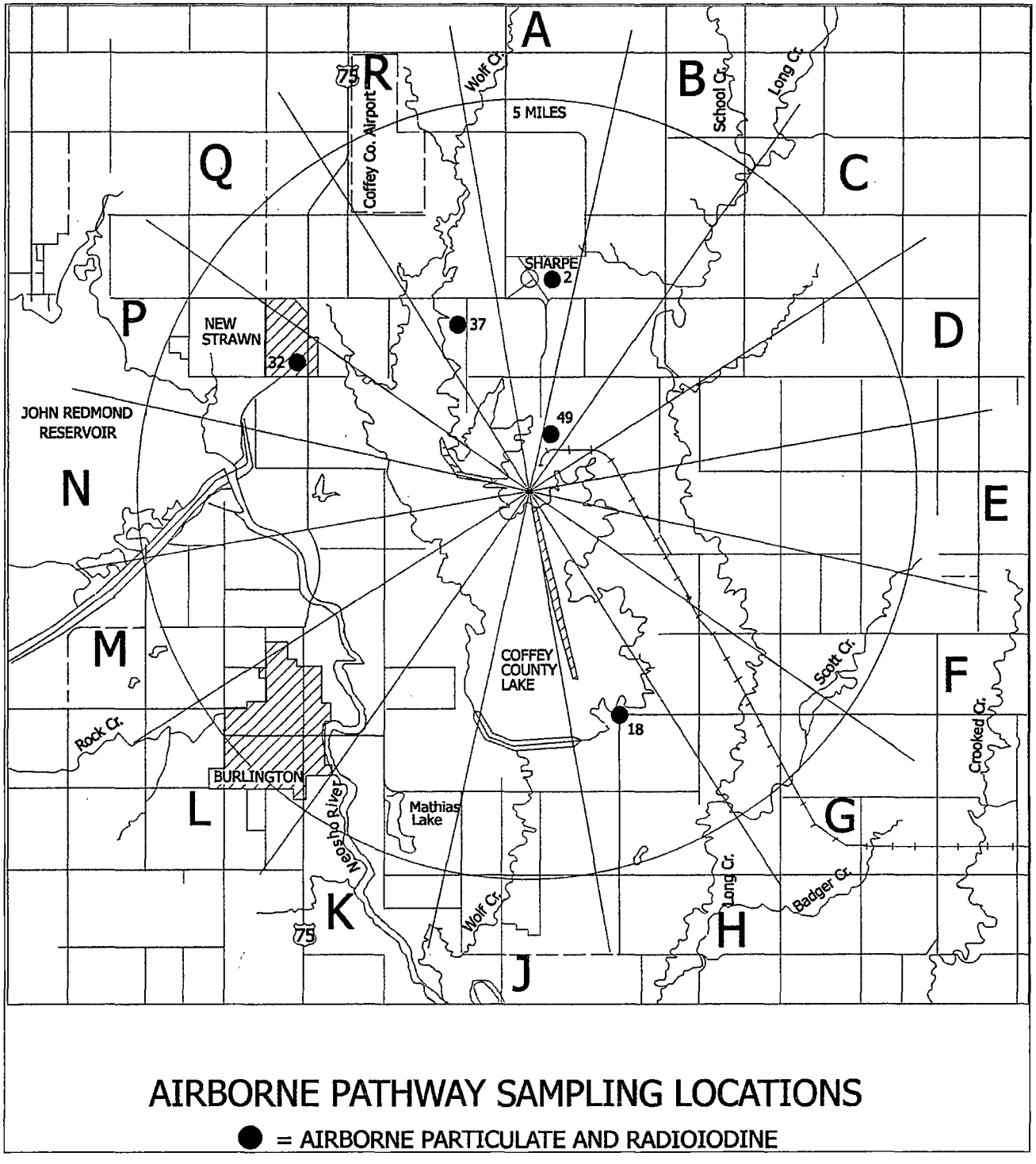
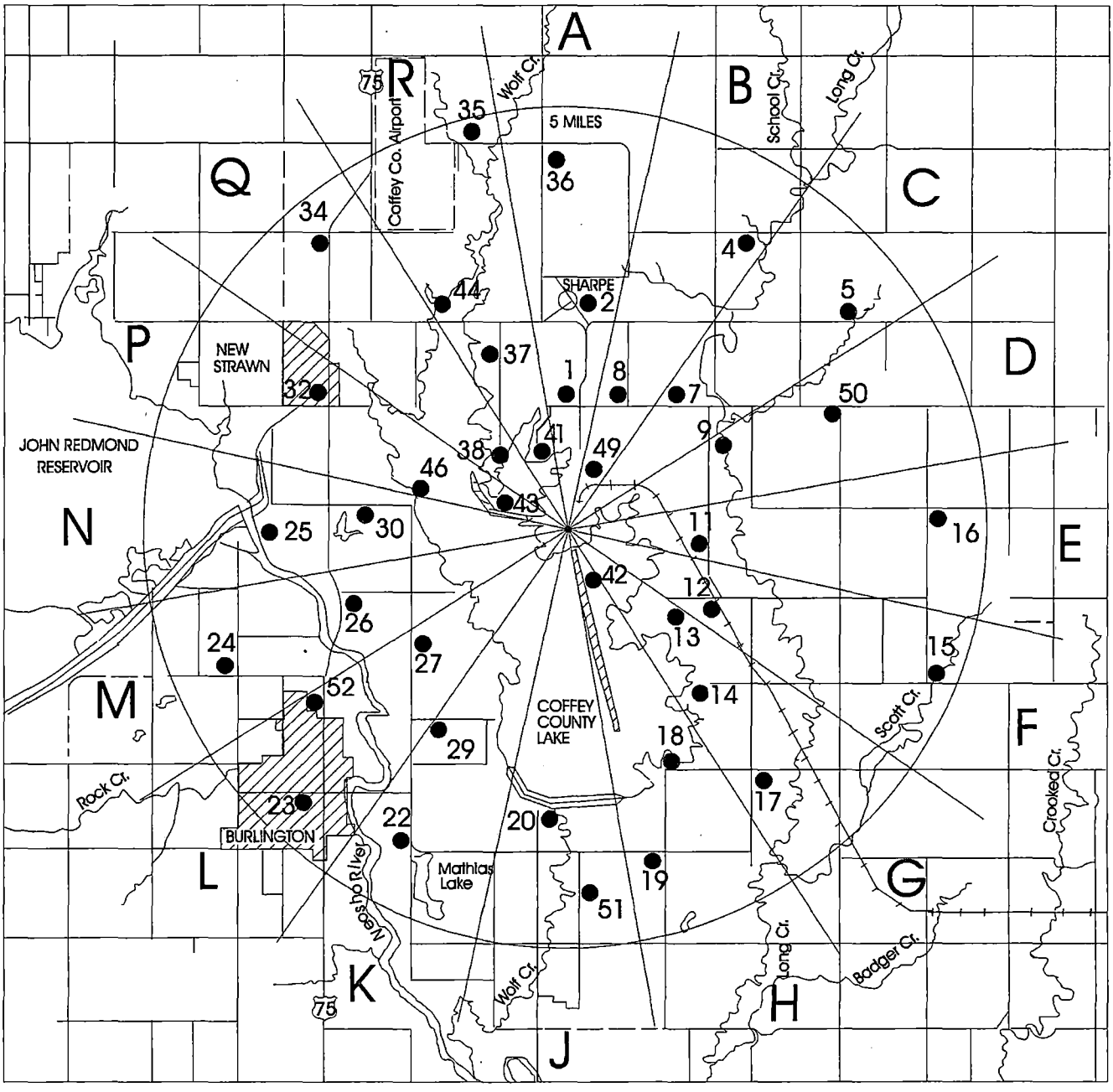

A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
5 MILES
Coffey Co. Airport
Wolf Cr.
School Cr.
Long Cr.
SHARPE
2
37
NEW STRAWN
32
JOHN REDMOND RESERVOIR
49
COFFEY COUNTY LAKE
18
Scott Cr.
Crooked Cr.
Rock Cr.
BURLINGTON
Neosho River
Mathias Lake
Badger Cr.
75
AIRBORNE PATHWAY SAMPLING LOCATIONS
● = AIRBORNE PARTICULATE AND RADIOIODINE

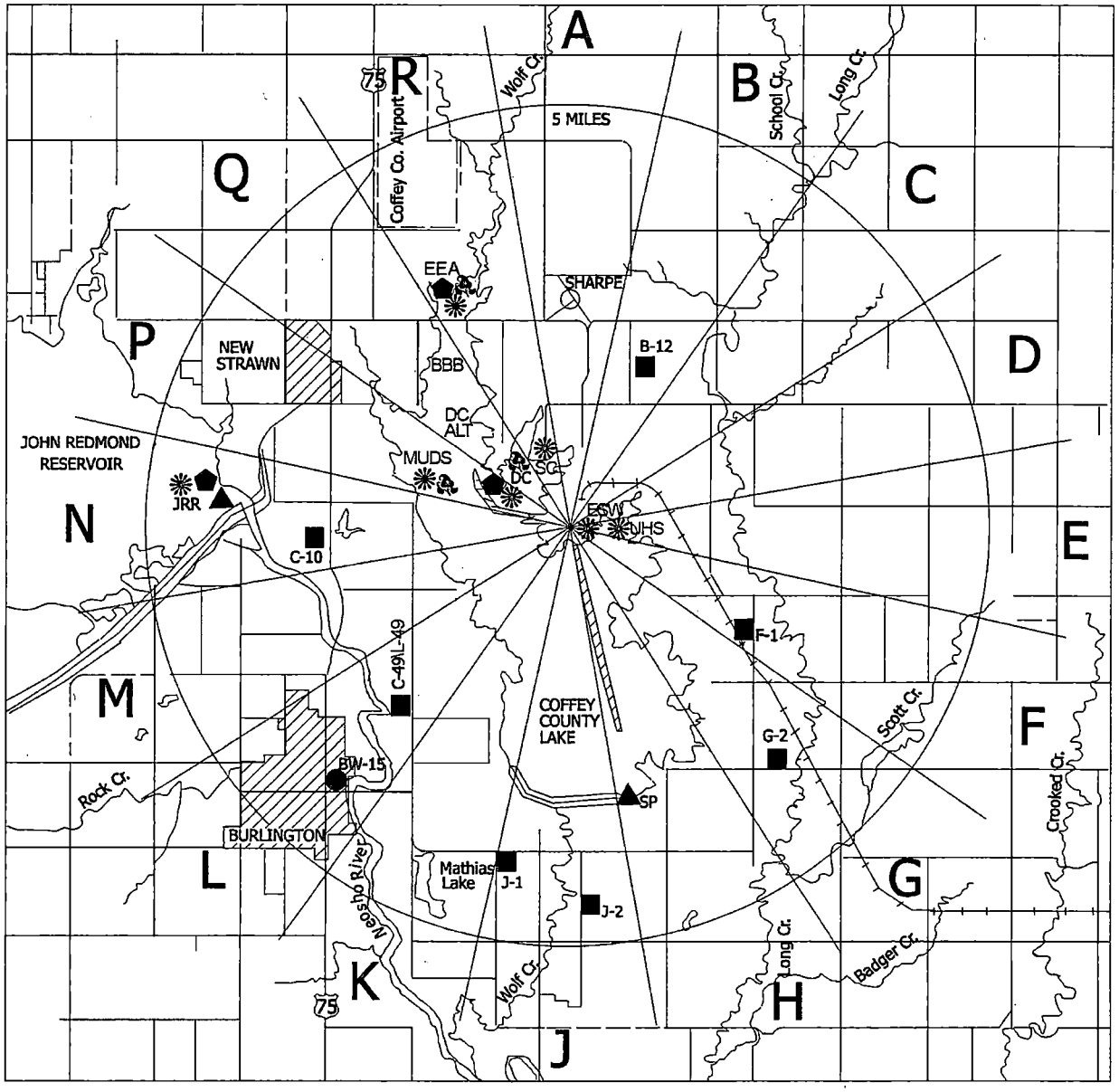
FIGURE 2



DIRECT RADIATION PATHWAY SAMPLING LOCATIONS

● = DOSIMETER LOCATIONS

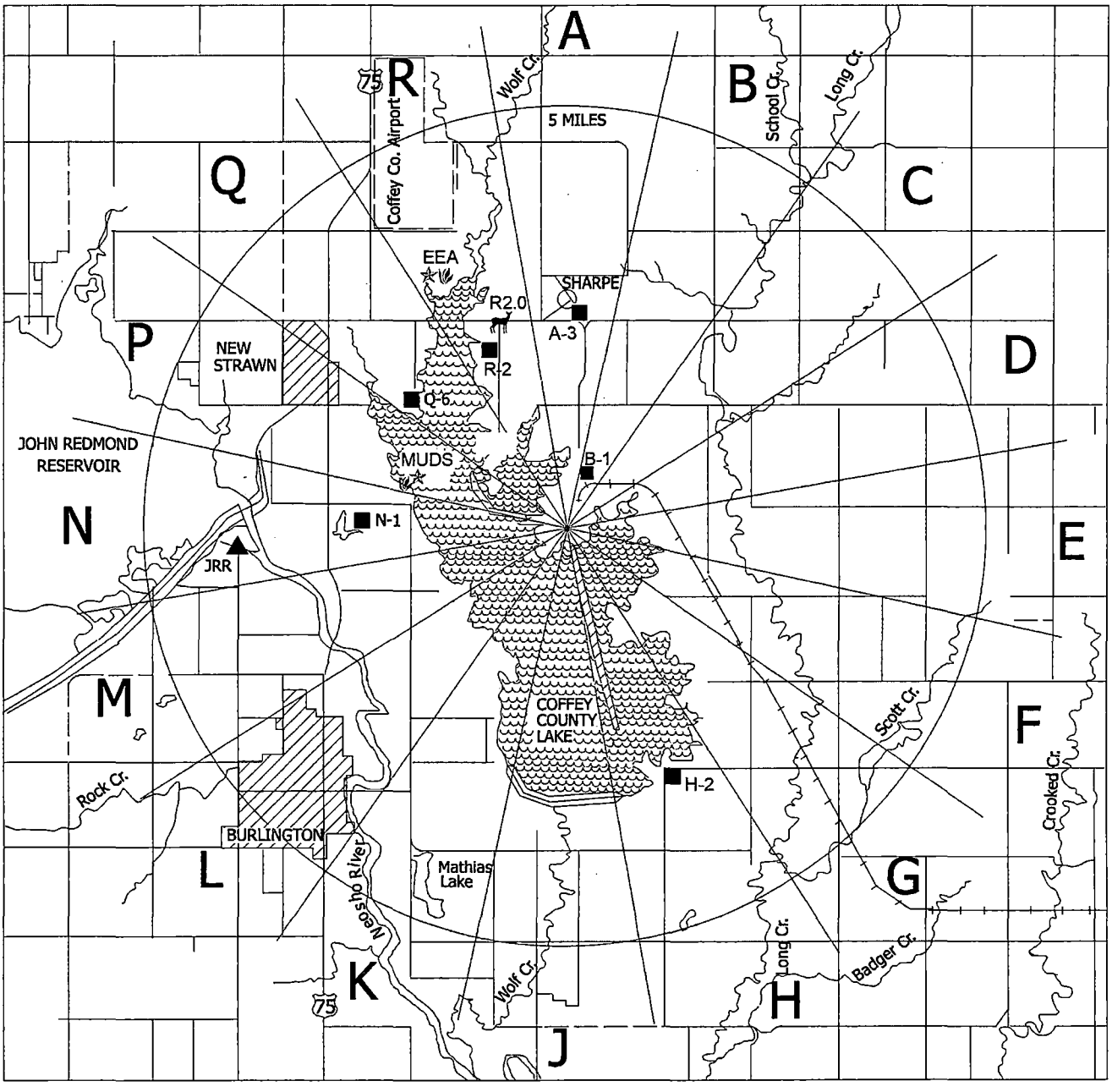
FIGURE 3



WATERBORNE PATHWAY SAMPLING LOCATIONS

● = DRINKING WATER
▲ = SURFACE WATER
■ = GROUND WATER
⬟ = SHORELINE SEDIMENT
✳ = BOTTOM SEDIMENT
= AQUATIC VEGETATION

FIGURE 4



INGESTION PATHWAY SAMPLING LOCATIONS

▲ = FISH (JRR)
■ = BROADLEAF VEGETATION
= SOIL
= FISH (CCL)
= TERRESTRIAL VEGETATION
= DEER

FIGURE 5

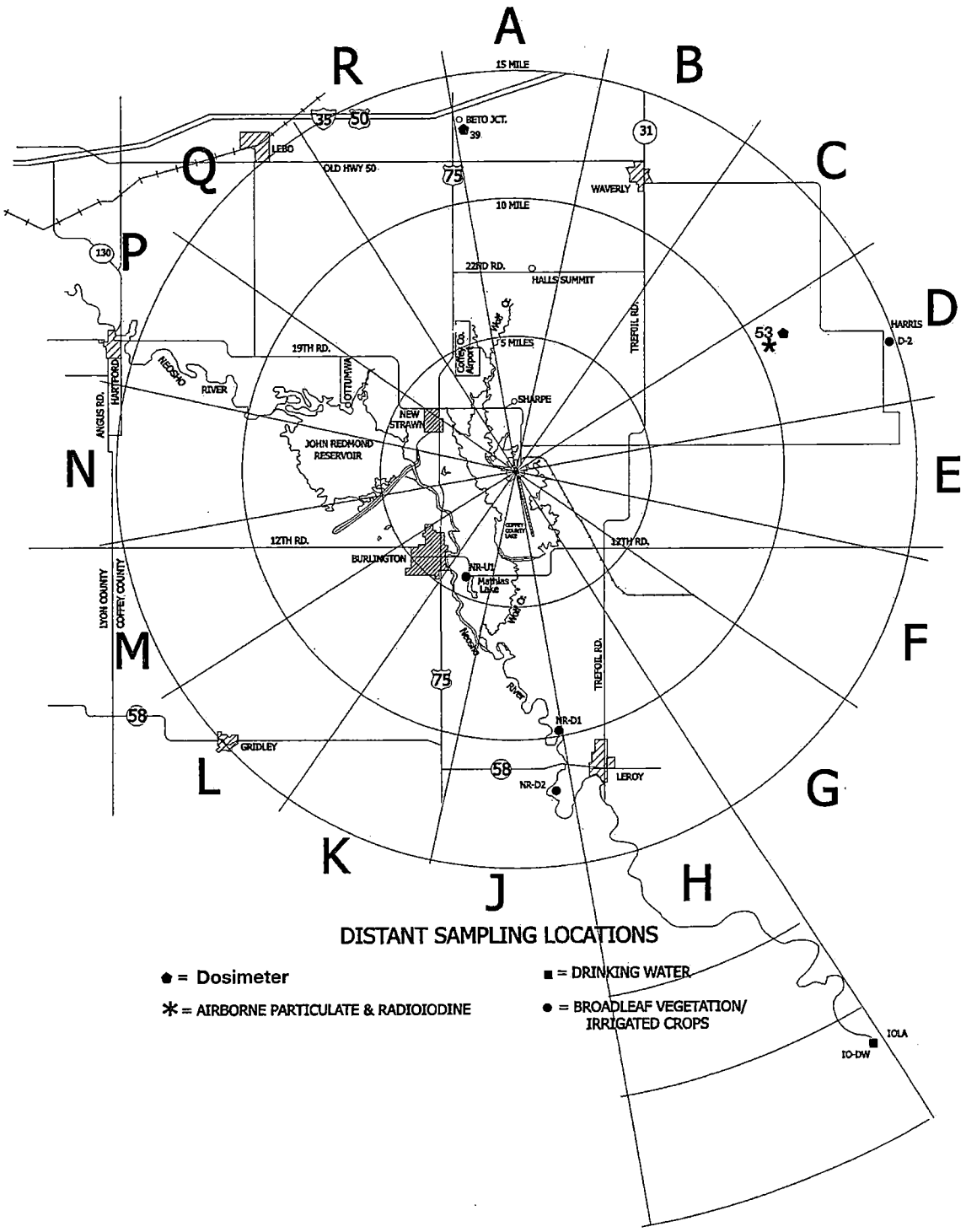

A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
15 MILE
10 MILE
5 MILES
BETO JCT.
LEBO
OLD HWY 50
WAVERLY
22ND RD.
HALLS SUMMIT
HARRIS
D-2
53
19TH RD.
NEOSHO RIVER
OTTUMWA
NEW STRAWN
SHARPE
JOHN REDMOND RESERVOIR
ANGUS RD.
HARTFORD
LYON COUNTY
COFFEY COUNTY
12TH RD.
BURLINGTON
AIR-U1
Matthias Lake
TREFOIL RD.
NR-D1
NR-D2
GRIDLEY
LEROY
IOLA
IO-DW
DISTANT SAMPLING LOCATIONS
● = Dosimeter
✱ = AIRBORNE PARTICULATE & RADIOIODINE
■ = DRINKING WATER
● = BROADLEAF VEGETATION/ IRRIGATED CROPS

CHART 1

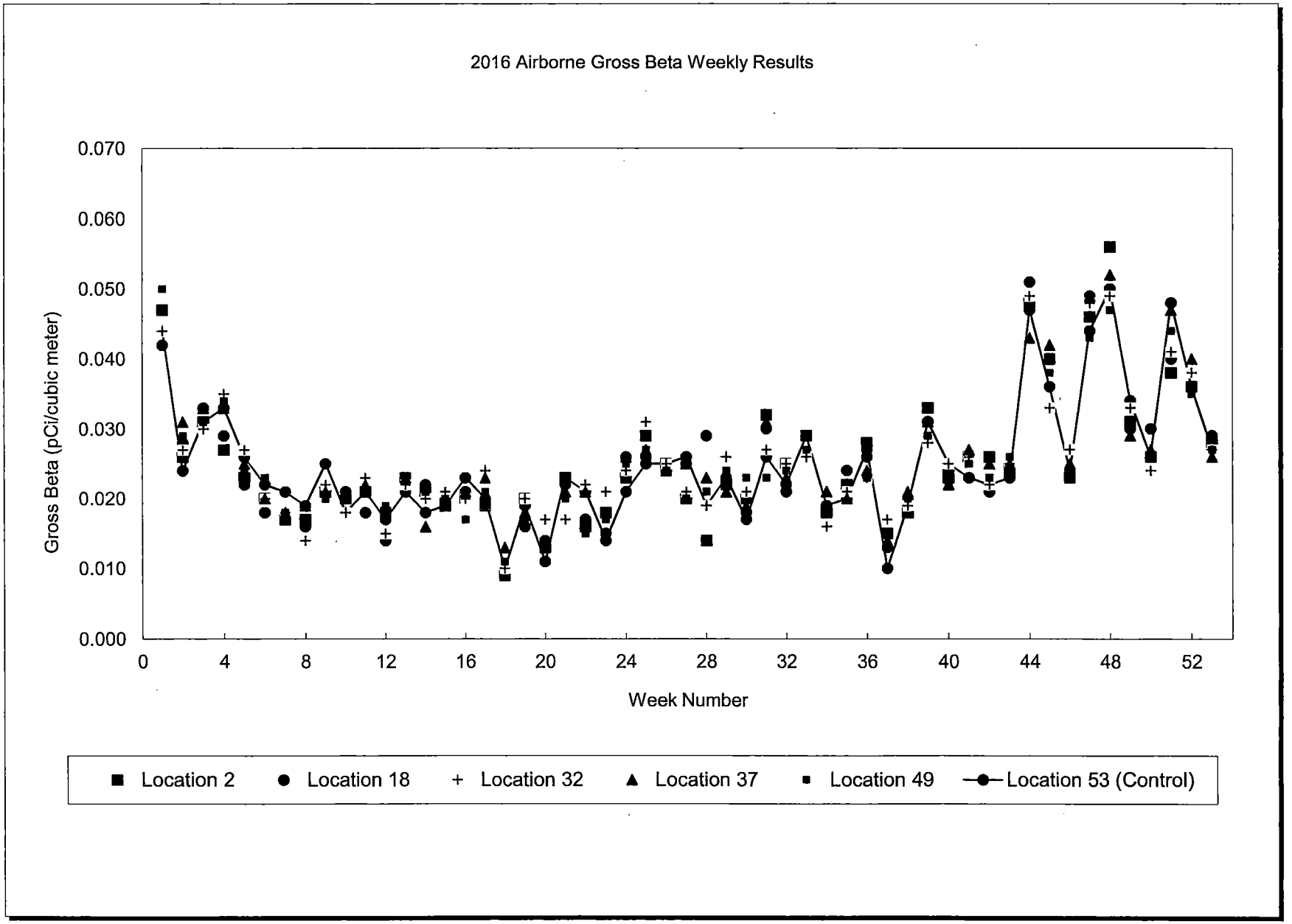

2016 Airborne Gross Beta Weekly Results
Gross Beta (pCi/cubic meter)
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0
4
8
12
16
20
24
28
32
36
40
44
48
52
Week Number
Location 2
Location 18
Location 32
Location 37
Location 49
Location 53 (Control)

CHART 2

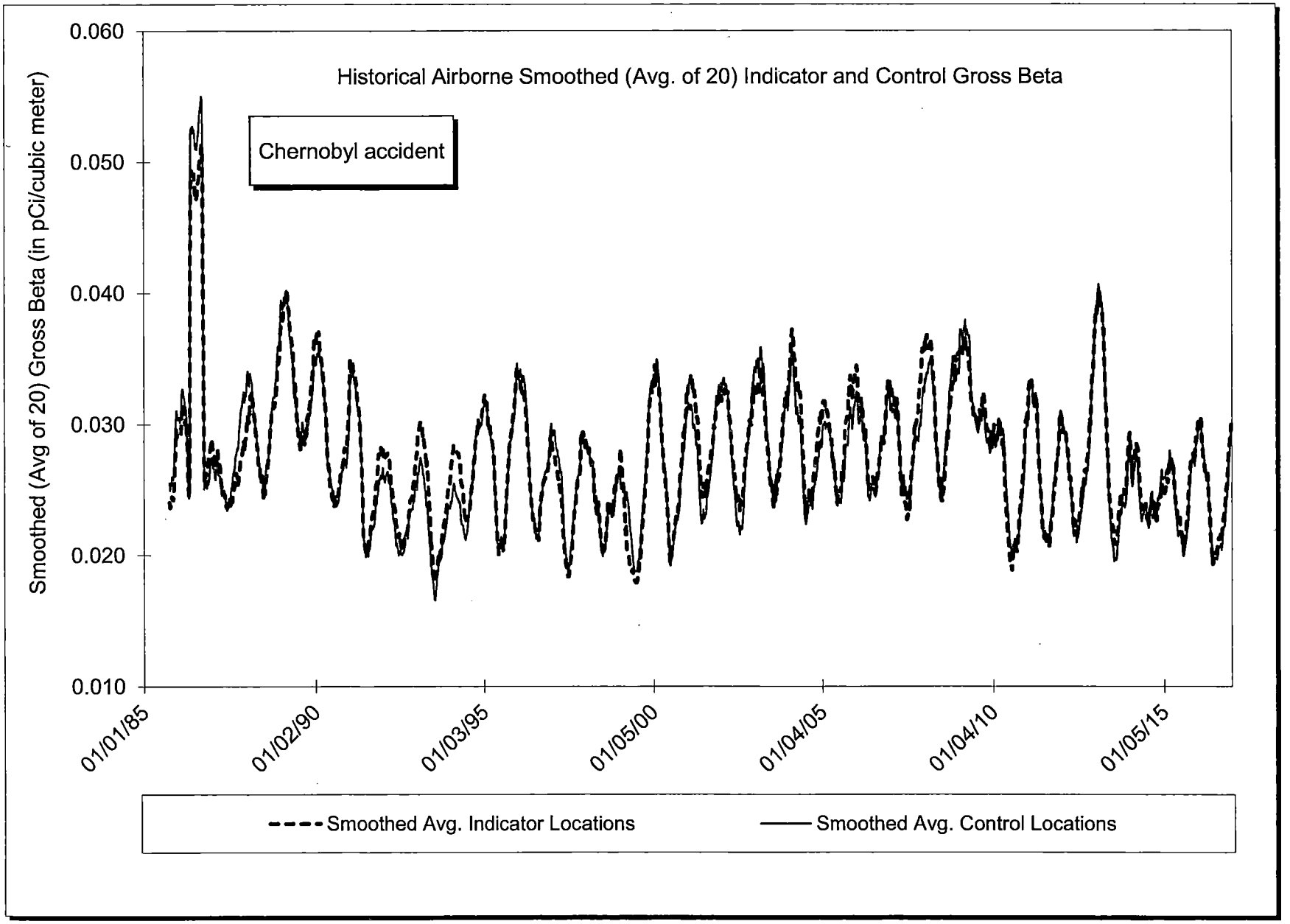

Historical Airborne Smoothed (Avg. of 20) Indicator and Control Gross Beta
Chernobyl accident
Smoothed (Avg of 20) Gross Beta (in pCi/cubic meter)
0.060
0.050
0.040
0.030
0.020
0.010
01/01/85
01/02/90
01/03/95
01/05/00
01/04/05
01/04/10
01/05/15
Smoothed Avg. Indicator Locations
Smoothed Avg. Control Locations

CHART 3

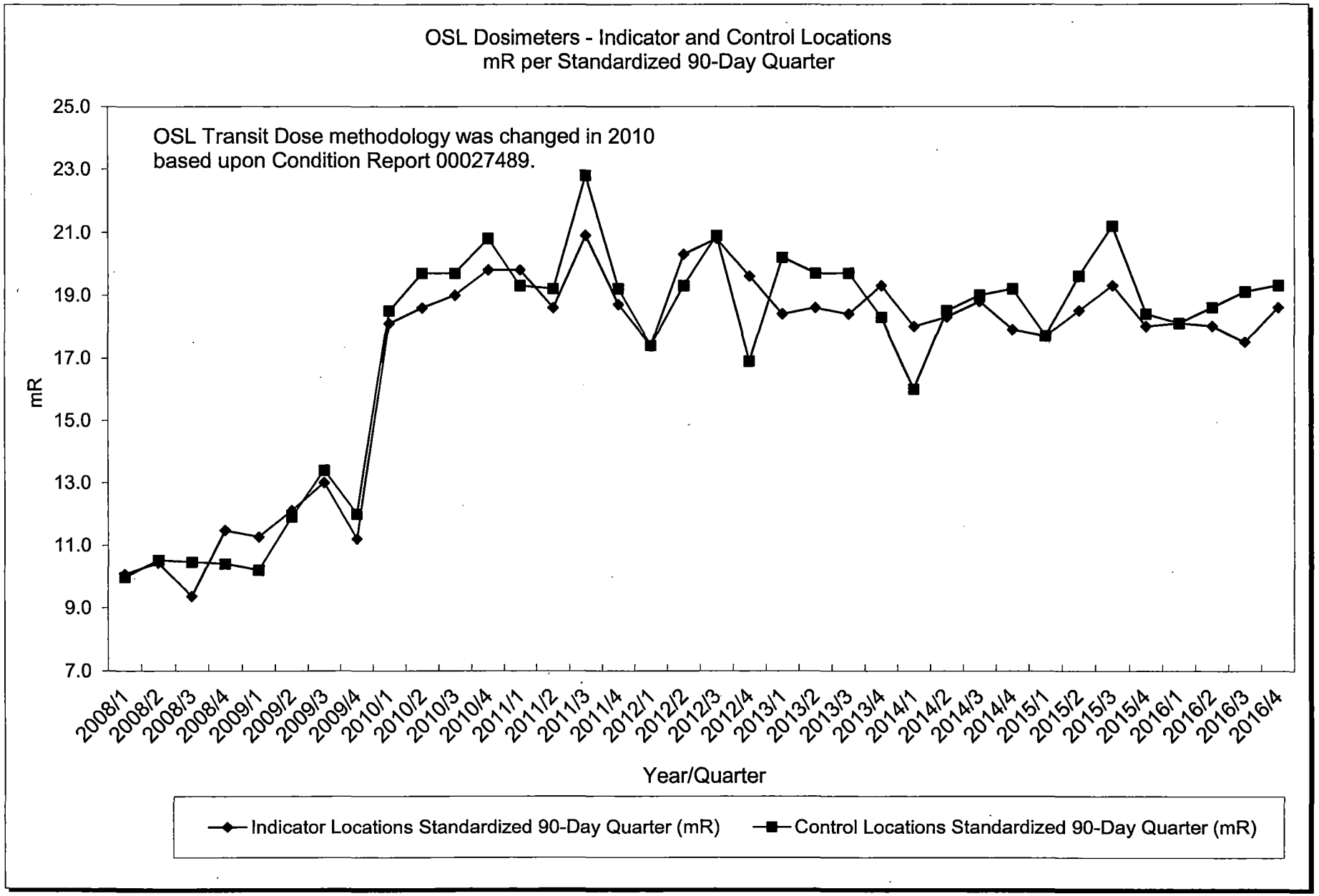

OSL Dosimeters - Indicator and Control Locations
mR per Standardized 90-Day Quarter
OSL Transit Dose methodology was changed in 2010
based upon Condition Report 00027489.
mR
25.0
23.0
21.0
19.0
17.0
15.0
13.0
11.0
9.0
7.0
2008/1
2008/2
2008/3
2008/4
2009/1
2009/2
2009/3
2009/4
2010/1
2010/2
2010/3
2010/4
2011/1
2011/2
2011/3
2011/4
2012/1
2012/2
2012/3
2012/4
2013/1
2013/2
2013/3
2013/4
2014/1
2014/2
2014/3
2014/4
2015/1
2015/2
2015/3
2015/4
2016/1
2016/2
2016/3
2016/4
Year/Quarter
Indicator Locations Standardized 90-Day Quarter (mR)
Control Locations Standardized 90-Day Quarter (mR)

CHART 4

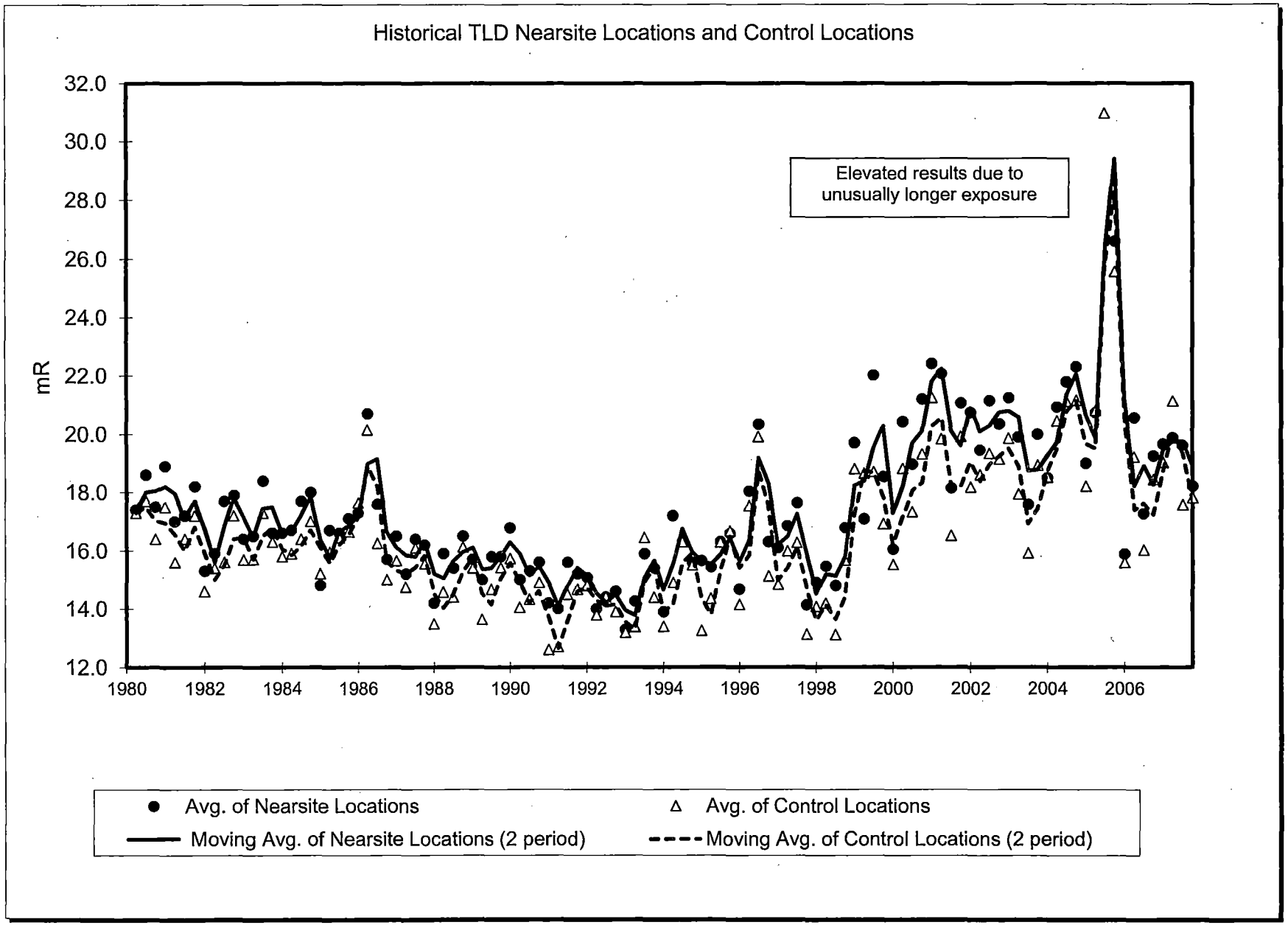

Historical TLD Nearsite Locations and Control Locations
mR
32.0
30.0
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Elevated results due to unusually longer exposure
Avg. of Nearsite Locations
Avg. of Control Locations
Moving Avg. of Nearsite Locations (2 period)
Moving Avg. of Control Locations (2 period)

CHART 5

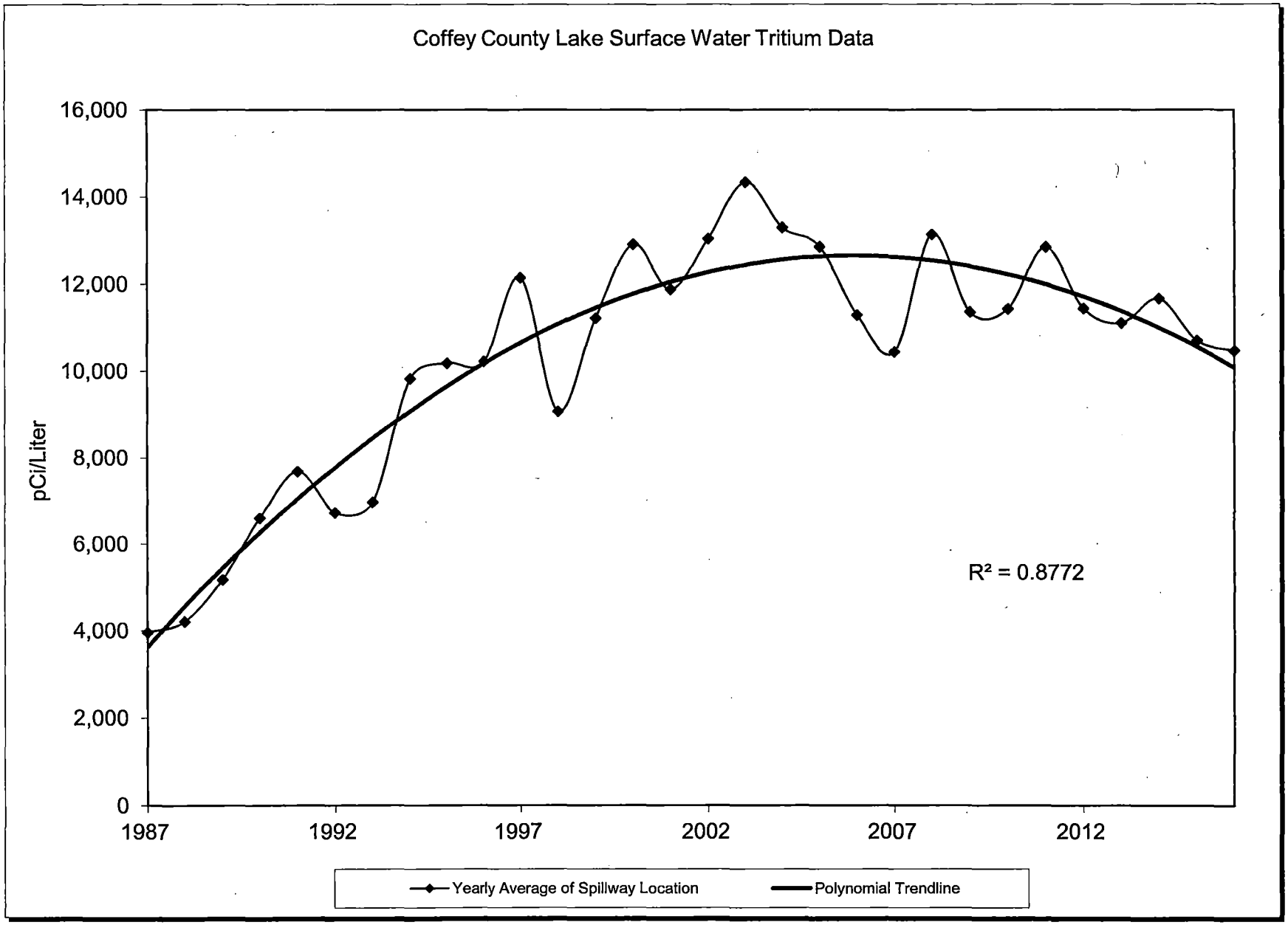

Coffey County Lake Surface Water Tritium Data
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
pCi/Liter
1987
1992
1997
2002
2007
2012
R² = 0.8772
Yearly Average of Spillway Location
Polynomial Trendline

CHART 6

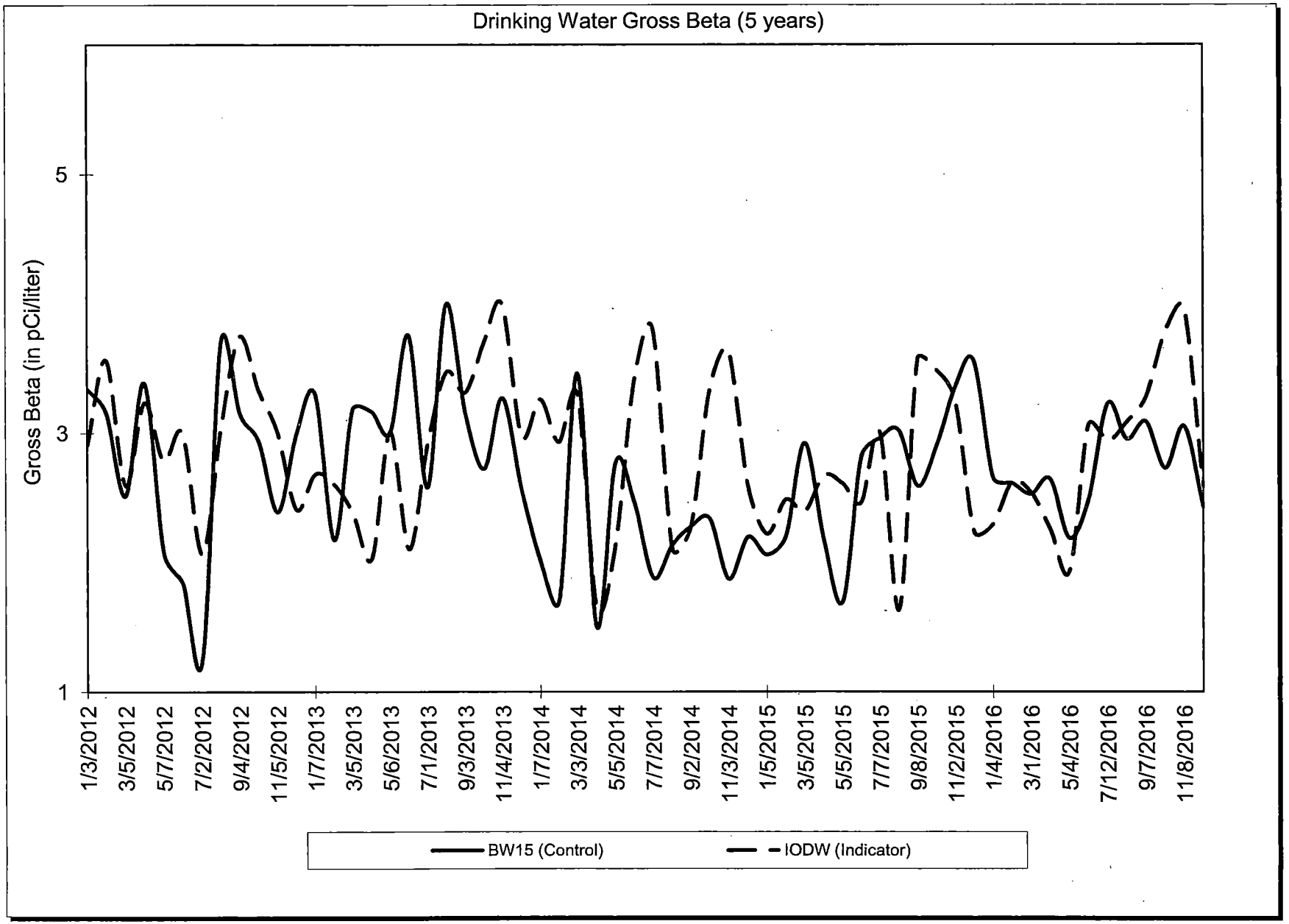
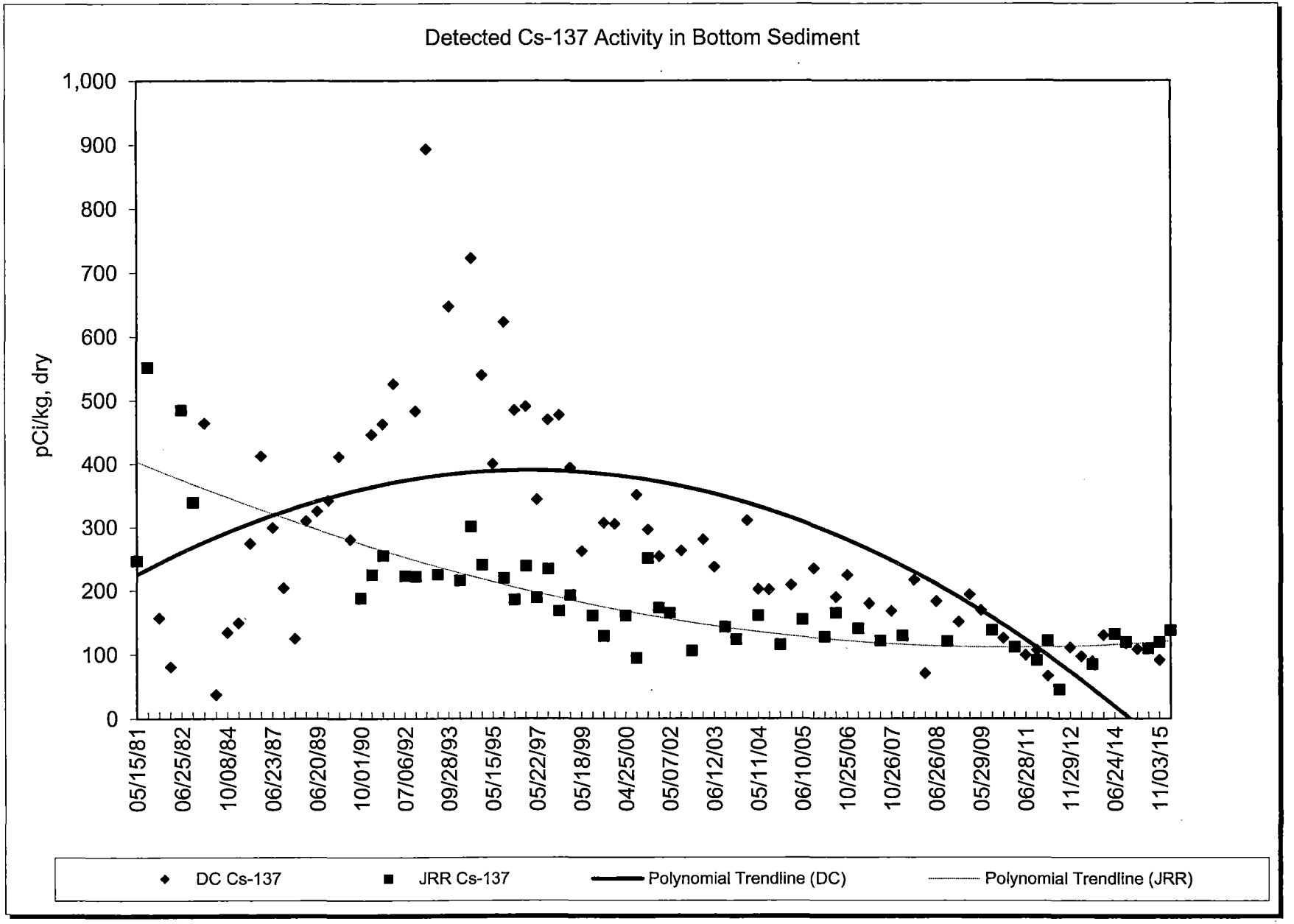

Drinking Water Gross Beta (5 years)
Gross Beta (in pCi/liter)
5
3
1
1/3/2012
3/5/2012
5/7/2012
7/2/2012
9/4/2012
11/5/2012
1/7/2013
3/5/2013
5/6/2013
7/1/2013
9/3/2013
11/4/2013
1/7/2014
3/3/2014
5/5/2014
7/7/2014
9/2/2014
11/3/2014
1/5/2015
3/5/2015
5/5/2015
7/7/2015
9/8/2015
11/2/2015
1/4/2016
3/1/2016
5/4/2016
7/12/2016
9/7/2016
11/8/2016
BW15 (Control)
IODW (Indicator)

CHART 7


Detected Cs-137 Activity in Bottom Sediment
pCi/kg, dry
1,000
900
800
700
600
500
400
300
200
100
0
05/15/81
06/25/82
10/08/84
06/23/87
06/20/89
10/01/90
07/06/92
09/28/93
05/15/95
05/22/97
05/18/99
04/25/00
05/07/02
06/12/03
05/11/04
06/10/05
10/25/06
10/26/07
06/26/08
05/29/09
06/28/11
11/29/12
06/24/14
11/03/15
DC Cs-137
JRR Cs-137
Polynomial Trendline (DC)
Polynomial Trendline (JRR)

ATI Environmental, Inc.
Midwest Laboratory
700 Landwehr Road • Northbrook, IL 60062-2310
phone (847) 564-0700 • fax (847) 564-4517

APPENDIX A

INTERLABORATORY COMPARISON PROGRAM RESULTS

NOTE: Environmental Inc., Midwest Laboratory participates in intercomparison studies administered by Environmental Resources Associates, and serves as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. Results are reported in Appendix A. TLD Intercomparison results, in-house spikes, blanks, duplicates and mixed analyte performance evaluation program results are also reported. Appendix A is updated four times a year; the complete Appendix is included in March, June, September and December monthly progress reports only.

January, 2016 through December, 2016

Appendix A

Interlaboratory Comparison Program Results

Environmental, Inc., Midwest Laboratory has participated in interlaboratory comparison (crosscheck) programs since the formulation of it's quality control program in December 1971. These programs are operated by agencies which supply environmental type samples containing concentrations of radionuclides known to the issuing agency but not to participant laboratories. The purpose of such a program is to provide an independent check on a laboratory's analytical procedures and to alert it of any possible problems.

Participant laboratories measure the concentration of specified radionuclides and report them to the issuing agency. Several months later, the agency reports the known values to the participant laboratories and specifies control limits. Results consistently higher or lower than the known values or outside the control limits indicate a need to check the instruments or procedures used.

Results in Table A-1 were obtained through participation in the RAD PT Study Proficiency Testing Program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.

Table A-2 lists results for thermoluminescent dosimeters (TLDs), via irradiation and evaluation by the University of Wisconsin-Madison Radiation Calibration Laboratory at the University of Wisconsin Medical Radiation Research Center.

Table A-3 lists results of the analyses on in-house "spiked" samples for the past twelve months. All samples are prepared using NIST traceable sources. Data for previous years available upon request.

Table A-4 lists results of the analyses on in-house "blank" samples for the past twelve months. Data for previous years available upon request.

Table A-5 lists REMP specific analytical results from the in-house "duplicate" program for the past twelve months. Acceptance is based on the difference of the results being less than the sum of the errors. Complete analytical data for duplicate analyses is available upon request.

The results in Table A-6 were obtained through participation in the Mixed Analyte Performance Evaluation Program.

Results in Table A-7 were obtained through participation in the MRAD PT Study Proficiency Testing Program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurement Laboratory Quality Assessment Program (EML).

Attachment A lists the laboratory precision at the 1 sigma level for various analyses. The acceptance criteria in Table A-3 is set at ± 2 sigma.

Out-of-limit results are explained directly below the result.

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

LABORATORY PRECISION: ONE STANDARD DEVIATION VALUES FOR VARIOUS ANALYSES[a]

Analysis	Level	One standard deviation for single determination
Gamma Emitters	5 to 100 pCi/liter or kg	5.0 pCi/liter
	> 100 pCi/liter or kg	5% of known value
Strontium-89[b]	5 to 50 pCi/liter or kg	5.0 pCi/liter
	> 50 pCi/liter or kg	10% of known value
Strontium-90[b]	2 to 30 pCi/liter or kg	5.0 pCi/liter
	> 30 pCi/liter or kg	10% of known value
Potassium-40	≥ 0.1 g/liter or kg	5% of known value
Gross alpha	≤ 20 pCi/liter	5.0 pCi/liter
	> 20 pCi/liter	25% of known value
Gross beta	≤ 100 pCi/liter	5.0 pCi/liter
	> 100 pCi/liter	5% of known value
Tritium	≤ 4,000 pCi/liter	$\pm 1\sigma = 169.85 \times (\text{known})^{0.0933}$
	> 4,000 pCi/liter	10% of known value
Radium-226,-228	≥ 0.1 pCi/liter	15% of known value
Plutonium	≥ 0.1 pCi/liter, gram, or sample	10% of known value
Iodine-131, Iodine-129[b]	≤ 55 pCi/liter	6 pCi/liter
	> 55 pCi/liter	10% of known value
Uranium-238, Nickel-63[b] Technetium-99[b]	≤ 35 pCi/liter	6 pCi/liter
	> 35 pCi/liter	15% of known value
Iron-55[b]	50 to 100 pCi/liter	10 pCi/liter
	> 100 pCi/liter	10% of known value
Other Analyses [b]	---	20% of known value

[a] From EPA publication, "Environmental Radioactivity Laboratory Intercomparison Studies Program", Fiscal Year, 1981-1982, EPA-600/4-81-004.

[b] Laboratory limit.

TABLE A-1. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a]. RAD study

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result	ERA Result	Control Limits	Acceptance
ERW-1392	4/4/2016	Sr-89	43.5 ± 4.3	48.2	37.8 - 55.6	Pass
ERW-1392	4/4/2016	Sr-90	27.5 ± 1.9	28.5	20.7 - 33.1	Pass
ERW-1394 [b]	4/4/2016	Ba-133	65.2 ± 3.8	58.8	48.7 - 64.9	Fail
ERW-1394 [c]	4/4/2016	Ba-133	57.8 ± 5.3	58.8	48.7 - 64.9	Pass
ERW-1394	4/4/2016	Cs-134	43.7 ± 3.0	43.3	34.60 - 47.60	Pass
ERW-1394	4/4/2016	Cs-137	86.1 ± 5.3	78.4	70.60 - 88.90	Pass
ERW-1394	4/4/2016	Co-60	108 ± 44	102	91.8 - 114	Pass
ERW-1394	4/4/2016	Zn-65	240 ± 13	214	193 - 251	Pass
ERW-1397	4/4/2016	Gr. Alpha	52.0 ± 2.2	62.7	32.9 - 77.8	Pass
ERW-1397	4/4/2016	Gr. Beta	33.9 ± 1.2	39.2	26.0 - 46.7	Pass
ERW-1400	4/4/2016	I-131	24.7 ± 0.6	26.6	22.1 - 31.3	Pass
ERW-1402	4/4/2016	Ra-226	15.6 ± 0.5	15.2	11.3 - 17.4	Pass
ERW-1402	4/4/2016	Ra-228	5.28 ± 0.76	5.19	3.12 - 6.93	Pass
ERW-1403	4/4/2016	Uranium	4.02 ± 0.42	4.64	3.39 - 5.68	Pass
ERW-1405	4/4/2016	H-3	8150 ± 270	7840	6790 - 8620	Pass
SPW-2845	7/7/2015	Ba-133	60.3 ± 5.7	64.7	53.9 - 71.2	Pass
SPW-2845	7/7/2015	Cs-134	48.8 ± 9.3	50.1	40.3 - 55.1	Pass
SPW-2845	7/7/2015	Cs-137	101 ± 8	89.8	80.8 - 101	Pass
SPW-2845	7/7/2015	Co-60	65.1 ± 5.8	59.9	53.9 - 68.4	Pass
SPW-2845	7/7/2015	Zn-65	288 ± 29	265	238 - 310	Pass
ERW-3485	7/11/2016	Sr-89	43.3 ± 6.5	53.3	42.3 - 60.9	Pass
ERW-3485	7/11/2016	Sr-90	39.0 ± 2.8	39.2	28.8 - 45.1	Pass
ERW-3487	7/11/2016	Ba-133	83.3 ± 4.9	82.9	69.7 - 91.2	Pass
ERW-3487	7/11/2016	Cs-134	62.5 ± 4.4	65.3	53.1 - 71.8	Pass
ERW-3487	7/11/2016	Cs-137	98.1 ± 5.6	95.2	85.7 - 107	Pass
ERW-3487	7/11/2016	Co-60	122 ± 5	117	105 - 131	Pass
ERW-3487	7/11/2016	Zn-65	124 ± 9	113	102 - 134	Pass
ERW-3490	7/11/2016	Gr. Alpha	46.6 ± 2.2	48.1	25.0 - 60.5	Pass
ERW-3490	7/11/2016	Gr. Beta	26.8 ± 1.1	28.6	18.2 - 36.4	Pass
ERW-3492	7/11/2016	I-131	23.7 ± 1.0	24.9	20.7 - 29.5	Pass
ERW-3493	7/11/2016	Ra-226	12.9 ± 0.4	12.3	9.2 - 14.2	Pass
ERW-3493	7/11/2016	Ra-228	5.8 ± 0.8	5.8	3.5 - 7.6	Pass
ERW-3493	7/11/2016	Uranium	32.8 ± 0.8	25.2	28.4 - 39.3	Pass
ERW-3495	7/11/2016	H-3	12,400 ± 334	12,400	10,800 - 13,600	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] No reason determined for failure of Ba-133 result.

[c] The result of reanalysis (Compare to original result, footnoted "b" above).

TABLE A-2. Thermoluminescent Dosimetry, (TLD, $CaSO_4$: Dy Cards). [a] [b]

			mrem			
Lab Code	Irradiation Date	Description	Delivered Dose	Reported Dose	Performance [c] Quotient (P)	Acceptance [d]
Environmental, Inc.		Group 1				
2016-1	10/7/2016	Spike 1	135.0	148.3	0.10	
2016-1	10/7/2016	Spike 2	135.0	144.3	0.07	
2016-1	10/7/2016	Spike 3	135.0	133.2	-0.01	
2016-1	10/7/2016	Spike 4	135.0	139.6	0.03	
2016-1	10/7/2016	Spike 5	135.0	128.4	-0.05	
2016-1	10/7/2016	Spike 6	135.0	123.9	-0.08	
2016-1	10/7/2016	Spike 7	135.0	124.0	-0.08	
2016-1	10/7/2016	Spike 8	135.0	121.5	-0.10	
2016-1	10/7/2016	Spike 9	135.0	148.3	0.10	
2016-1	10/7/2016	Spike 10	135.0	126.8	-0.06	
2016-1	10/7/2016	Spike 11	135.0	123.3	-0.09	
2016-1	10/7/2016	Spike 12	135.0	137.9	0.02	
2016-1	10/7/2016	Spike 13	135.0	126.0	-0.07	
2016-1	10/7/2016	Spike 14	135.0	127.2	-0.06	
2016-1	10/7/2016	Spike 15	135.0	144.5	0.07	
2016-1	10/7/2016	Spike 16	135.0	140.5	0.04	
2016-1	10/7/2016	Spike 17	135.0	146.0	0.08	
2016-1	10/7/2016	Spike 18	135.0	127.7	-0.05	
2016-1	10/7/2016	Spike 19	135.0	146.8	0.09	
2016-1	10/7/2016	Spike 20	135.0	122.6	-0.09	
2016-1	10/7/2016	Spike 21	135.0	108.6	-0.20	
2016-1	10/7/2016	Spike 22	135.0	119.6	-0.11	
2016-1	10/7/2016	Spike 23	135.0	135.1	0.00	
2016-1	10/7/2016	Spike 24	135.0	116.2	-0.14	
2016-1	10/7/2016	Spike 25	135.0	118.9	-0.12	
2016-1	10/7/2016	Spike 26	135.0	128.5	-0.05	
2016-1	10/7/2016	Spike 27	135.0	115.6	-0.14	
2016-1	10/7/2016	Spike 28	135.0	126.4	-0.06	
2016-1	10/7/2016	Spike 29	135.0	115.0	-0.15	
2016-1	10/7/2016	Spike 30	135.0	147.3	0.09	
Mean (Spike 1-30)				130.4	0.03	Pass
Standard Deviation (Spike 1-30)				11.5	0.09	Pass

[a] Table A-2 assumes 1 roentgen = 1 rem (NRC -Health Physics Questions and Answers 10 CFR Part 20 - Question 96 - Page Last Reviewed/Updated Thursday, October 01, 2015).

[b] TLD's were irradiated by the University of Wisconsin-Madison Radiation Calibration Laboratory following ANSI N13.37 protocol from a known air kerma rate. TLD's were read and the results were submitted by Environmental Inc. to the University of Wisconsin-Madison Radiation Calibration Laboratory for comparison to the delivered dose.

[c] Performance Quotient (P) is calculated as ((reported dose - conventially true value) ÷ conventially true value) where the conventially true value is the delivered dose.

[d] Acceptance is achieved when neither the absolute value of mean of the P values, nor the standard deviation of the P values exceed 0.15.

TABLE A-2 Thermoluminescent Dosimetry, (TLD, $CaSO_4$: Dy Cards). [a] [b]

			mrem			
Lab Code	Irradiation Date	Description	Delivered Dose	Reported Dose	Performance [c] Quotient (P)	Acceptance [d]
Environmental, Inc.		Group 2				
2016-2	10/7/2016	Spike 31	87.0	83.0	-0.05	
2016-2	10/7/2016	Spike 32	87.0	88.3	0.01	
2016-2	10/7/2016	Spike 33	87.0	83.1	-0.04	
2016-2	10/7/2016	Spike 34	87.0	81.4	-0.06	
2016-2	10/7/2016	Spike 35	87.0	78.9	-0.09	
2016-2	10/7/2016	Spike 36	87.0	80.3	-0.08	
2016-2	10/7/2016	Spike 37	87.0	101.1	0.16	
2016-2	10/7/2016	Spike 38	87.0	78.3	-0.10	
2016-2	10/7/2016	Spike 39	87.0	86.6	0.00	
2016-2	10/7/2016	Spike 40	87.0	81.8	-0.06	
2016-2	10/7/2016	Spike 41	87.0	84.8	-0.03	
2016-2	10/7/2016	Spike 42	87.0	79.9	-0.08	
2016-2	10/7/2016	Spike 43	87.0	80.8	-0.07	
2016-2	10/7/2016	Spike 44	87.0	80.2	-0.08	
2016-2	10/7/2016	Spike 45	87.0	82.7	-0.05	
2016-2	10/7/2016	Spike 46	87.0	104.0	0.20	
2016-2	10/7/2016	Spike 47	87.0	86.1	-0.01	
2016-2	10/7/2016	Spike 48	87.0	104.0	0.20	
2016-2	10/7/2016	Spike 49	87.0	86.1	-0.01	
2016-2	10/7/2016	Spike 50	87.0	90.8	0.04	
2016-2	10/7/2016	Spike 51	87.0	85.7	-0.01	
2016-2	10/7/2016	Spike 52	87.0	86.5	-0.01	
2016-2	10/7/2016	Spike 53	87.0	86.4	-0.01	
2016-2	10/7/2016	Spike 54	87.0	92.6	0.06	
2016-2	10/7/2016	Spike 55	87.0	88.6	0.02	
2016-2	10/7/2016	Spike 56	87.0	78.9	-0.09	
2016-2	10/7/2016	Spike 57	87.0	82.6	-0.05	
2016-2	10/7/2016	Spike 58	87.0	80.6	-0.07	
2016-2	10/7/2016	Spike 59	87.0	89.9	0.03	
2016-2	10/7/2016	Spike 60	87.0	85.0	-0.02	
Mean (Spike 31-60)				86.0	0.01	Pass
Standard Deviation (Spike 31-60)				6.9	0.08	Pass

[a] Table A-2 assumes 1 roentgen = 1 rem (NRC -Health Physics Questions and Answers 10 CFR Part 20 - Question 96 - Page Last Reviewed/Updated Thursday, October 01, 2015).

[b] TLD's were irradiated by the University of Wisconsin-Madison Radiation Calibration Laboratory following ANSI N13.37 protocol from a known air kerma rate. TLD's were read and the results were submitted by Environmental Inc. to the University of Wisconsin-Madison Radiation Calibration Laboratory for comparison to the delivered dose.

[c] Performance Quotient (P) is calculated as ((reported dose - conventially true value) ÷ conventially true value) where the conventially true value is the delivered dose.

[d] Acceptance is achieved when neither the absolute value of mean of the P values, nor the standard deviation of the P values exceed 0.15.

TABLE A-3. In-House "Spiked" Samples

Lab Code [b]	Date	Concentration [a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPW-290	1/21/2016	Sr-90	38.6 ± 1.5	37.3	22.4 - 52.2	Pass
SPW-292	1/21/2016	Sr-90	35.8 ± 1.6	37.3	22.4 - 52.2	Pass
SPW-294	1/21/2016	C-14	4,689 ± 18	4,735	2,841 - 6,629	Pass
SPW-414	2/1/2016	Ra-228	18.4 ± 2.2	17.7	10.6 - 24.8	Pass
W-020416	2/4/2016	Gr. Alpha	20.8 ± 0.4	20.1	12.0 - 28.1	Pass
W-020416	2/4/2016	Gr. Beta	29.7 ± 0.3	28.9	17.3 - 40.4	Pass
W-021716	2/17/2016	Ra-226	17.9 ± 0.5	16.7	10.0 - 23.4	Pass
W-030716	3/7/2016	Gr. Alpha	16.3 ± 0.8	20.1	12.0 - 28.1	Pass
W-030716	3/7/2016	Gr. Beta	27.0 ± 0.7	28.9	17.3 - 40.4	Pass
SPDW-70046	3/29/2016	Ra-226	13.4 ± 0.4	16.7	10.0 - 23.4	Pass
SPW-1163	3/22/2016	Ra-228	4.2 ± 0.7	4.4	2.6 - 6.2	Pass
SPW-1235	3/29/2016	Gr. Alpha	21.0 ± 0.4	20.1	12.0 - 28.1	Pass
SPW-1235	3/29/2016	Gr. Beta	29.4 ± 0.3	28.9	17.3 - 40.4	Pass
SPW-1739	4/21/2016	Ra-228	16.2 ± 2.0	17.7	10.6 - 24.8	Pass
SPW-2052	4/21/2016	Ra-226	16.0 ± 0.5	16.7	10.0 - 23.4	Pass
W-042616	4/21/2016	Fe-55	1,519 ± 61	1,482	889 - 2,075	Pass
SPW-1823	4/23/2016	Gr. Alpha	21.0 ± 0.4	20.1	12.0 - 28.1	Pass
SPW-1823	4/23/2016	Gr. Beta	26.6 ± 0.3	28.9	17.3 - 40.4	Pass
SPW-1998	4/29/2016	Cs-134	35.9 ± 6.0	36.2	21.7 - 50.6	Pass
SPW-1998	4/29/2016	Cs-137	82.5 ± 7.6	71.9	43.1 - 100.6	Pass
SPW-2097	5/3/2016	H-3	3,349 ± 184	3,280	1,968 - 4,592	Pass
SPW-2132	5/4/2016	H-3	3,174 ± 178	3,280	1,968 - 4,592	Pass
SPW-2229	5/7/2016	H-3	3,182 ± 179	3,280	1,968 - 4,592	Pass
SPW-2313	5/13/2016	H-3	3,183 ± 179	3,280	1,968 - 4,592	Pass
SPW-2341	5/13/2016	H-3	3,201 ± 178	3,280	1,968 - 4,592	Pass
SPW-2374	5/14/2016	H-3	3,037 ± 175	3,280	1,968 - 4,592	Pass
SPW-2411	5/17/2016	Sr-90	37.3 ± 1.6	37.3	22.4 - 52.2	Pass
SPW-2455	5/19/2016	Gr. Alpha	19.3 ± 0.4	20.1	12.0 - 28.1	Pass
SPW-2455	5/19/2016	Gr. Beta	28.6 ± 0.3	28.9	17.3 - 40.4	Pass
SPW-2457	5/19/2016	U-238	48.2 ± 2.4	41.7	25.0 - 58.4	Pass
SPW-2504	5/20/2016	H-3	3,181 ± 178	3,280	1,968 - 4,592	Pass
SPW-2528	5/23/2016	H-3	2,998 ± 175	3,280	1,968 - 4,592	Pass
SPW-2566	5/24/2016	Gr. Alpha	19.8 ± 0.5	20.1	12.0 - 28.1	Pass
SPW-2566	5/24/2016	Gr. Beta	30.4 ± 0.3	28.9	17.3 - 40.4	Pass
W-053116	4/29/2016	Cs-134	34.0 ± 5.0	36.2	21.7 - 50.6	Pass
W-053116	4/29/2016	Cs-137	78.8 ± 7.0	71.9	43.1 - 100.6	Pass
SPW-2704	6/1/2016	Sr-90	38.0 ± 1.6	37.3	22.4 - 52.2	Pass
SPW-2719	6/2/2016	Ra-228	18.1 ± 2.1	17.7	10.6 - 24.8	Pass
SPW-2749	6/3/2016	H-3	3,197 ± 180	3,280	1,968 - 4,592	Pass
SPW-2843	6/7/2016	H-3	3,133 ± 179	3,280	1,968 - 4,592	Pass
SPW-3227	6/17/2016	Ra-226	18.6 ± 0.4	16.7	10.0 - 23.4	Pass
W-061716	4/29/2016	Cs-134	37.3 ± 8.2	36.2	21.7 - 50.6	Pass
W-061716	4/29/2016	Cs-137	79.7 ± 10.8	71.9	43.1 - 100.6	Pass
SPW-3240	6/28/2016	Gr. Alpha	25.3 ± 0.5	20.1	12.0 - 28.1	Pass
SPW-3240	6/28/2016	Gr. Beta	27.1 ± 0.3	28.9	17.3 - 40.4	Pass

TABLE A-3. In-House "Spiked" Samples

Lab Code [b]	Date	Concentration [a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPW-3241	7/1/2016	H-3	8,821 ± 283	8,650	5,190 - 12,110	Pass
SPW-3309	7/1/2016	H-3	8,619 ± 278	8,650	5,190 - 12,110	Pass
SPW-3313	7/1/2016	Ra-228	16.6 ± 2.0	17.7	10.6 - 24.8	Pass
SPW-3328	7/6/2016	Sr-89	13.4 ± 9.2	14.8	8.9 - 20.7	Pass
SPW-3328	7/6/2016	Sr-90	12.3 ± 1.3	11.4	6.8 - 16.0	Pass
SPAP-3365	7/7/2016	Gr. Beta	39.7 ± 0.1	42.2	25.3 - 59.0	Pass
SPAP-3367	7/7/2016	Cs-134	1.2 ± 0.7	1.2	0.7 - 1.7	Pass
SPAP-3367	7/7/2016	Cs-137	94.4 ± 2.8	94.0	56.4 - 131.6	Pass
SPW-3370	7/7/2016	C-14	4,444 ± 17	4,735	2,841 - 6,629	Pass
SPW-3373	7/7/2016	Ni-63	446 ± 5	401	241 - 561	Pass
SPW-3375	7/7/2016	Tc-99	545 ± 9	539	324 - 755	Pass
SPW-3519	7/14/2016	H-3	8,621 ± 279	8650	5,190 - 12,110	Pass
SPW-3688	6/29/2016	Ra-226	17.5 ± 0.4	16.7	10.0 - 23.4	Pass
SPW-3711	7/20/2016	H-3	44,368 ± 612	43,766	26,260 - 61,273	Pass
SPW-3774	7/22/2016	H-3	45,259 ± 619	43,766	26,260 - 61,273	Pass
SPW-3776	7/22/2016	Gr. Alpha	23.3 ± 0.5	20.1	12.0 - 28.1	Pass
SPW-3776	7/22/2016	Gr. Beta	27.5 ± 0.3	28.9	17.3 - 40.4	Pass
SPW-3884	7/26/2016	H-3	45,850 ± 623	43,766	26,260 - 61,273	Pass
SPW-3950	7/28/2016	Ra-228	17.8 ± 1.8	16.7	10 - 23	Pass
SPW-3982	7/29/2016	H-3	45,273 ± 619	43,766	26,260 - 61,273	Pass
W-073016	4/29/2016	Cs-134	36.5 ± 6.1	36.2	21.7 - 50.6	Pass
W-073016	4/29/2016	Cs-137	80.6 ± 7.5	71.9	43.1 - 100.6	Pass
SPW-4134	8/4/2016	Ra-228	5.5 ± 0.8	6.7	4.0 - 9.3	Pass
SPW-4340	8/17/2016	Ra-228	19.9 ± 2.0	16.7	10.0 - 23.4	Pass
SPW-4386	7/15/2016	Ra-226	18.0 ± 0.4	16.7	10.0 - 23.4	Pass
W-082716	4/29/2016	Ra-228	32.5 ± 5.2	36.2	21.7 - 50.6	Pass
W-082716	4/29/2016	Ra-226	78.5 ± 8.3	71.9	43.1 - 100.6	Pass
SPW-4642	9/6/2016	U-238	45.8 ± 2.5	41.7	25.0 - 58.4	Pass
SPW-4999	9/26/2016	Sr-90	35.1 ± 2.2	36.8	22.1 - 51.5	Pass
SPW-5091	9/12/2016	Ra-226	18.2 ± 0.4	16.7	10.0 - 23.4	Pass
W-092716	4/29/2016	Cs-134	37.3 ± 11.8	36.2	21.7 - 50.6	Pass
W-092716	4/29/2016	Cs-137	78.3 ± 11.2	71.9	43.1 - 100.6	Pass
SPW-5165	9/30/2016	Gr. Alpha	22.2 ± 0.4	20.1	12.0 - 28.1	Pass
SPW-5165	9/30/2016	Gr. Beta	27.2 ± 0.3	28.9	17.3 - 40.4	Pass
SPW-5426	9/28/2016	Ra-226	18.2 ± 0.4	16.7	10.0 - 23.4	Pass
SPW-5510	10/18/2016	H-3	44,398 ± 618	43,766	26,260 - 61273	Pass
SPW-5553	10/19/2016	U-238	50.0 ± 2.6	41.7	25.0 - 58.4	Pass
SPW-5555	10/19/2016	Ra-228	17.4 ± 1.9	16.7	10.0 - 23.4	Pass
SPW-5612	10/20/2016	H-3	44,681 ± 622	43,766	26,260 - 61,273	Pass
SPW-5741	10/25/2016	H-3	44,946 ± 624	43,766	26,260 - 61,273	Pass
SPU-5833	10/26/2016	H-3	10,018 ± 946	8,622	5,173 - 12,071	Pass
SPW-5862	10/28/2016	H-3	18,061 ± 374	17,244	10,346 - 24,141	Pass
W-103116	4/29/2016	Cs-134	36.0 ± 4.6	36.2	21.7 - 50.6	Pass
W-103116	4/29/2016	Cs-137	81.1 ± 7.3	71.9	43.1 - 100.6	Pass

TABLE A-3. In-House "Spiked" Samples

Lab Code [b]	Date	Concentration [a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPW-5984	11/2/2016	H-3	17,727 ± 399	17,244	10,346 - 24,141	Pass
SPW-6008	11/4/2016	H-3	17,854 ± 402	17,244	10,346 - 24,141	Pass
SPW-6124	11/8/2016	Ra-228	14.4 ± 1.9	16.0	9.6 - 22.4	Pass
SPW-6132	11/9/2016	H-3	18,135 ± 374	17,243	10,346 - 24,140	Pass
SPW-6135	10/12/2016	Ra-226	18.9 ± 0.4	16.7	10.0 - 23.4	Pass
SPW-6146	11/10/2016	H-3	17,488 ± 398	17,243	10,346 - 24,140	Pass
SPW-6222	11/12/2016	H-3	17,787 ± 408	17,243	10,346 - 24,140	Pass
SPW-6318	11/16/2016	H-3	17,379 ± 408	17,243	10,346 - 24,140	Pass
SPW-6349	11/17/2016	H-3	17,893 ± 371	17,243	10,346 - 24,140	Pass
SPW-6424	11/19/2016	H-3	18,258 ± 379	17,243	10,346 - 24,140	Pass
W-112616	4/29/2016	Cs-134	35.0 ± 6.0	36.2	21.7 - 50.6	Pass
W-112616	4/29/2016	Cs-137	75.0 ± 7.1	71.9	43.1 - 100.6	Pass
SPW-6456	11/28/2016	Sr-90	41.9 ± 2.5	36.8	22.1 - 51.5	Pass
SPW-6486	11/30/2016	Sr-90	35.6 ± 2.2	36.6	21.9 - 51.2	Pass
SPW-6490	11/29/2016	Ra-226	18.8 ± 0.4	16.7	10.0 - 23.4	Pass
SPW-6519	11/30/2016	Ni-63	438 ± 4	400	240 - 560	Pass
SPW-6527	12/1/2016	U-238	49.5 ± 2.5	41.7	25.0 - 58.4	Pass
SPW-6616	12/3/2016	H-3	18,018 ± 374	17,243	10,346 - 24,140	Pass
SPW-6669	12/5/2016	H-3	18,237 ± 377	17,243	10,346 - 24,140	Pass
SPW-6735	12/9/2016	H-3	17,939 ± 396	17,243	10,346 - 24,140	Pass
SPW-6880	12/21/2016	H-3	17,835 ± 396	17,243	10,346 - 24,140	Pass
SPW-6947	12/22/2016	Ni-63	450 ± 4	400	240 - 560	Pass
W-122316	4/29/2016	Cs-134	36.0 ± 2.2	36.2	21.7 - 50.6	Pass
W-122316	4/29/2016	Cs-134	76.1 ± 2.9	71.9	43.1 - 100.6	Pass
SPW-6948	12/30/2016	H-3	17,999 ± 398	17,243	10,346 - 24,140	Pass
SPW-6974	12/29/2016	Ra-226	17.6 ± 0.4	16.7	10.0 - 23.4	Pass

[a] Liquid sample results are reported in pCi/Liter, air filters (pCi/m3), charcoal (pCi/charcoal canister), and solid samples (pCi/kg).

[b] Laboratory codes : W (Water), MI (milk), AP (air filter), SO (soil), VE (vegetation), CH (charcoal canister), F (fish), U (urine).

[c] Results are based on single determinations.

[d] Control limits are established from the precision values listed in Attachment A of this report, adjusted to ± 2s.

NOTE: For fish, gelatin is used for the spike matrix. For vegetation, cabbage is used for the spike matrix.

TABLE A-4. In-House "Blank" Samples

Lab Code	Sample Type	Date	Analysis[b]	Concentration [a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-289	Water	1/21/2016	Sr-90	0.55	0.28 ± 0.29	1
SPW-291	Water	1/21/2016	Sr-90	0.61	0.15 ± 0.30	1
SPW-293	Water	1/21/2016	C-14	147	-12 ± 89	200
SPW-413	Water	2/1/2016	Ra-228	0.86	1.86 ± 0.60	2
W-020416	Water	2/4/2016	Gr. Alpha	0.43	-0.17 ± 0.28	2
W-020416	Water	2/4/2016	Gr. Beta	0.73	0.36 ± 0.53	4
W-020916	Water	2/9/2016	Ra-226	0.02	0.01 ± 0.01	2
W-030716	Water	3/7/2016	Gr. Alpha	0.90	-0.36 ± 0.32	2
W-030716	Water	3/7/2016	Gr. Beta	1.59	-0.62 ± 0.71	4
SPDW-70045	Water	3/29/2016	Ra-226	0.03	0.01 ± 0.02	2
SPDW-1234	Water	3/30/2016	Gr. Alpha	0.44	-0.05 ± 0.30	2
SPDW-1234	Water	3/30/2016	Gr. Beta	0.79	-0.54 ± 0.54	4
SPW-1738	Water	4/21/2016	Ra-228	1.05	0.13 ± 0.50	2
SPW-1822	Water	4/23/2016	Gr. Alpha	0.50	-0.18 ± 0.33	2
SPW-1822	Water	4/23/2016	Gr. Beta	0.08	-0.35 ± 0.51	4
SPW-2051	Water	4/12/2016	Ra-226	0.02	0.03 ± 0.02	2
SPW-2069	Water	5/3/2016	I-131	0.15	0.06 ± 0.09	1
SPW-2133	Water	5/4/2016	H-3	148	55 ± 76	200
SPW-2230	Water	5/7/2016	H-3	149	-11 ± 73	200
SPW-2314	Water	5/13/2016	H-3	150	-29 ± 72	200
SPW-2342	Water	5/13/2016	H-3	143	50 ± 74	200
SPW-2364	Water	5/13/2016	I-131	0.22	-0.03 ± 0.12	1
SPW-2375	Water	5/14/2016	H-3	146	1 ± 70	200
SPW-2410	Water	5/17/2016	Sr-90	0.59	0.10 ± 0.29	1
SPW-2454	Water	5/19/2016	Gr. Alpha	0.47	-0.21 ± 0.31	2
SPW-2454	Water	5/19/2016	Gr. Beta	0.77	-0.49 ± 0.52	4
SPW-2456	Water	5/19/2016	U-238	0.15	0.00 ± 0.09	1
SPW-2485	Water	5/20/2016	I-131	0.18	-0.01 ± 0.10	1
SPW-2505	Water	5/20/2016	H-3	144	64 ± 75	200
SPW-2529	Water	5/23/2016	H-3	152	-3 ± 75	200
SPW-2530	Water	5/23/2016	Ra-228	0.96	-0.12 ± 0.43	2
SPW-2565	Water	5/24/2016	Gr. Alpha	0.47	0.03 ± 0.33	2
SPW-2565	Water	5/24/2016	Gr. Beta	0.77	-0.23 ± 0.53	4
SPW-2703	Water	6/1/2016	Sr-89	0.68	-0.13 ± 0.50	5
SPW-2703	Water	6/1/2016	Sr-90	0.55	0.11 ± 0.27	1
SPW-2718	Water	6/2/2016	Ra-228	0.67	0.23 ± 0.34	2
SPW-2720	Water	6/2/2016	I-131	0.16	0.01 ± 0.09	1
SPW-2750	Water	6/3/2016	H-3	151	-31 ± 73	200
SPW-2844	Water	6/7/2016	H-3	148	-55 ± 75	200
SPMI-2959	Milk	6/14/2016	I-131	0.16	0.09 ± 0.10	1
SPW-3137	Water	6/23/2016	I-131	0.15	-0.03 ± 0.08	1
SPW-3226	Water	6/17/2016	Ra-226	0.02	-0.01 ± 0.04	2
SPW-3239	Water	6/28/2016	Gr. Alpha	0.40	-0.15 ± 0.26	2
SPW-3239	Water	6/28/2016	Gr. Beta	0.73	0.14 ± 0.52	4
SPW-3687	Water	6/29/2016	Ra-226	0.04	0.03 ± 0.03	2

[a] Liquid sample results are reported in pCi/Liter, air filters (pCi/m^3), charcoal (pCi/charcoal canister), and solid samples (pCi/g).

[b] I-131(G); iodine-131 as analyzed by gamma spectroscopy.

[c] Activity reported is a net activity result.

TABLE A-4. In-House "Blank" Samples

Lab Code	Sample Type	Date	Analysis[b]	Concentration [a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-3312	Water	7/1/2016	Ra-228	0.67	0.35 ± 0.35	2
SPW-3327	Water	7/6/2016	Sr-89	0.67	0.51 ± 0.51	5
SPW-3327	Water	7/6/2016	Sr-90	0.60	-0.14 ± 0.26	1
SPAP-3364	AP	7/7/2016	Gr.Beta	0.002	0.005 ± 0.001	0.01
SPW-3370	Water	7/7/2016	C-14	115	49 ± 71	200
SPW-3372	Water	7/7/2016	Ni-63	122	115 ± 76	200
SPW-3374	Water	7/7/2016	Tc-99	6.07	1.00 ± 3.70	10
SPW-3710	Water	7/20/2016	H-3	147	35 ± 75	200
SPW-3775	Water	7/22/2016	Gr. Alpha	0.73	0.41 ± 0.53	2
SPW-3775	Water	7/22/2016	Gr. Beta	0.45	-0.14 ± 0.30	4
SPW-3884	Water	7/26/2016	H-3	151	-1 ± 73	200
SPW-3949	Water	7/28/2016	Ra-228	0.76	0.32 ± 0.39	2
SPW-3982	Water	7/29/2016	H-3	145	49 ± 75	200
SPW-4133	Water	8/4/2016	Ra-228	0.80	0.26 ± 0.40	2
SPW-4257	Water	8/11/2016	I-131	0.17	-0.01 ± 0.10	1
SPW-4339	Water	8/17/2016	Ra-228	0.73	0.36 ± 0.39	2
SPW-4385	Water	7/15/2016	Ra-226	0.09	0.75 ± 0.09	2
SPW-4641	Water	9/6/2016	U-238	0.21	0.00 ± 0.13	1
SPW-4684	Water	9/8/2016	H-3	151	48 ± 78	200
SPW-4872	Water	9/16/2016	I-131	0.21	0.05 ± 0.11	1
SPW-4998	Water	9/26/2016	Sr-89	0.54	0.06 ± 0.39	5
SPW-4998	Water	9/26/2016	Sr-90	0.53	-0.03 ± 0.24	1
SPW-5090	Water	8/19/2016	Ra-226	0.03	0.03 ± 0.02	2
SPW-5164	Water	9/30/2016	Gr. Alpha	0.46	-0.05 ± 0.32	2
SPW-5164	Water	9/30/2016	Gr. Beta	0.74	-0.02 ± 0.52	4
SPW-5425	Water	9/28/2016	Ra-226	0.02	0.07 ± 0.05	2
SPW-5323	Water	10/7/2016	H-3	157	-12 ± 75	200
SPW-5552	Water	10/19/2016	U-238	0.18	0.00 ± 0.11	1
SPW-5554	Water	10/19/2016	Ra-228	0.72	0.22 ± 0.36	2
SPW-5611	Water	10/20/2016	H-3	153	67 ± 80	200
SPW-5613	Water	10/21/2016	Gr. Alpha	0.76	-0.55 ± 0.51	2
SPW-5613	Water	10/21/2016	Gr. Beta	0.42	0.02 ± 0.29	4
SPW-5740	Water	10/25/2016	H-3	154	-2 ± 72	200
SPW-5743	Water	10/25/2016	Sr-90	1.26	0.72 ± 0.67	1
SPW-5861	Water	10/28/2016	H-3	179	129 ± 91	200
SPW-5983	Water	11/2/2016	H-3	156	8 ± 78	200
SPW-6007	Water	11/4/2016	H-3	156	-34 ± 73	200
SPW-6131	Water	11/9/2016	H-3	180	80 ± 92	200
SPW-6134	Water	10/12/2016	Ra-226	0.05	-0.02 ± 0.12	2
SPW-6145	Water	11/10/2016	H-3	171	-46 ± 80	200
SPW-6317	Water	11/16/2016	H-3	180	-43 ± 82	200
SPW-6348	Water	11/17/2016	H-3	182	-45 ± 88	200
SPW-6423	Water	11/19/2016	H-3	181	8 ± 95	200
SPW-6455	Water	11/28/2016	Sr-89	0.58	-0.15 ± 0.46	5
SPW-6455	Water	11/28/2016	Sr-90	0.67	0.09 ± 0.32	1
SPW-6489	Water	11/29/2016	Ra-226	0.03	0.03 ± 0.02	2

[a] Liquid sample results are reported in pCi/Liter, air filters (pCi/m^3), charcoal (pCi/charcoal canister), and solid samples (pCi/g).

[b] I-131(G); iodine-131 as analyzed by gamma spectroscopy.

[c] Activity reported is a net activity result.

TABLE A-4. In-House "Blank" Samples

Lab Code	Sample Type	Date	Analysis[b]	Concentration [a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-6529	Water	12/1/2016	I-131	0.18	-0.03 ± 0.10	1
SPW-6616	Water	12/3/2016	H-3	180	72 ± 92	200
SPW-6670	Water	12/5/2016	H-3	174	28 ± 92	200
SPW-6735	Water	12/9/2016	H-3	152	2 ± 73	200
SPW-6792	Water	12/15/2016	I-131	0.17	0.03 ± 0.12	1
SPW-6819	Water	12/16/2016	H-3	158	14 ± 77	200
SPW-6879	Water	12/21/2016	H-3	147	80 ± 75	200
SPW-6947	Water	12/22/2016	Ni-63	93	26 ± 57	200
SPW-6973	Water	12/29/2016	Ra-226	0.03	0.03 ± 0.02	2

[a] Liquid sample results are reported in pCi/Liter, air filters (pCi/m^3), charcoal (pCi/charcoal canister), and solid samples (pCi/g).

[b] I-131(G); iodine-131 as analyzed by gamma spectroscopy.

[c] Activity reported is a net activity result.

TABLE A-5. In-House "Duplicate" Samples

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
AP-010416	1/4/2016	Gr. Beta	0.044 ± 0.006	0.051 ± 0.006	0.047 ± 0.004	Pass
SPS-62, 63	1/7/2016	K-40	21.1 ± 1.9	21.2 ± 2.1	21.2 ± 1.4	Pass
WW-125, 126	1/7/2016	H-3	659 ± 102	748 ± 106	703 ± 74	Pass
SPS-199, 200	1/7/2016	Cs-137	0.09 ± 0.02	0.08 ± 0.03	0.08 ± 0.02	Pass
SPS-199, 200	1/7/2016	K-40	7.60 ± 0.60	8.62 ± 0.62	8.11 ± 0.43	Pass
AP-011116	1/11/2016	Gr. Beta	0.024 ± 0.005	0.027 ± 0.005	0.026 ± 0.003	Pass
AP-011216	1/12/2016	Gr. Beta	0.030 ± 0.004	0.034 ± 0.004	0.032 ± 0.003	Pass
WW-262, 263	1/14/2016	H-3	153 ± 78	141 ± 78	147 ± 55	Pass
WW-346, 347	1/14/2016	H-3	1,036 ± 117	959 ± 115	997 ± 82	Pass
WW-283, 284	1/18/2016	H-3	437 ± 92	427 ± 91	432 ± 65	Pass
AP-011916	1/19/2016	Gr. Beta	0.042 ± 0.005	0.037 ± 0.004	0.040 ± 0.003	Pass
AP-012016	1/20/2016	Gr. Beta	0.023 ± 0.003	0.030 ± 0.004	0.027 ± 0.002	Pass
AP-020116	2/1/2016	Gr. Beta	0.023 ± 0.005	0.023 ± 0.005	0.023 ± 0.004	Pass
SWU-472, 473	2/2/2016	Gr. Beta	4.37 ± 0.47	4.60 ± 0.49	4.49 ± 0.34	Pass
SG-493, 494	2/6/2016	Ac-228	2.10 ± 0.20	2.13 ± 0.20	2.12 ± 0.14	Pass
SG-493, 494	2/6/2016	K-40	5.79 ± 0.57	5.50 ± 0.69	5.65 ± 0.45	Pass
SG-493, 494	2/6/2016	Pb-214	1.84 ± 0.11	1.91 ± 0.11	1.88 ± 0.08	Pass
AP-020816	2/8/2016	Gr. Beta	0.020 ± 0.004	0.019 ± 0.004	0.020 ± 0.003	Pass
AP-020916	2/9/2016	Be-7	0.032 ± 0.005	0.041 ± 0.006	0.036 ± 0.004	Pass
SPS-619, 620	2/18/2016	K-40	20.0 ± 1.8	19.1 ± 1.6	19.5 ± 1.2	Pass
WW-640, 641	2/18/2016	H-3	90.1 ± 75.0	153.6 ± 78.4	121.8 ± 54.2	Pass
AP-021916	2/19/2016	Gr. Beta	0.021 ± 0.003	0.025 ± 0.004	0.023 ± 0.002	Pass
WW-822, 823	2/26/2016	H-3	2,770 ± 173	2,974 ± 178	2,872 ± 124	Pass
DW-70010, 70011	2/29/2016	Ra-226	4.88 ± 0.29	4.93 ± 0.28	4.91 ± 0.20	Pass
DW-70010, 70011	2/29/2016	Ra-228	3.00 ± 0.77	1.90 ± 0.62	2.45 ± 0.49	Pass
SW-934, 935	3/1/2016	Gr. Beta	0.94 ± 0.52	1.36 ± 0.60	1.15 ± 0.40	Pass
SPS-913, 914	3/3/2016	Cs-137	0.08 ± 0.03	0.10 ± 0.03	0.09 ± 0.02	Pass
SPS-913, 914	3/3/2016	K-40	17.45 ± 0.94	16.83 ± 0.95	17.14 ± 0.67	Pass
SPS-913, 914	3/3/2016	Ra-226	1.02 ± 0.08	1.13 ± 0.17	1.07 ± 0.09	Pass
SPS-913, 914	3/3/2016	Ra-228	1.09 ± 0.15	1.13 ± 0.17	1.11 ± 0.11	Pass
AP-030716	3/7/2016	Gr. Beta	0.018 ± 0.005	0.021 ± 0.005	0.019 ± 0.003	Pass
F-1303,1304	3/7/2016	K-40	3.320 ± 0.475	3.508 ± 0.396	3.414 ± 0.309	Pass
SG-976, 977	3/8/2016	Ra-226	6.75 ± 0.25	6.28 ± 0.22	6.52 ± 0.17	Pass
SG-976, 977	3/8/2016	Ra-228	9.21 ± 0.49	9.09 ± 0.49	9.15 ± 0.35	Pass
PM-1094, 1095	3/9/2016	K-40	14.01 ± 0.68	14.47 ± 0.72	14.24 ± 0.49	Pass
MI-1042,1043	3/7/2016	K-40	1,684 ± 124	1,804 ± 119	1,744 ± 86	Pass
DW-70023, 70024	3/7/2016	Ra-226	3.40 ± 0.43	2.68 ± 0.35	3.04 ± 0.28	Pass
DW-70023, 70024	3/7/2016	Ra-228	4.46 ± 0.83	5.74 ± 0.94	5.10 ± 0.63	Pass
DW-70014, 70015	3/7/2016	Gr. Alpha	13.38 ± 1.58	11.40 ± 1.43	12.39 ± 1.07	Pass
DW-70026, 70027	3/7/2016	Gr. Alpha	3.46 ± 0.79	3.08 ± 0.74	3.27 ± 0.54	Pass
DW-70038, 70039	3/8/2016	Gr. Alpha	1.14 ± 0.89	1.73 ± 0.95	1.44 ± 0.65	Pass
DW-70035, 70036	3/8/2016	Ra-226	0.47 ± 0.10	0.45 ± 0.09	0.46 ± 0.07	Pass
DW-70035, 70036	3/8/2016	Ra-228	0.56 ± 0.45	0.47 ± 0.44	0.52 ± 0.31	Pass
AP-031516	3/15/2016	Gr. Beta	0.014 ± 0.003	0.016 ± 0.004	0.015 ± 0.002	Pass
AP-032116	3/21/2016	Gr. Beta	0.014 ± 0.004	0.020 ± 0.004	0.017 ± 0.003	Pass
AP-1218,1219	3/24/2016	Be-7	0.135 ± 0.065	0.167 ± 0.081	0.151 ± 0.052	Pass
AP-1719,1720	3/28/2016	Be-7	0.075 ± 0.008	0.076 ± 0.007	0.076 ± 0.005	Pass
AP-033016	3/30/2016	Gr. Beta	0.023 ± 0.004	0.025 ± 0.004	0.024 ± 0.003	Pass
SPS-1260, 1261	3/30/2016	K-40	18.00 ± 1.92	19.67 ± 1.77	18.84 ± 1.30	Pass
XW-1467, 1468	3/30/2016	H-3	310 ± 87	295 ± 86	303 ± 61	Pass
XWW-1530, 1531	3/30/2016	H-3	198 ± 84	162 ± 82	180 ± 59	Pass
AP-1827, 1828	3/30/2016	Be-7	0.069 ± 0.011	0.072 ± 0.011	0.071 ± 0.008	Pass
AP-1323,1324	3/31/2016	Be-7	0.206 ± 0.120	0.197 ± 0.091	0.202 ± 0.076	Pass
LW-1446,1447	3/31/2016	Gr. Beta	2.36 ± 0.93	2.23 ± 1.01	2.29 ± 0.69	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
WW-1740,1741	4/2/2016	H-3	21,162 ± 120	21,091 ± 427	21,126 ± 222	Pass
SPS-1344, 1345	4/4/2016	K-40	17.98 ± 0.93	17.14 ± 0.96	17.56 ± 0.67	Pass
SPS-1344, 1345	4/4/2016	Pb-214	1.12 ± 0.09	1.04 ± 0.08	1.08 ± 0.06	Pass
SPS-1344, 1345	4/4/2016	Ac-228	1.23 ± 0.15	1.33 ± 0.19	1.28 ± 0.12	Pass
SPS-1344, 1345	4/4/2016	Cs-137	0.13 ± 0.03	0.13 ± 0.03	0.13 ± 0.02	Pass
P-1509,1510	4/8/2016	H-3	1,084 ± 120	1,038 ± 119	1,061 ± 85	Pass
AP-041116	4/11/2016	Gr. Beta	0.020 ± 0.004	0.019 ± 0.004	0.019 ± 0.003	Pass
SS-1551,1552	4/12/2016	Gr. Beta	8.71 ± 1.11	8.88 ± 1.13	8.80 ± 0.79	Pass
SS-1551,1552	4/12/2016	K-40	3.50 ± 0.25	3.06 ± 0.28	3.28 ± 0.19	Pass
SS-1551,1552	4/12/2016	Tl-208	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.01	Pass
SS-1551,1552	4/12/2016	Bi-214	0.10 ± 0.02	0.09 ± 0.02	0.10 ± 0.02	Pass
SS-1551,1552	4/12/2016	Pb-212	0.13 ± 0.02	0.11 ± 0.02	0.12 ± 0.01	Pass
SS-1551,1552	4/12/2016	Ra-226	0.35 ± 0.17	0.30 ± 0.17	0.32 ± 0.12	Pass
SS-1551,1552	4/12/2016	Ac-228	0.16 ± 0.05	0.17 ± 0.05	0.17 ± 0.04	Pass
SS-1593,1594	4/12/2016	K-40	14.80 ± 0.73	14.89 ± 0.78	14.85 ± 0.53	Pass
WW-1677, 1678	4/14/2016	Ra-226	0.23 ± 0.13	0.35 ± 0.15	0.29 ± 0.10	Pass
WW-1783,1784	4/14/2016	H-3	768 ± 111	632 ± 107	700 ± 77	Pass
BS-1804,1805	4/18/2016	K-40	0.79 ± 0.02	0.87 ± 0.19	0.83 ± 0.10	Pass
WW-2021,2022	4/18/2016	H-3	5,548 ± 221	5,707 ± 224	5,627 ± 157	Pass
XWW-2240, 2241	4/18/2016	H-3	638 ± 104	543 ± 101	591 ± 72	Pass
XWW-2109, 2110	4/19/2016	H-3	3461 ± 185	3250 ± 180	3356 ± 129	Pass
SPS-2130, 2131	4/25/2016	K-40	7.80 ± 0.84	6.80 ± 0.60	7.30 ± 0.52	Pass
AP-042516	4/25/2016	Gr. Beta	0.020 ± 0.004	0.023 ± 0.004	0.022 ± 0.003	Pass
BS-2065, 2066	4/25/2016	K-40	14.40 ± 1.50	14.72 ± 1.19	14.56 ± 0.96	Pass
AP-042716	4/27/2016	Gr. Beta	0.023 ± 0.003	0.019 ± 0.003	0.021 ± 0.002	Pass
SPS-1999, 2000	4/28/2016	K-40	19.84 ± 1.76	18.963 ± 2.42	19.40 ± 1.50	Pass
SO-2153,2154	5/2/2016	K-40	21.80 ± 0.81	21.17 ± 0.85	21.48 ± 0.59	Pass
SO-2153,2154	5/2/2016	Cs-137	0.11 ± 0.03	0.11 ± 0.07	0.11 ± 0.04	Pass
SO-2153,2154	5/2/2016	Ra-226	1.50 ± 0.29	1.22 ± 0.29	1.36 ± 0.21	Pass
SO-2153,2154	5/2/2016	Pb-214	0.56 ± 0.06	0.57 ± 0.06	0.57 ± 0.04	Pass
W-2394,2395	5/5/2016	H-3	736 ± 106	631 ± 102	683 ± 74	Pass
VE-2284,2285	5/9/2016	K-40	3.50 ± 0.25	3.06 ± 0.28	3.28 ± 0.19	Pass
AP-051016	5/10/2016	Gr. Beta	0.020 ± 0.005	0.018 ± 0.005	0.019 ± 0.003	Pass
SG-2261, 2262	5/10/2016	Ac-228	34.4 ± 1.2	34.4 ± 1.4	34.4 ± 0.9	Pass
SG-2261, 2262	5/10/2016	Pb-214	29.5 ± 3.0	31.9 ± 3.3	30.7 ± 2.2	Pass
BS-2439, 2440	5/12/2016	K-40	9.96 ± 0.91	10.27 ± 0.76	10.11 ± 0.59	Pass
WW-2534,2535	5/16/2016	H-3	14,342 ± 354	14,613 ± 357	14,477 ± 252	Pass
AP-051716	5/17/2016	Gr. Beta	0.014 ± 0.004	0.015 ± 0.004	0.014 ± 0.003	Pass
SPS-2945, 2946	5/19/2016	K-40	30.71 ± 0.74	31.75 ± 0.78	31.23 ± 0.54	Pass
SPS-2945, 2946	5/19/2016	Be-7	1.55 ± 0.24	1.90 ± 0.35	1.73 ± 0.21	Pass
SPS-2578, 2579	5/24/2016	Pb-214	0.96 ± 0.12	0.80 ± 0.14	0.88 ± 0.09	Pass
AP-052516	5/25/2016	Gr. Beta	0.022 ± 0.004	0.022 ± 0.004	0.022 ± 0.003	Pass
G-2642,2643	5/26/2016	Be-7	0.443 ± 0.178	0.247 ± 0.247	0.345 ± 0.152	Pass
SO-2663, 2664	5/26/2016	Cs-137	0.08 ± 0.03	0.07 ± 0.03	0.07 ± 0.02	Pass
SO-2663, 2664	5/26/2016	K-40	12.44 ± 0.68	11.64 ± 0.63	12.04 ± 0.46	Pass
SO-2663, 2664	5/26/2016	Tl-208	0.13 ± 0.02	0.14 ± 0.03	0.14 ± 0.02	Pass
SO-2663, 2664	5/26/2016	Pb-212	0.43 ± 0.04	0.41 ± 0.04	0.42 ± 0.03	Pass
SO-2663, 2664	5/26/2016	Ra-226	1.19 ± 0.34	0.87 ± 0.28	1.03 ± 0.22	Pass
SO-2663, 2664	5/26/2016	Ac-228	0.45 ± 0.09	0.53 ± 0.10	0.49 ± 0.07	Pass
SPS-2817, 2818	5/31/2016	K-40	12.10 ± 0.70	11.05 ± 0.70	11.58 ± 0.49	Pass
DW-70091, 70092	6/1/2016	Ra-226	5.61 ± 0.29	5.53 ± 0.30	5.57 ± 0.21	Pass
DW-70091, 70092	6/1/2016	Ra-228	1.45 ± 0.58	1.91 ± 0.62	1.68 ± 0.42	Pass
BS-2925,2926	6/3/2016	K-40	7.74 ± 0.44	7.86 ± 0.42	7.80 ± 0.30	Pass
SPS-2796, 2797	6/2/2016	K-40	20.91 ± 2.38	21.16 ± 1.82	21.04 ± 1.50	Pass
SPS-2882, 2883	6/7/2016	K-40	14.64 ± 0.52	14.60 ± 0.52	14.62 ± 0.37	Pass
SPS-2882, 2883	6/7/2016	Be-7	2.00 ± 0.25	1.94 ± 0.20	1.97 ± 0.16	Pass
DW-70102, 70103	6/13/2016	Ra-226	0.34 ± 0.09	0.36 ± 0.08	0.35 ± 0.06	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
DW-70102, 70103	6/13/2016	Ra-228	0.93 ± 0.47	1.11 ± 0.53	1.02 ± 0.35	Pass
AP-061416	6/14/2016	Gr. Beta	0.026 ± 0.004	0.023 ± 0.004	0.024 ± 0.003	Pass
SG-3144, 3145	6/17/2016	Be-7	2.23 ± 0.12	2.24 ± 0.12	2.24 ± 0.08	Pass
SG-3144, 3145	6/17/2016	K-40	7.57 ± 0.25	7.09 ± 0.23	7.33 ± 0.17	Pass
SPS-3165, 3166	6/22/2016	K-40	21.14 ± 2.27	22.88 ± 1.60	22.01 ± 1.39	Pass
SPS-3323, 3324	6/24/2016	K-40	18.67 ± 1.57	21.53 ± 1.65	20.10 ± 1.14	Pass
WW-3231, 3232	6/27/2016	H-3	414 ± 104	498 ± 108	456 ± 75	Pass
AP-3830,3831	6/29/2016	Gr. Beta	0.088 ± 0.012	0.093 ± 0.015	0.091 ± 0.010	Pass
AP-070516A	7/5/2016	Gr. Beta	0.018 ± 0.002	0.014 ± 0.002	0.016 ± 0.002	Pass
AP-070516B	7/5/2016	Gr. Beta	0.025 ± 0.005	0.026 ± 0.005	0.025 ± 0.004	Pass
XWW-3605,3606	7/7/2016	H-3	3,316 ± 186	3,316 ± 181	3,316 ± 130	Pass
DW-70135,70136	7/8/2016	Gr. Alpha	3.68 ± 1.01	2.76 ± 0.98	3.22 ± 0.70	Pass
DW-70132,70133	7/8/2016	Ra-226	1.32 ± 0.14	1.11 ± 0.15	1.22 ± 0.10	Pass
DW-70132,70133	7/8/2016	Ra-228	3.92 ± 0.94	2.94 ± 0.90	3.43 ± 0.65	Pass
AP-071216	7/12/2016	Gr. Beta	0.014 ± 0.004	0.018 ± 0.004	0.016 ± 0.003	Pass
DW-70150,70151	7/14/2016	Gr. Alpha	5.00 ± 1.06	4.43 ± 1.04	4.72 ± 0.74	Pass
SPS-3649,3650	7/15/2016	Cs-137	0.12 ± 0.03	0.12 ± 0.03	0.12 ± 0.02	Pass
SPS-3649,3650	7/15/2016	K-40	16.68 ± 0.79	16.52 ± 0.86	16.6 ± 0.58	Pass
SPS-3649,3650	7/15/2016	Pb-214	1.20 ± 0.08	1.17 ± 0.08	1.19 ± 0.06	Pass
SPS-3649,3650	7/15/2016	Ac-228	1.28 ± 0.16	1.28 ± 0.16	1.28 ± 0.11	Pass
AP-071816	7/18/2016	Gr. Beta	0.022 ± 0.005	0.024 ± 0.005	0.023 ± 0.003	Pass
DW-70163,70164	7/19/2016	Gr. Alpha	1.08 ± 0.66	1.36 ± 0.70	1.22 ± 0.48	Pass
WW-3761,3762	7/20/2016	H-3	347 ± 90	466 ± 96	407 ± 66	Pass
SPS-4003,4004	7/23/2016	K-40	7.15 ± 1.59	6.86 ± 1.21	7.00 ± 1.00	Pass
AP-072516	7/25/2016	Gr. Beta	0.023 ± 0.004	0.020 ± 0.004	0.022 ± 0.003	Pass
VE-3936,3937	7/25/2016	Sr-90	0.048 ± 0.007	0.058 ± 0.010	0.053 ± 0.006	Pass
VE-3936,3937	7/25/2016	Be-7	0.49 ± 0.15	0.51 ± 0.15	0.50 ± 0.10	Pass
VE-3936,3937	7/25/2016	K-40	4.70 ± 0.35	4.86 ± 0.37	4.78 ± 0.25	Pass
VE-3959,3960	7/27/2016	Sr-90	0.002 ± 0.002	0.003 ± 0.001	0.003 ± 0.001	Pass
VE-3959,3960	7/27/2016	Be-7	0.30 ± 0.14	0.25 ± 0.12	0.27 ± 0.09	Pass
VE-3959,3960	7/27/2016	K-40	4.01 ± 0.37	4.16 ± 0.34	4.08 ± 0.25	Pass
DW-70169,70170	7/28/2016	Ra-226	0.83 ± 0.11	0.69 ± 0.11	0.76 ± 0.08	Pass
DW-70169,70170	7/28/2016	Ra-228	1.85 ± 0.63	1.31 ± 0.84	1.58 ± 0.53	Pass
AP-080116	8/1/2016	Gr. Beta	0.029 ± 0.003	0.033 ± 0.003	0.031 ± 0.002	Pass
SS-4131,4132	8/1/2016	K-40	12.47 ± 0.71	13.24 ± 0.81	12.86 ± 0.54	Pass
SS-4131,4132	8/1/2016	Cs-137	0.10 ± 0.03	0.13 ± 0.04	0.12 ± 0.02	Pass
SPS-4087,4088	8/2/2016	K-40	17.06 ± 1.58	19.5 ± 1.97	18.28 ± 1.26	Pass
WW-4976,4977	8/4/2016	H-3	17,043 ± 390	16,821 ± 388	16,932 ± 275	Pass
SPS-4266,4267	8/10/2016	K-40	1.06 ± 0.47	1.69 ± 0.52	1.375 ± 0.35	Pass
AP-081616	8/16/2016	Gr. Beta	0.029 ± 0.005	0.025 ± 0.004	0.027 ± 0.003	Pass
VE-4399,4400	8/18/2016	K-40	3.85 ± 0.23	3.27 ± 0.41	3.56 ± 0.24	Pass
VE-4399,4400	8/18/2016	Be-7	0.30 ± 0.08	0.45 ± 0.20	0.37 ± 0.11	Pass
WW-5394,5395	8/18/2016	H-3	947 ± 122	846 ± 119	896 ± 85	Pass
SPS-4441,4442	8/22/2016	K-40	20.55 ± 2.23	19.69 ± 1.74	20.12 ± 1.41	Pass
AP-082216	8/22/2016	Gr. Beta	0.021 ± 0.005	0.015 ± 0.005	0.018 ± 0.003	Pass
VE-4462,4463	8/22/2016	Be-7	0.91 ± 0.09	0.89 ± 0.11	0.90 ± 0.07	Pass
VE-4462,4463	8/22/2016	K-40	7.48 ± 0.26	7.60 ± 0.23	7.54 ± 0.17	Pass
WW-4594,4595	8/26/2016	H-3	675 ± 107	788 ± 111	731 ± 77	Pass
WW-4663,4664	8/26/2016	H-3	607 ± 104	501 ± 100	554 ± 72	Pass
SPS-4529,4530	8/26/2016	K-40	21.98 ± 2.52	21.85 ± 1.56	21.92 ± 1.48	Pass
AP-083016A	8/30/2016	Gr. Beta	0.030 ± 0.003	0.035 ± 0.004	0.033 ± 0.002	Pass
AP-083016B	8/30/2016	Gr. Beta	0.032 ± 0.009	0.026 ± 0.004	0.029 ± 0.005	Pass
VE-4615,4616	8/31/2016	K-40	2.96 ± 0.16	3.11 ± 0.17	3.03 ± 0.11	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
AP-090216	9/2/2016	Gr. Beta	0.022 ± 0.004	0.027 ± 0.004	0.024 ± 0.003	Pass
AP-090616	9/6/2016	Gr. Beta	0.023 ± 0.005	0.023 ± 0.005	0.023 ± 0.003	Pass
MI-4751,4752	9/7/2016	K-40	1,693 ± 112	1,760 ± 99	1,726 ± 75	Pass
MI-4751,4752	9/7/2016	Sr-90	1.23 ± 0.38	1.00 ± 0.33	1.11 ± 0.25	Pass
SW-4772,4773	9/8/2016	H-3	196 ± 91	236 ± 93	216 ± 65	Pass
WW-5285,5286	9/13/2016	H-3	18,010 ± 400	18,686 ± 407	18,348 ± 286	Pass
MI-4826,4827	9/14/2016	K-40	1,372.6 ± 105	1,198.1 ± 97	1,285.4 ± 71	Pass
VE-4868,4869	9/15/2016	Gr. Beta	2.50 ± 0.06	2.57 ± 0.06	2.53 ± 0.04	Pass
VE-4868,4869	9/15/2016	K-40	2.20 ± 0.17	2.30 ± 0.17	2.25 ± 0.12	Pass
CF-4934,4935	9/19/2016	K-40	11.47 ± 0.82	11.76 ± 0.50	11.61 ± 0.48	Pass
CF-4934,4935	9/19/2016	Be-7	0.43 ± 0.22	0.46 ± 0.13	0.45 ± 0.13	Pass
AP-092016	9/20/2016	Gr. Beta	0.021 ± 0.004	0.017 ± 0.004	0.019 ± 0.003	Pass
DW-70196,70197	9/20/2016	Gr. Alpha	13.8 ± 1.36	15.28 ± 1.36	14.54 ± 0.96	Pass
F-4955,4956	9/20/2016	K-40	3.40 ± 0.44	2.86 ± 0.39	3.13 ± 0.30	Pass
VE-5044,5045	9/20/2016	Be-7	0.46 ± 0.05	0.50 ± 0.11	0.48 ± 0.06	Pass
VE-5044,5045	9/20/2016	K-40	4.37 ± 0.12	4.68 ± 0.24	4.53 ± 0.13	Pass
WW-5219,5220	9/20/2016	H-3	63,744 ± 743	64,755 ± 749	64,250 ± 527	Pass
SPS-5087,5088	9/23/2016	K-40	21.04 ± 2.32	18.84 ± 1.88	19.94 ± 1.49	Pass
AP-092716	9/27/2016	Gr. Beta	0.031 ± 0.005	0.032 ± 0.005	0.031 ± 0.003	Pass
AP-5660,5661	9/28/2016	Be-7	0.093 ± 0.014	0.086 ± 0.019	0.089 ± 0.012	Pass
AP-5681,5682	9/27/2016	Be-7	0.079 ± 0.019	0.071 ± 0.015	0.075 ± 0.012	Pass
VE-5110,5111	9/28/2016	K-40	1.82 ± 0.15	2.14 ± 0.18	1.98 ± 0.12	Pass
AP-5154,5155	9/29/2016	Be-7	0.237 ± 0.116	0.195 ± 0.096	0.216 ± 0.075	Pass
AP-5702,5703	9/30/2016	Be-7	0.084 ± 0.015	0.070 ± 0.018	0.077 ± 0.012	Pass
MI-5264,5265	10/4/2016	K-40	1,636 ± 128	1,610 ± 124	1,623 ± 89	Pass
MI-5264,5265	10/4/2016	Sr-90	2.00 ± 0.44	1.28 ± 0.37	1.64 ± 0.29	Pass
SS-5547,5548	10/11/2016	Gr. Beta	11.27 ± 1.19	9.47 ± 1.20	10.37 ± 0.84	Pass
SS-5547,5548	10/11/2016	K-40	8.03 ± 0.45	7.23 ± 0.46	7.63 ± 0.32	Pass
SS-5547,5548	10/11/2016	Tl-208	0.04 ± 0.02	0.04 ± 0.02	0.04 ± 0.01	Pass
SS-5547,5548	10/11/2016	Bi-214	0.14 ± 0.03	0.12 ± 0.03	0.13 ± 0.02	Pass
SS-5547,5548	10/11/2016	Pb-212	0.12 ± 0.02	0.11 ± 0.02	0.11 ± 0.01	Pass
SS-5547,5548	10/11/2016	Ac-228	0.10 ± 0.05	0.16 ± 0.05	0.13 ± 0.04	Pass
AP-101116	10/11/2016	Gr. Beta	0.032 ± 0.004	0.028 ± 0.004	0.030 ± 0.003	Pass
WW-5526.5527	10/11/2016	H-3	18,865 ± 408	18,904 ± 408	18,884 ± 289	Pass
WW-5639,5640	10/19/2016	H-3	192 ± 103	52 ± 98	122 ± 71	Pass
WW-5723,5724	10/18/2016	H-3	36,012 ± 560	36,207 ± 561	36,110 ± 396	Pass
F-5811,5812	10/20/2016	K-40	0.91 ± 0.30	0.75 ± 0.22	0.83 ± 0.19	Pass
SO-5900,5901	10/22/2016	Cs-137	0.05 ± 0.02	0.03 ± 0.02	0.04 ± 0.02	Pass
SO-5900,5901	10/22/2016	K-40	9.82 ± 0.60	10.77 ± 0.61	10.29 ± 0.43	Pass
SO-5900,5901	10/22/2016	Tl-208	0.10 ± 0.02	0.14 ± 0.03	0.12 ± 0.02	Pass
SO-5900,5901	10/22/2016	Pb-212	0.32 ± 0.03	0.33 ± 0.03	0.32 ± 0.02	Pass
SO-5900,5901	10/22/2016	Bi-214	0.20 ± 0.04	0.27 ± 0.04	0.23 ± 0.03	Pass
SO-5900,5901	10/22/2016	Ac-228	0.41 ± 0.08	0.48 ± 0.09	0.44 ± 0.06	Pass
SO-5900,5901	10/22/2016	Ra-226	0.45 ± 0.23	0.61 ± 0.27	0.53 ± 0.18	Pass
SO-5900,5901	10/22/2016	Gr. Beta	16.49 ± 1.01	17.71 ± 1.03	17.10 ± 0.72	Pass
SS-5879,5880	10/25/2016	K-40	14.94 ± 0.83	15.26 ± 0.84	15.10 ± 0.59	Pass
SS-5879,5880	10/25/2016	Cs-137	0.06 ± 0.03	0.09 ± 0.04	0.08 ± 0.02	Pass
LW-6072,6073	10/27/2016	Gr. Beta	0.88 ± 0.49	1.53 ± 0.56	1.21 ± 0.37	Pass
BS-6009, 6010	10/27/2016	Cs-137	0.14 ± 0.08	0.13 ± 0.06	0.13 ± 0.05	Pass
BS-6009, 6010	10/27/2016	K-40	17.04 ± 1.58	18.30 ± 1.42	17.67 ± 1.06	Pass
F-6211,6212	10/28/2016	Gr. Beta	3.25 ± 0.07	3.27 ± 0.07	3.26 ± 0.05	Pass
F-6211,6212	10/28/2016	K-40	2.45 ± 0.33	2.49 ± 0.37	2.47 ± 0.25	Pass
DW-70230, 70231	10/28/2016	Ra-226	4.00 ± 0.20	4.10 ± 0.30	4.05 ± 0.18	Pass
DW-70230, 70231	10/28/2016	Ra-228	5.30 ± 0.80	5.20 ± 0.80	5.25 ± 0.57	Pass
F-6093,6094	10/31/2016	K-40	3.77 ± 0.50	3.51 ± 0.44	3.64 ± 0.33	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
AP-110116	11/1/2016	Gr. Beta	0.021 ± 0.004	0.024 ± 0.004	0.023 ± 0.003	Pass
S-5963, 5964	11/1/2016	K-40	20.35 ± 2.29	18.59 ± 1.90	19.47 ± 1.49	Pass
SG-6119, 6120	11/1/2016	Ac-228	5.70 ± 0.44	6.28 ± 0.57	5.99 ± 0.36	Pass
SG-6119, 6120	11/1/2016	Gr. Alpha	21.59 ± 1.88	24.35 ± 1.93	22.97 ± 1.35	Pass
SG-6119, 6120	11/1/2016	K-40	4.89 ± 1.10	5.90 ± 1.08	5.40 ± 0.77	Pass
SG-6119, 6120	11/1/2016	Pb-214	3.99 ± 0.21	4.35 ± 0.32	4.17 ± 0.19	Pass
S-6051, 6052	11/4/2016	K-40	7.05 ± 0.60	7.56 ± 0.53	7.31 ± 0.40	Pass
WW-6297, 6298	11/8/2016	H-3	207 ± 98	165 ± 97	186 ± 69	Pass
WW-6341,6342	11/8/2016	H-3	1,356 ± 140	1,404 ± 141	1,380 ± 99	Pass
SO-6406,6407	11/9/2016	Cs-137	0.36 ± 0.04	0.43 ± 0.05	0.40 ± 0.03	Pass
SO-6406,6407	11/9/2016	K-40	10.90 ± 0.68	11.29 ± 0.74	11.09 ± 0.50	Pass
AP-111416	11/14/2016	Gr. Beta	0.024 ± 0.005	0.021 ± 0.006	0.022 ± 0.004	Pass
WW-6829,6830	11/15/2016	H-3	39,982 ± 589	40,315 ± 591	40,149 ± 417	Pass
DW-70239, 70240	11/17/2016	Gr. Alpha	7.99 ± 1.15	6.41 ± 1.05	7.20 ± 0.78	Pass
AP-112216	11/22/2016	Gr. Beta	0.049 ± 0.005	0.045 ± 0.005	0.047 ± 0.003	Pass
S-6473, 6474	11/24/2016	K-40	19.37 ± 1.97	23.80 ± 3.54	21.58 ± 2.02	Pass
SG-6938, 6939	11/28/2016	Ac-228	18.99 ± 0.59	19.92 ± 0.79	19.46 ± 0.49	Pass
SG-6938, 6939	11/28/2016	Pb-214	15.28 ± 0.34	14.96 ± 0.43	15.12 ± 0.27	Pass
AP-120116	12/1/2016	Gr. Beta	0.029 ± 0.003	0.030 ± 0.003	0.030 ± 0.002	Pass
F-6567,6568	12/1/2016	K-40	3.76 ± 0.40	3.83 ± 0.46	3.80 ± 0.30	Pass
S-6522, 6523	12/1/2016	Ac-228	1.08 ± 0.13	1.29 ± 0.16	1.19 ± 0.10	Pass
S-6522, 6523	12/1/2016	Pb-214	1.00 ± 0.08	1.01 ± 0.09	1.01 ± 0.06	Pass
S-6609, 6610	12/1/2016	K-40	15.57 ± 1.01	15.99 ± 0.78	15.78 ± 0.64	Pass
S-6718, 6719	12/7/2016	K-40	18.19 ± 2.13	18.76 ± 1.80	18.48 ± 1.39	Pass
WW-6784, 6785	12/7/2016	H-3	922 ± 117	905 ± 116	914 ± 82	Pass
AP-121216	12/12/2016	Gr. Beta	0.026 ± 0.005	0.028 ± 0.005	0.027 ± 0.003	Pass
AP-7178,7179	1/3/2017	Be-7	0.047 ± 0.015	0.062 ± 0.017	0.054 ± 0.012	Pass

Note: Duplicate analyses are performed on every twentieth sample received in-house. Results are not listed for those analyses with activities that measure below the LLD.

[a] Results are reported in units of pCi/L, except for air filters (pCi/Filter or pCi/m3), food products, vegetation, soil and sediment (pCi/g).

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Reference Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MASO-1053	2/1/2016	Ni-63	1,206 ± 20	1250	875 - 1625	Pass
MASO-1053	2/1/2016	Sr-90	0.65 ± 1.27	0.00	NA [c]	Pass
MASO-1053	2/1/2016	Tc-99	0.1 ± 5.5	0.0	NA [c]	Pass
MASO-1053	2/1/2016	Cs-134	908 ± 26	1030	721 - 1339	Pass
MASO-1053	2/1/2016	Cs-137	0.10 ± 6.20	0.00	NA [c]	Pass
MASO-1053	2/1/2016	Co-57	1058 ± 26	992	694 - 1290	Pass
MASO-1053	2/1/2016	Co-60	1229 ± 28	1190	833 - 1547	Pass
MASO-1053	2/1/2016	Mn-54	1235 ± 43	1160	812 - 1508	Pass
MASO-1053	2/1/2016	Zn-65	753 ± 64	692	484 - 900	Pass
MASO-1053	2/1/2016	K-40	753 ± 140	607	425 - 789	Pass
MASO-1053	2/1/2016	Am-241	79 ± 6	103	72 - 134	Pass
MASO-1053	2/1/2016	Pu-238	73.9 ± 9.2	63.6	44.5 - 82.7	Pass
MASO-1053	2/1/2016	Pu-239/240	0.76 ± 1.34	0.21	NA [d]	Pass
MASO-1053	2/1/2016	U-234/233	45.0 ± 5.1	45.9	32.1 - 59.7	Pass
MASO-1053	2/1/2016	U-238	129 ± 9	146	102 - 190	Pass
MAW-989	2/1/2016	Am-241	0.018 ± 0.015	0.00	NA [c]	Pass
MAW-989	2/1/2016	H-3	0.2 ± 2.8	0.0	NA [c]	Pass
MAW-989	2/1/2016	Ni-63	12.8 ± 2.7	12.3	8.6 - 16.0	Pass
MAW-989	2/1/2016	Sr-90	8.70 ± 1.20	8.74	6.12 - 11.36	Pass
MAW-989	2/1/2016	Tc-99	-1.1 ± 0.6	0.0	NA [c]	Pass
MAW-989	2/1/2016	Cs-134	15.5 ± 0.3	16.1	11.3 ± 20.9	Pass
MAW-989	2/1/2016	Cs-137	23.7 ± 0.5	21.2	14.8 - 27.6	Pass
MAW-989[e]	2/1/2016	Co-57	1.38 ± 0.12	0.00	NA [c]	Fail
MAW-989	2/1/2016	Co-60	12.5 ± 0.3	11.8	8.3 - 15.3	Pass
MAW-989	2/1/2016	Mn-54	12.2 ± 0.4	11.1	7.8 - 14.4	Pass
MAW-989	2/1/2016	Zn-65	15.7 ± 0.7	13.6	9.5 - 17.7	Pass
MAW-989	2/1/2016	K-40	288 ± 5	251	176 - 326	Pass
MAW-989	2/1/2016	Fe-55	17.3 ± 7.0	16.2	11.3 - 21.1	Pass
MAW-989	2/1/2016	Ra-226	0.710 ± 0.070	0.718	0.503 - 0.933	Pass
MAW-989	2/1/2016	Pu-238	1.280 ± 0.110	1.244	0.871 ± 1.617	Pass
MAW-989	2/1/2016	Pu-239/240	0.640 ± 0.080	0.641	0.449 - 0.833	Pass
MAW-989	2/1/2016	U-234/233	1.39 ± 0.12	1.48	1.04 - 1.92	Pass
MAW-989	2/1/2016	U-238	1.43 ± 0.12	1.53	1.07 - 1.99	Pass
MAW-893	2/1/2016	Gross Alpha	0.600 ± 0.050	0.673	0.202 - 1.144	Pass
MAW-893	2/1/2016	Gross Beta	2.10 ± 0.06	2.15	1.08 - 3.23	Pass
MAW-896	2/1/2016	I-129	3.67 ± 0.20	3.85	2.70 - 5.01	Pass
MAAP-1056	2/1/2016	Gross Alpha	0.39 ± 0.05	1.20	0.36 - 2.04	Pass
MAAP-1056	2/1/2016	Gross Beta	1.03 ± 0.07	0.79	0.40 - 1.19	Pass

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Reference Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MAAP-1057	2/1/2016	Sr-90	1.34 ± 0.15	1.38	0.97 ± 1.79	Pass
MAAP-1057	2/1/2016	Cs-134	-0.01 ± 0.03	0.00	NA [c]	Pass
MAAP-1057	2/1/2016	Cs-137	2.57 ± 0.10	2.30	1.61 - 2.99	Pass
MAAP-1057	2/1/2016	Co-57	3.01 ± 0.06	2.94	2.06 - 3.82	Pass
MAAP-1057	2/1/2016	Co-60	4.28 ± 0.10	4.02	2.81 - 5.23	Pass
MAAP-1057	2/1/2016	Mn-54	4.90 ± 0.13	4.53	3.17 - 5.89	Pass
MAAP-1057	2/1/2016	Zn-65	4.09 ± 0.18	3.57	2.50 - 4.64	Pass
MAAP-1057	2/1/2016	Am-241	0.059 ± 0.015	0.0805	0.0564 - 0.1047	Pass
MAAP-1057	2/1/2016	Pu-238	0.066 ± 0.020	0.0637	0.0446 - 0.0828	Pass
MAAP-1057	2/1/2016	Pu-239/240	0.074 ± 0.020	0.099	NA [d]	Pass
MAAP-1057	2/1/2016	U-234/233	0.151 ± 0.026	0.165	0.116 - 0.215	Pass
MAAP-1057	2/1/2016	U-238	0.160 ± 0.026	0.172	0.120 - 0.224	Pass
MAVE-1050	2/1/2016	Cs-134	9.83 ± 0.19	10.62	7.43 - 13.81	Pass
MAVE-1050	2/1/2016	Cs-137	6.06 ± 0.19	5.62	3.93 - 7.31	Pass
MAVE-1050	2/1/2016	Co-57	13.8 ± 0.2	11.8	8.3 - 15.3	Pass
MAVE-1050	2/1/2016	Co-60	0.022 ± 0.040	0.00	NA [c]	Pass
MAVE-1050	2/1/2016	Mn-54	0.009 ± 0.044	0.000	NA [c]	Pass
MAVE-1050	2/1/2016	Zn-65	10.67 ± 0.39	9.60	6.70 - 12.50	Pass
MASO-4780[f]	8/1/2016	Ni-63	648 ± 14	990	693 - 1287	Fail
MASO-4780[g]	8/1/2016	Ni-63	902 ± 46	990	693 - 1287	Pass
MASO-4780	8/1/2016	Sr-90	757 ± 16	894	626 - 1162	Pass
MASO-4780	8/1/2016	Tc-99	559 ± 12	556	389 - 723	Pass
MASO-4780	8/1/2016	Cs-134	0.93 ± 2.92	0.00	NA [c]	Pass
MASO-4780	8/1/2016	Cs-137	1061 ± 12	1067	747 - 1387	Pass
MASO-4780	8/1/2016	Co-57	1178 ± 8	1190	833 - 1547	Pass
MASO-4780	8/1/2016	Co-60	841 ± 9	851	596 - 1106	Pass
MASO-4780	8/1/2016	Mn-54	0.69 ± 2.53	0.00	NA [c]	Pass
MASO-4780	8/1/2016	Zn-65	724 ± 19	695	487 - 904	Pass
MASO-4780	8/1/2016	K-40	566 ± 52	588	412 - 764	Pass
MASO-4780	8/1/2016	Am-241	0.494 ± 0.698	0.000	NA [c]	Pass
MASO-4780	8/1/2016	Pu-238	69.7 ± 7.4	70.4	49.3 - 91.5	Pass
MASO-4780	8/1/2016	Pu-239/240	53.9 ± 6.3	53.8	37.7 - 69.9	Pass
MASO-4780[h]	8/1/2016	U-233/234	46.8 ± 3.9	122	85 - 159	Fail
MASO-4780[h]	8/1/2016	U-238	46.6 ± 3.9	121	85 - 157	Fail
MAW-4776	8/1/2016	I-129	4.40 ± 0.20	4.54	3.18 - 5.90	Pass
MAVE-4782	8/1/2016	Cs-134	-0.01 ± 0.05	0.00	NA [c]	Pass
MAVE-4782	8/1/2016	Cs-137	6.18 ± 0.20	5.54	3.88 - 7.20	Pass
MAVE-4782	8/1/2016	Co-57	8.13 ± 0.16	6.81	4.77 - 8.85	Pass
MAVE-4782	8/1/2016	Co-60	5.30 ± 0.15	4.86	3.40 - 6.32	Pass
MAVE-4782	8/1/2016	Mn-54	8.08 ± 0.24	7.27	5.09 - 9.45	Pass
MAVE-4782	8/1/2016	Zn-65	6.24 ± 0.36	5.40	3.78 - 7.02	Pass

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Reference Date	Analysis	Laboratory result	Known Activity	NA [c] Limits [c]	Acceptance
MAAP-4784	8/1/2016	Sr-90	1.18 ± 0.10	1.03	0.72 - 1.34	Pass
MAAP-4784	8/1/2016	Cs-134	1.58 ± 0.08	2.04	1.43 - 2.65	Pass
MAAP-4784	8/1/2016	Cs-137	1.85 ± 0.09	1.78	1.25 - 2.31	Pass
MAAP-4784	8/1/2016	Co-57	2.39 ± 0.52	2.48	1.74 - 3.22	Pass
MAAP-4784	8/1/2016	Co-60	3.22 ± 0.08	3.26	2.28 - 4.24	Pass
MAAP-4784	8/1/2016	Mn-54	2.82 ± 0.12	2.75	1.93 - 3.58	Pass
MAAP-4784	8/1/2016	Zn-65	-0.015 ± 0.062	0.00	NA [c]	Pass
MAAP-4784	8/1/2016	Am-241	-0.001 ± 0.006	0.00	NA [c]	Pass
MAAP-4784	8/1/2016	Pu-238	0.075 ± 0.022	0.069	0.049 - 0.090	Pass
MAAP-4784	8/1/2016	Pu-239/240	0.048 ± 0.015	0.054	0.038 - 0.070	Pass
MAAP-4784	8/1/2016	U-234/233	0.151 ± 0.036	0.150	0.105 - 0.195	Pass
MAAP-4784	8/1/2016	U-238	0.147 ± 0.034	0.156	0.109 - 0.203	Pass
MAW-4778	8/1/2016	H-3	365 ± 11	334	234 - 434	Pass
MAW-4778	8/1/2016	Fe-55	23.6 ± 16.3	21.5	15.1 ± 28.0	Pass
MAW-4778	8/1/2016	Ni-63	17.0 ± 2.8	17.2	12.0 ± 22.4	Pass
MAW-4778	8/1/2016	Sr-90	0.17 ± 0.28	0.00	NA [c]	Pass
MAW-4778	8/1/2016	Tc-99	9.50 ± 0.41	11.60	8.10 - 15.10	Pass
MAW-4778	8/1/2016	Cs-134	22.6 ± 0.4	23.9	16.7 - 31.1	Pass
MAW-4778	8/1/2016	Cs-137	0.018 ± 0.117	0.00	NA [c]	Pass
MAW-4778	8/1/2016	Co-57	27.6 ± 0.2	27.3	19.1 ± 35.5	Pass
MAW-4778	8/1/2016	Co-60	0.018 ± 0.090	0.00	NA [c]	Pass
MAW-4778	8/1/2016	Mn-54	16.2 ± 0.4	14.8	10.4 - 19.2	Pass
MAW-4778	8/1/2016	Zn-65	19.3 ± 0.7	17.4	12.2 - 22.6	Pass
MAW-4778	8/1/2016	K-40	286 ± 6	252	176 - 328	Pass
MAW-4778	8/1/2016	Ra-226	1.48 ± 0.09	1.33	0.93 - 1.73	Pass
MAW-4778	8/1/2016	Pu-238	1.09 ± 0.13	1.13	0.79 - 1.47	Pass
MAW-4778	8/1/2016	Pu-239/240	0.003 ± 0.011	0.016	NA [d]	Pass
MAW-4778	8/1/2016	U-234/233	1.80 ± 0.13	1.86	1.30 - 2.42	Pass
MAW-4778	8/1/2016	U-238	1.77 ± 0.13	1.92	1.34 - 2.50	Pass
MAW-4778	8/1/2016	Am-241	0.678 ± 0.086	0.814	0.570 ± 1.058	Pass

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

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

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

[d] Provided in the series for "sensitivity evaluation". MAPEP does not provide control limits.

[e] The laboratory properly identified the Sn-75 interfering peak in the vicinity of Co-57 and stated so in the comment field. MAPEP requires results to be reported as an activity with an uncertainty. Since the calculated uncertainty was less than the activity MAPEP interpreted the submitted result as a "false positive" resulting in a failure.

[f] Original analysis for Ni-63 failed.

[g] Reanalysis with a smaller aliquot resulted in acceptable results. An investigation is in process to identify better techniques for analyzing samples with complex matrices.

[h] MAPEP states that samples contain two fractions of Uranium; one that is soluble in concentrated HNO^3 and HCl acid and one that is "fundamentally insoluble in these acids". They also state that HF treatment can not assure complete dissolution. Results are consistent with measuring the soluble form.

TABLE A-7. Interlaboratory Comparison Crosscheck Program, Environmental Resource Associates (ERA)[a].

MRAD Study

Lab Code [b]	Date	Analysis	Concentration [a] Laboratory Result	ERA Result	Control Limits	Acceptance
ERAP-1101	3/14/2016	Am-241	37.3	45.9	28.3 - 62.1	Pass
ERAP-1101	3/14/2016	Co-60	637	623	482 - 778	Pass
ERAP-1101	3/14/2016	Cs-134	251	304	193 - 377	Pass
ERAP-1101	3/14/2016	Cs-137	1,273	1,150	864 - 1,510	Pass
ERAP-1101	3/14/2016	Fe-55	< 162	126	39.1 - 246	Pass
ERAP-1101	3/14/2016	Mn-54	< 2.64	< 50.0	0.00 - 50.0	Pass
ERAP-1101	3/14/2016	Pu-238	68.0	70.5	48.3 - 92.7	Pass
ERAP-1101	3/14/2016	Pu-239/240	54.1	54.8	39.70 - 71.60	Pass
ERAP-1101	3/14/2016	Sr-90	139	150	73.3 - 225.0	Pass
ERAP-1101	3/14/2016	U-233/234	59.3	64.8	40.2 - 97.7	Pass
ERAP-1101	3/14/2016	U-238	55.5	64.2	41.5 - 88.8	Pass
ERAP-1101	3/14/2016	Zn-65	428	356	255 - 492	Pass
ERAP-1101	3/14/2016	Gr. Alpha	98.0	70.1	23.5 - 109	Pass
ERAP-1101	3/14/2016	Gr. Beta	78.6	54.4	34.4 - 79.3	Pass
ERSO-1105	3/14/2016	Am-241	1,030	1,360	796 - 1,770	Pass
ERSO-1105	3/14/2016	Ac-228	1,540	1,240	795 - 1,720	Pass
ERSO-1105	3/14/2016	Bi-212	1,550	1,240	330 - 1,820	Pass
ERSO-1105	3/14/2016	Bi-214	3,100	3,530	2,130 - 5,080	Pass
ERSO-1105	3/14/2016	Co-60	5,600	5,490	3,710 - 7,560	Pass
ERSO-1105	3/14/2016	Cs-134	3,030	3,450	2,260 - 4,140	Pass
ERSO-1105	3/14/2016	Cs-137	4,440	4,310	3,300 - 5,550	Pass
ERSO-1105	3/14/2016	K-40	10,300	10,600	7,740 - 14,200	Pass
ERSO-1105	3/14/2016	Mn-54	< 50.8	< 1000	0.0 - 1,000	Pass
ERSO-1105	3/14/2016	Pb-212	1,140	1,240	812 - 1,730	Pass
ERSO-1105	3/14/2016	Pb-214	3,190	3,710	2,170 - 5,530	Pass
ERSO-1105	3/14/2016	Pu-238	680	658	396 - 908	Pass
ERSO-1105	3/14/2016	Pu-239/240	460	496	324 - 0,685	Pass
ERSO-1105	3/14/2016	Sr-90	7,740	8,560	3,260 - 13,500	Pass
ERSO-1105	3/14/2016	Th-234	3,630	3,430	1,080 - 6,450	Pass
ERSO-1105	3/14/2016	U-233/234	3,090	3,460	2,110 - 4,430	Pass
ERSO-1105	3/14/2016	U-238	3,280	3,430	2,120 - 4,350	Pass
ERSO-1105	3/14/2016	Zn-65	2,940	2,450	1,950 - 3,260	Pass
ERW-1115	3/14/2016	Gr. Alpha	105.0	117.0	41.5 - 181.0	Pass
ERW-1115	3/14/2016	Gr. Beta	76.2	75.5	43.2 - 112.0	Pass
ERW-1117	3/14/2016	H-3	8,870	8,650	5,800 - 12,300	Pass

TABLE A-7. Interlaboratory Comparison Crosscheck Program, Environmental Resource Associates (ERA)[a]. MRAD Study

Lab Code [b]	Date	Analysis	Concentration [a] Laboratory Result	ERA Result	Control Limits	Acceptance
ERVE-1108	3/14/2016	Am-241	1,930	2,120	1,300 - 2,820	Pass
ERVE-1108	3/14/2016	Cm-244	1,294	1,560	764 - 2,430	Pass
ERVE-1108	3/14/2016	Co-60	1,164	1,100	759 - 1,540	Pass
ERVE-1108	3/14/2016	Cs-134	1,056	1,070	687 - 1,390	Pass
ERVE-1108	3/14/2016	Cs-137	930	838	608 - 1,170	Pass
ERVE-1108	3/14/2016	K-40	32,200	31,000	22,400 - 43,500	Pass
ERVE-1108	3/14/2016	Mn-54	< 24.5	< 300	0.00 - 300	Pass
ERVE-1108	3/14/2016	Zn-65	3,320	2,820	2,030 - 3,960	Pass
ERVE-1108	3/14/2016	Pu-238	3,410	2,810	1,680 - 3,850	Pass
ERVE-1108	3/14/2016	Pu-239/240	4,120	3,640	2,230 - 5,010	Pass
ERVE-1108	3/14/2016	Sr-90	8,120	8,710	4,960 - 11,500	Pass
ERVE-1108	3/14/2016	U-233/234	4,350	4,160	2,740 - 5,340	Pass
ERVE-1108	3/14/2016	U-238	4,220	4,120	2,750 - 5,230	Pass
ERW-1111	3/14/2016	Am-241	113	121	81.5 - 162	Pass
ERW-1111	3/14/2016	Co-60	1,120	1,050	912 - 1,230	Pass
ERW-1111	3/14/2016	Cs-134	806	842	618 - 968	Pass
ERW-1111	3/14/2016	Cs-137	1,190	1,100	934 - 1,320	Pass
ERW-1111	3/14/2016	Mn-54	< 5.89	< 100	0.00 - 100	Pass
ERW-1111	3/14/2016	Pu-238	159	138	102 - 172	Pass
ERW-1111	3/14/2016	Pu-239/240	113	98.7	76.6 - 124	Pass
ERW-1111	3/14/2016	U-233/234	46.9	52.7	39.6 - 68.0	Pass
ERW-1111	3/14/2016	U-238	50.4	52.3	39.9 - 64.2	Pass
ERW-1111	3/14/2016	Zn-65	1,160	1,010	842 - 1,270	Pass
ERW-1111	3/14/2016	Fe-55	1,600	1,650	984 - 2,240	Pass
ERW-1111	3/14/2016	Sr-90	430	434	283 - 574	Pass

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

[b] Laboratory codes as follows: ERW (water), ERAP (air filter), ERSO (soil), ERVE (vegetation). Results are reported in units of pCi/L, except for air filters (pCi/Filter), vegetation and soil (pCi/kg).

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

Appendix B

Summary Tables in the format of NRC Radiological Assessment Branch Technical Position
Revision 1, November 1979

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility: Wolf Creek Generating Station Docket No.: 50-482

Location of Facility: Coffey County, Kansas Reporting Period: Annual 2016

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	ODCM Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) ** Range	Indicator Location with Highest Annual Mean Name Distance and Direction	** Mean (f) ** Range	Control Locations ** Mean (f) ** Range	Number of Nonroutine Reported Measurements **
Air Particulate (pCi/m^3)	Gross Beta (318)	0.01	0.025 (265/265) (0.009 - 0.056)	37 2.0 miles NNW	0.026 (53/53) (0.013 - 0.052)	Station 53 0.025 (53/53) (0.010 - 0.050)	0
	Gamma (24) Be-7	-	0.081 (20/20) (0.065 - 0.107)	32 3.1 miles WNW	0.084 (4/4) (0.073 - 0.104)	0.083 (4/4) (0.073 - 0.100)	0
Air Radioiodine (pCi/m^3)	I-131 (318)	0.07	- (0/265)	N/A	N/A	Station 53 - (0/53)	0
Direct Radiation Dosimeters (mR per std. 90-day Qtr.)	Gamma Dose (168)	-	18.1 (160/160) (10.5 – 22.5)	38 1.2 miles NW	21.1 (4/4) (20.0 – 22.0)	Stations 39 & 53 18.7 (8/8) (16.4 – 21.5)	0
Surface Water (pCi/l)	Gamma (24)		- (0/12)	N/A	N/A	JRR - (0/12)	0
	Tritium (24)	3,000	10,461 (12/12) (7,971–12,300)	SP 3.2 miles SSE	10,461 (12/12) (7,971–12,300)	- (0/12)	0
	Fe-55 (8)	-	- (0/4)	N/A	N/A	- (0/4)	0
Ground Water (pCi/l)	I-131 (32)	1	- (0/28)	N/A	N/A	B-12 - (0/4)	0
	Gamma (32)		- (0/28)	N/A	N/A	- (0/4)	0
	Tritium (32)	2,000	- (0/28)	N/A	N/A	- (0/4)	0

** Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Name of Facility: Wolf Creek Generating Station Docket No.: 50-482

Location of Facility: Coffey County, Kansas Reporting Period: Annual 2016

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	ODCM Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) ** Range	Indicator Location with Highest Annual Mean Name Distance and Direction	 ** Mean (f) ** Range	Control Locations ** Mean (f) ** Range	Number of Nonroutine Reported Measurements **
Drinking Water (pCi/l)	I-131 (24)	1	- (0/12)	N/A	N/A	BW-15 - (0/12)	0
	Gross Beta (24)	4	2.9 (12/12) (1.9 – 4.0)	IO-DW 26.1 miles SSE	2.9 (12/12) (1.9 – 4.0)	2.7 (12/12) (2.2 – 3.2)	0
	Gamma (24)		- (0/12)	N/A	N/A	- (0/12)	0
	Tritium (8)	2,000	228 (1/4)	IO-DW 26.1 miles SSE	228 (1/4)	- (0/4)	0
Shoreline Sediment (pCi/kg dry)	Gamma (6)					JRR	
	K-40	-	11,516 (4/4) (10,437–12,465)	EEA 3.0 miles NNW	11,810 (2/2) (11,155-12,465)	13,981 (2/2) (11,582–16,380)	0
	Cs-137	-	172 (4/4) (97 – 271)	EEA 3.0 miles NNW	184 (2/2) (97 – 271)	113 (1/2)	0
Fish (pCi/kg wet)	Gamma (22)					JRR	
	K-40	-	3,477 (10/10) (2,772 – 4,133)	CCL 0.6 miles E to NNW	3,477 (10/10) (2,772 – 4,133)	3,452 (12/12) (3,128 – 3,922)	0
	Tritium (22)	-	7,274 (10/10) (6,407 – 8,243)	CCL 0.6 miles E to NNW	7,274 (10/10) (6,407 – 8,243)	- (0/12)	0

** Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
Name of Facility: Wolf Creek Generating Station Docket No.: 50-482
Location of Facility: Coffey County, Kansas Reporting Period: Annual 2016

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	ODCM Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) ** Range	Indicator Location with Highest Annual Mean Name Distance and Direction	** Mean (f) ** Range	Control Locations ** Mean (f) ** Range	Number of Nonroutine Reported Measurements **
Food and Garden (pCi/kg wet)	Gamma (28)					D-2	
	Be-7	-	912 (21/21) (368 – 2,093)	A-3 2.6 miles N	985 (7/7) (368 – 2,093)	1,060 (7/7) (555 – 1,880)	0
	K-40	-	5,751 (21/21) (3,723 – 7,323)	H-2 3.0 miles SSE	6,297 (7/7) (4,681 – 7,323)	6,298 (7/7) (4,597 – 7,484)	0
Crops (pCi/kg wet)	Gamma (4)					NR-U1	
	K-40	-	9,455 (2/2) (3,078 - 15,833)	NR-D1 8.9 miles S	15,833 (1/1)	8,369 (2/2) (2,797 – 13,941)	0
Bottom Sediment (pCi/kg dry)	Gamma (20)					JRR	
	K-40	-	10,910 (18/18) (5,344 – 14,051)	SC 0.8 miles NNW	14,051 (1/1)	15,719 (2/2) (14,399 – 17,039)	0
	Cs-137	-	79 (2/18) (73 – 86)	UHS 0.6 miles E	86 (1/10)	138 (1/2)	0
	Fe-55 (14)	-	- (0/14)	N/A	N/A	N/A	0
	HTD (2)						
	Sr-90	-	56 (1/2)	UHS 0.6 miles E	56 (1/2)	N/A	0

** Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
Name of Facility: Wolf Creek Generating Station Docket No.: 50-482
Location of Facility: Coffey County, Kansas Reporting Period: Annual 2016

Medium of Pathway Sampled (Unit of Measurement)	Analysis and Total Number of Analysis Performed	ODCM Lower Limit of Detection (LLD)	All Indicator Locations ** Mean (f) ** Range	Indicator Location with Highest Annual Mean Name Distance and Direction	** Mean (f) ** Range	Control Locations ** Mean (f) ** Range	Number of Nonroutine Reported Measurements **
Aquatic Vegetation (pCi/kg wet)	Gamma (3)					No Control	
	Be-7	-	582 (3/3) (453 – 705)	MUDS 1.5 miles WNW	705 (1/1)		0
	K-40	-	2,561 (3/3) (2,253 – 3,156)	EEA 3.0 miles NNW	2,705 (2/2) (2,253 – 3,156)		0
Terrestrial Vegetation (pCi/kg wet)	Gamma (1)					No Control	
	Be-7	-	2,233 (1/1)	EEA 3.0 miles NNW	2,233 (1/1)		0
	K-40	-	7,569 (1/1)	EEA 3.0 miles NNW	7,569 (1/1)		0
Soil (pCi/kg dry)	Gamma (1)					No Control	
	K-40	-	10,764 (1/1)	EEA 3.0 miles NNW	10,764 (1/1)		0
	Cs-137	-	100 (1/1)	EEA 3.0 miles NNW	100 (1/1)		0
Deer (pCi/kg wet)	Gamma (1)					No Control	
	K-40	-	3,337 (1/1)	R2.0 2.0 miles NNW	3,337 (1/1)		0
	Tritium (1)	-	169 (1/1)	R2.0 2.0 miles NNW	169 (1/1)		0

** Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f)

APPENDIX C

INDIVIDUAL SAMPLE RESULTS

Air Particulate Filters and Radioiodine Canisters

Location: 002

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	257	0.047 +/- 0.006	< 0.012	
04-Jan-16	11-Jan-16	297	0.026 +/- 0.005	< 0.013	
11-Jan-16	19-Jan-16	345	0.031 +/- 0.005	< 0.007	
19-Jan-16	25-Jan-16	259	0.027 +/- 0.005	< 0.013	
25-Jan-16	01-Feb-16	299	0.023 +/- 0.005	< 0.010	
25-Jan-16	01-Feb-16	299	0.023 +/- 0.005		Duplicate
01-Feb-16	08-Feb-16	305	0.020 +/- 0.004	< 0.009	
08-Feb-16	16-Feb-16	341	0.017 +/- 0.004	< 0.011	
16-Feb-16	23-Feb-16	300	0.017 +/- 0.004	< 0.009	
23-Feb-16	29-Feb-16	256	0.021 +/- 0.005	< 0.011	
29-Feb-16	07-Mar-16	297	0.020 +/- 0.005	< 0.007	
07-Mar-16	14-Mar-16	301	0.021 +/- 0.005	< 0.011	
14-Mar-16	21-Mar-16	306	0.018 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	376	0.023 +/- 0.004	< 0.010	
30-Mar-16	04-Apr-16	218	0.021 +/- 0.005	< 0.021	
04-Apr-16	11-Apr-16	296	0.019 +/- 0.004	< 0.011	
11-Apr-16	18-Apr-16	296	0.020 +/- 0.004	< 0.010	
18-Apr-16	25-Apr-16	295	0.019 +/- 0.004	< 0.014	
25-Apr-16	03-May-16	352		< 0.014	
25-Apr-16	03-May-16	352	0.009 +/- 0.003		
25-Apr-16	03-May-16	352	0.007 +/- 0.003		Reanalysis
03-May-16	10-May-16	281	0.020 +/- 0.005	< 0.011	
03-May-16	10-May-16	281	0.018 +/- 0.005		Duplicate
10-May-16	17-May-16	310	0.013 +/- 0.004	< 0.009	
17-May-16	25-May-16	325	0.023 +/- 0.004	< 0.015	
25-May-16	01-Jun-16	296	0.016 +/- 0.004	< 0.015	
01-Jun-16	06-Jun-16	206	0.018 +/- 0.006	< 0.018	
06-Jun-16	14-Jun-16	345	0.023 +/- 0.004	< 0.008	
14-Jun-16	20-Jun-16	254	0.029 +/- 0.005	< 0.020	
20-Jun-16	29-Jun-16	383	0.025 +/- 0.004	< 0.020	
29-Jun-16	05-Jul-16	250	0.020 +/- 0.005	< 0.020	
05-Jul-16	12-Jul-16	298	0.014 +/- 0.004	< 0.010	
05-Jul-16	12-Jul-16	298	0.018 +/- 0.004		Duplicate
12-Jul-16	18-Jul-16	256	0.022 +/- 0.005	< 0.011	
12-Jul-16	18-Jul-16	256	0.024 +/- 0.005		Duplicate
18-Jul-16	25-Jul-16	299	0.020 +/- 0.004	< 0.010	
25-Jul-16	01-Aug-16	291	0.032 +/- 0.005	< 0.008	
01-Aug-16	09-Aug-16	335	0.025 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	300	0.029 +/- 0.005	< 0.011	
16-Aug-16	22-Aug-16	255	0.018 +/- 0.005	< 0.014	
22-Aug-16	31-Aug-16	370	0.022 +/- 0.004	< 0.020	

Air Particulate Filters and Radioiodine Canisters

Location: 002

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
31-Aug-16	06-Sep-16	259	0.028 +/- 0.005	< 0.021	
06-Sep-16	12-Sep-16	256	0.015 +/- 0.005	< 0.010	
12-Sep-16	20-Sep-16	334	0.018 +/- 0.004	< 0.012	
20-Sep-16	27-Sep-16	301	0.033 +/- 0.005	< 0.021	
27-Sep-16	03-Oct-16	254	0.023 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	300	0.026 +/- 0.005	< 0.016	
10-Oct-16	17-Oct-16	296	0.026 +/- 0.005	< 0.010	
17-Oct-16	24-Oct-16	306	0.024 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	293	0.048 +/- 0.005	< 0.013	
31-Oct-16	08-Nov-16	351	0.040 +/- 0.004	< 0.009	
08-Nov-16	14-Nov-16	248	0.023 +/- 0.005	< 0.013	
14-Nov-16	22-Nov-16	343	0.046 +/- 0.005	< 0.022	
22-Nov-16	30-Nov-16	350	0.056 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	214	0.031 +/- 0.006	< 0.024	
05-Dec-16	12-Dec-16	308	0.026 +/- 0.005	< 0.008	
12-Dec-16	19-Dec-16	303	0.038 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	335	0.036 +/- 0.004	< 0.017	
27-Dec-16	04-Jan-17	339	0.028 +/- 0.004	< 0.019	
27-Dec-16	04-Jan-17	339	0.028 +/- 0.004		Duplicate

Air Particulate Filters and Radioiodine Canisters

Location: 018

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	261	0.042 +/- 0.006	< 0.012	
04-Jan-16	11-Jan-16	299	0.028 +/- 0.005	< 0.013	
11-Jan-16	19-Jan-16	344	0.033 +/- 0.005	< 0.007	
11-Jan-16	19-Jan-16	344	0.035 +/- 0.005		Duplicate
19-Jan-16	25-Jan-16	257	0.029 +/- 0.005	< 0.013	
25-Jan-16	01-Feb-16	297	0.022 +/- 0.005	< 0.010	
01-Feb-16	08-Feb-16	308	0.018 +/- 0.004	< 0.009	
08-Feb-16	16-Feb-16	341	0.017 +/- 0.004	< 0.011	
16-Feb-16	23-Feb-16	279	0.016 +/- 0.004	< 0.010	
23-Feb-16	29-Feb-16	256	0.021 +/- 0.005	< 0.011	
29-Feb-16	07-Mar-16	297	0.021 +/- 0.005	< 0.007	
07-Mar-16	14-Mar-16	300	0.018 +/- 0.004	< 0.011	
14-Mar-16	21-Mar-16	305	0.014 +/- 0.004	< 0.010	
14-Mar-16	21-Mar-16	305	0.020 +/- 0.004		Duplicate
21-Mar-16	30-Mar-16	378	0.023 +/- 0.004	< 0.010	
30-Mar-16	04-Apr-16	221	0.022 +/- 0.005	< 0.021	
04-Apr-16	11-Apr-16	297	0.020 +/- 0.004	< 0.011	
04-Apr-16	11-Apr-16	297	0.019 +/- 0.004		Duplicate
11-Apr-16	18-Apr-16	300	0.021 +/- 0.004	< 0.010	
18-Apr-16	25-Apr-16	296	0.024 +/- 0.004	< 0.014	
25-Apr-16	03-May-16	351		< 0.014	
25-Apr-16	03-May-16	351	0.007 +/- 0.003		Reanalysis
25-Apr-16	03-May-16	351	0.010 +/- 0.003		
03-May-16	10-May-16	316	0.016 +/- 0.004	< 0.010	
10-May-16	17-May-16	343	0.014 +/- 0.004	< 0.008	
10-May-16	17-May-16	343	0.015 +/- 0.004		Duplicate
17-May-16	25-May-16	339	0.022 +/- 0.004	< 0.014	
17-May-16	25-May-16	339	0.022 +/- 0.004		Duplicate
25-May-16	01-Jun-16	294	0.017 +/- 0.004	< 0.015	
01-Jun-16	06-Jun-16	211	0.015 +/- 0.005	< 0.017	
06-Jun-16	14-Jun-16	335	0.026 +/- 0.004	< 0.008	
06-Jun-16	14-Jun-16	335	0.023 +/- 0.004		Duplicate
14-Jun-16	20-Jun-16	252	0.026 +/- 0.005	< 0.020	
20-Jun-16	29-Jun-16	381	0.024 +/- 0.004	< 0.020	
29-Jun-16	05-Jul-16	254	0.025 +/- 0.005	< 0.020	
05-Jul-16	12-Jul-16	300	0.029 +/- 0.005	< 0.010	
12-Jul-16	18-Jul-16	251	0.026 +/- 0.005	< 0.012	
18-Jul-16	25-Jul-16	299	0.018 +/- 0.004	< 0.010	
25-Jul-16	01-Aug-16	297	0.030 +/- 0.005	< 0.008	
01-Aug-16	09-Aug-16	340	0.021 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	302	0.026 +/- 0.005	< 0.011	

Air Particulate Filters and Radioiodine Canisters

Location: 018

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
16-Aug-16	22-Aug-16	257	0.018 +/- 0.005	< 0.014	
22-Aug-16	31-Aug-16	376	0.024 +/- 0.004	< 0.020	
31-Aug-16	06-Sep-16	262	0.026 +/- 0.005	< 0.021	
06-Sep-16	12-Sep-16	257	0.013 +/- 0.004	< 0.010	
12-Sep-16	20-Sep-16	335	0.020 +/- 0.004	< 0.012	
20-Sep-16	27-Sep-16	304	0.028 +/- 0.004	< 0.020	
27-Sep-16	03-Oct-16	256	0.024 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	302	0.026 +/- 0.004	< 0.016	
10-Oct-16	17-Oct-16	299	0.021 +/- 0.004	< 0.010	
17-Oct-16	24-Oct-16	311	0.025 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	297	0.051 +/- 0.005	< 0.012	
24-Oct-16	31-Oct-16	297	0.046 +/- 0.005		Duplicate
31-Oct-16	08-Nov-16	351	0.036 +/- 0.004	< 0.009	
08-Nov-16	14-Nov-16	253	0.023 +/- 0.005	< 0.012	
14-Nov-16	22-Nov-16	345	0.049 +/- 0.005	< 0.022	
22-Nov-16	30-Nov-16	347	0.050 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	208	0.030 +/- 0.006	< 0.024	
05-Dec-16	12-Dec-16	307	0.030 +/- 0.005	< 0.008	
12-Dec-16	19-Dec-16	300	0.040 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	330	0.036 +/- 0.005	< 0.017	
27-Dec-16	04-Jan-17	341	0.029 +/- 0.004	< 0.019	

Air Particulate Filters and Radioiodine Canisters

Location: 032

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	261	0.044 +/- 0.006	< 0.012	
04-Jan-16	11-Jan-16	299	0.027 +/- 0.005	< 0.013	
11-Jan-16	19-Jan-16	337	0.030 +/- 0.005	< 0.008	
19-Jan-16	25-Jan-16	254	0.035 +/- 0.006	< 0.013	
25-Jan-16	01-Feb-16	302	0.027 +/- 0.005	< 0.010	
01-Feb-16	08-Feb-16	305	0.020 +/- 0.004	< 0.009	
08-Feb-16	16-Feb-16	343	0.018 +/- 0.004	< 0.011	
16-Feb-16	23-Feb-16	300	0.014 +/- 0.004	< 0.009	
23-Feb-16	29-Feb-16	257	0.022 +/- 0.005	< 0.011	
29-Feb-16	07-Mar-16	299	0.018 +/- 0.004	< 0.007	
29-Feb-16	07-Mar-16	299	0.021 +/- 0.005		Duplicate
07-Mar-16	14-Mar-16	302	0.023 +/- 0.005	< 0.011	
14-Mar-16	21-Mar-16	306	0.015 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	376	0.022 +/- 0.004	< 0.010	
30-Mar-16	04-Apr-16	220	0.020 +/- 0.005	< 0.021	
04-Apr-16	11-Apr-16	298	0.021 +/- 0.004	< 0.011	
11-Apr-16	18-Apr-16	302	0.020 +/- 0.004	< 0.010	
18-Apr-16	25-Apr-16	295	0.024 +/- 0.004	< 0.014	
25-Apr-16	03-May-16	355		< 0.014	
25-Apr-16	03-May-16	355	0.009 +/- 0.003		Reanalysis
25-Apr-16	03-May-16	355	0.010 +/- 0.003		
03-May-16	10-May-16	292	0.020 +/- 0.005	< 0.010	
10-May-16	17-May-16	312	0.017 +/- 0.004	< 0.009	
17-May-16	25-May-16	336	0.017 +/- 0.004	< 0.014	
25-May-16	01-Jun-16	301	0.022 +/- 0.004	< 0.014	
01-Jun-16	06-Jun-16	213	0.021 +/- 0.006	< 0.017	
06-Jun-16	14-Jun-16	345	0.024 +/- 0.004	< 0.008	
14-Jun-16	20-Jun-16	259	0.031 +/- 0.005	< 0.019	
20-Jun-16	29-Jun-16	388	0.025 +/- 0.004	< 0.020	
29-Jun-16	05-Jul-16	254	0.021 +/- 0.005	< 0.020	
05-Jul-16	12-Jul-16	305	0.019 +/- 0.004	< 0.010	
12-Jul-16	18-Jul-16	259	0.026 +/- 0.005	< 0.011	
18-Jul-16	25-Jul-16	298	0.021 +/- 0.004	< 0.010	
25-Jul-16	01-Aug-16	298	0.027 +/- 0.005	< 0.008	
25-Jul-16	01-Aug-16	298	0.025 +/- 0.005		Duplicate
01-Aug-16	09-Aug-16	335	0.025 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	302	0.026 +/- 0.004	< 0.011	
16-Aug-16	22-Aug-16	256	0.016 +/- 0.005	< 0.014	
22-Aug-16	31-Aug-16	385	0.021 +/- 0.003	< 0.019	
31-Aug-16	06-Sep-16	261	0.023 +/- 0.005	< 0.021	
31-Aug-16	06-Sep-16	261	0.023 +/- 0.005		Duplicate

Air Particulate Filters and Radioiodine Canisters

Location: 032

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
06-Sep-16	12-Sep-16	261	0.017 +/- 0.005	< 0.010	
12-Sep-16	20-Sep-16	342	0.019 +/- 0.004	< 0.012	
20-Sep-16	27-Sep-16	302	0.028 +/- 0.005	< 0.021	
27-Sep-16	03-Oct-16	257	0.025 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	300	0.026 +/- 0.005	< 0.016	
10-Oct-16	17-Oct-16	298	0.022 +/- 0.004	< 0.010	
17-Oct-16	24-Oct-16	312	0.025 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	296	0.049 +/- 0.005	< 0.012	
31-Oct-16	08-Nov-16	350	0.033 +/- 0.004	< 0.009	
08-Nov-16	14-Nov-16	249	0.027 +/- 0.005	< 0.012	
14-Nov-16	22-Nov-16	347	0.048 +/- 0.005	< 0.022	
22-Nov-16	30-Nov-16	344	0.049 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	217	0.033 +/- 0.006	< 0.023	
05-Dec-16	12-Dec-16	308	0.024 +/- 0.004	< 0.008	
12-Dec-16	19-Dec-16	306	0.041 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	332	0.038 +/- 0.005	< 0.017	
19-Dec-16	27-Dec-16	332	0.035 +/- 0.004		Duplicate
27-Dec-16	04-Jan-17	338	0.027 +/- 0.004	< 0.019	

Air Particulate Filters and Radioiodine Canisters

Location: 037

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	270	0.047 +/- 0.006	< 0.012	
04-Jan-16	11-Jan-16	296	0.031 +/- 0.005	< 0.013	
11-Jan-16	19-Jan-16	349	0.033 +/- 0.005	< 0.007	
19-Jan-16	25-Jan-16	263	0.033 +/- 0.006	< 0.013	
25-Jan-16	01-Feb-16	301	0.025 +/- 0.005	< 0.010	
01-Feb-16	08-Feb-16	307	0.020 +/- 0.004	< 0.009	
01-Feb-16	08-Feb-16	307	0.019 +/- 0.004		Duplicate
08-Feb-16	16-Feb-16	345	0.018 +/- 0.004	< 0.011	
08-Feb-16	16-Feb-16	345	0.019 +/- 0.004		Duplicate
16-Feb-16	23-Feb-16	303	0.019 +/- 0.004	< 0.009	
23-Feb-16	29-Feb-16	259	0.021 +/- 0.005	< 0.011	
29-Feb-16	07-Mar-16	302	0.020 +/- 0.005	< 0.007	
07-Mar-16	14-Mar-16	304	0.022 +/- 0.005	< 0.011	
14-Mar-16	21-Mar-16	312	0.018 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	381	0.023 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	381	0.025 +/- 0.004		Duplicate
30-Mar-16	04-Apr-16	222	0.016 +/- 0.005	< 0.020	
04-Apr-16	11-Apr-16	298	0.019 +/- 0.004	< 0.011	
11-Apr-16	18-Apr-16	303	0.021 +/- 0.004	< 0.010	
18-Apr-16	25-Apr-16	300	0.023 +/- 0.004	< 0.014	
25-Apr-16	03-May-16	351		< 0.014	
25-Apr-16	03-May-16	351	0.013 +/- 0.004		
25-Apr-16	03-May-16	351	0.009 +/- 0.003		Reanalysis
03-May-16	10-May-16	289	0.018 +/- 0.004	< 0.010	
10-May-16	17-May-16	314	0.013 +/- 0.004	< 0.009	
17-May-16	25-May-16	339	0.021 +/- 0.004	< 0.014	
25-May-16	01-Jun-16	303	0.021 +/- 0.004	< 0.014	
01-Jun-16	06-Jun-16	212	0.018 +/- 0.006	< 0.017	
06-Jun-16	14-Jun-16	346	0.026 +/- 0.004	< 0.008	
14-Jun-16	20-Jun-16	261	0.027 +/- 0.005	< 0.019	
20-Jun-16	29-Jun-16	387	0.024 +/- 0.004	< 0.020	
20-Jun-16	29-Jun-16	387	0.025 +/- 0.004		Duplicate
29-Jun-16	05-Jul-16	252	0.025 +/- 0.005	< 0.020	
29-Jun-16	05-Jul-16	252	0.026 +/- 0.005		Duplicate
05-Jul-16	12-Jul-16	302	0.023 +/- 0.005	< 0.010	
12-Jul-16	18-Jul-16	257	0.021 +/- 0.005	< 0.011	
18-Jul-16	25-Jul-16	298	0.019 +/- 0.004	< 0.010	
25-Jul-16	01-Aug-16	295	0.031 +/- 0.005	< 0.008	
01-Aug-16	09-Aug-16	339	0.023 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	301	0.029 +/- 0.005	< 0.011	
16-Aug-16	22-Aug-16	257	0.021 +/- 0.005	< 0.014	

Air Particulate Filters and Radioiodine Canisters

Location: 037

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
16-Aug-16	22-Aug-16	257	0.015 +/- 0.005		Duplicate
22-Aug-16	31-Aug-16	382	0.020 +/- 0.003	< 0.019	
31-Aug-16	06-Sep-16	265	0.024 +/- 0.005	< 0.021	
06-Sep-16	12-Sep-16	238	0.014 +/- 0.005	< 0.011	
12-Sep-16	20-Sep-16	342	0.021 +/- 0.004	< 0.012	
12-Sep-16	20-Sep-16	342	0.017 +/- 0.004		Duplicate
20-Sep-16	27-Sep-16	304	0.031 +/- 0.005	< 0.020	
20-Sep-16	27-Sep-16	304	0.032 +/- 0.005		Duplicate
27-Sep-16	03-Oct-16	256	0.022 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	302	0.027 +/- 0.005	< 0.016	
10-Oct-16	17-Oct-16	299	0.025 +/- 0.004	< 0.010	
17-Oct-16	24-Oct-16	310	0.025 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	287	0.043 +/- 0.005	< 0.013	
31-Oct-16	08-Nov-16	350	0.042 +/- 0.005	< 0.009	
08-Nov-16	14-Nov-16	254	0.025 +/- 0.005	< 0.012	
14-Nov-16	22-Nov-16	344	0.049 +/- 0.005	< 0.022	
14-Nov-16	22-Nov-16	344	0.045 +/- 0.005		Duplicate
22-Nov-16	30-Nov-16	343	0.052 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	211	0.029 +/- 0.006	< 0.024	
05-Dec-16	12-Dec-16	311	0.027 +/- 0.005	< 0.008	
12-Dec-16	19-Dec-16	301	0.047 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	339	0.040 +/- 0.005	< 0.016	
27-Dec-16	04-Jan-17	340	0.026 +/- 0.004	< 0.019	

Air Particulate Filters and Radioiodine Canisters

Location: 049

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	261	0.050 +/- 0.006	< 0.012	
04-Jan-16	11-Jan-16	299	0.029 +/- 0.005	< 0.013	
11-Jan-16	19-Jan-16	346	0.031 +/- 0.005	< 0.007	
19-Jan-16	25-Jan-16	259	0.034 +/- 0.006	< 0.013	
25-Jan-16	01-Feb-16	306	0.024 +/- 0.005	< 0.010	
01-Feb-16	08-Feb-16	308	0.023 +/- 0.005	< 0.009	
08-Feb-16	16-Feb-16	348	0.018 +/- 0.004	< 0.011	
16-Feb-16	23-Feb-16	300	0.017 +/- 0.004	< 0.009	
23-Feb-16	29-Feb-16	260	0.020 +/- 0.005	< 0.011	
23-Feb-16	29-Feb-16	260	0.024 +/- 0.005		Duplicate
29-Feb-16	07-Mar-16	298	0.021 +/- 0.005	< 0.007	
07-Mar-16	14-Mar-16	304	0.018 +/- 0.004	< 0.011	
14-Mar-16	21-Mar-16	310	0.019 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	380	0.023 +/- 0.004	< 0.010	
30-Mar-16	04-Apr-16	218	0.021 +/- 0.005	< 0.021	
04-Apr-16	11-Apr-16	300	0.020 +/- 0.004	< 0.011	
11-Apr-16	18-Apr-16	303	0.017 +/- 0.004	< 0.010	
11-Apr-16	18-Apr-16	303	0.024 +/- 0.004		Duplicate
18-Apr-16	25-Apr-16	302	0.021 +/- 0.004	< 0.014	
25-Apr-16	03-May-16	355		< 0.014	
25-Apr-16	03-May-16	355	0.011 +/- 0.003		
25-Apr-16	03-May-16	355	0.009 +/- 0.003		Reanalysis
03-May-16	10-May-16	283	0.017 +/- 0.005	< 0.011	
10-May-16	17-May-16	314	0.014 +/- 0.004	< 0.009	
17-May-16	25-May-16	340	0.020 +/- 0.004	< 0.014	
25-May-16	01-Jun-16	303	0.015 +/- 0.004	< 0.014	
01-Jun-16	06-Jun-16	214	0.017 +/- 0.006	< 0.017	
06-Jun-16	14-Jun-16	347	0.025 +/- 0.004	< 0.008	
14-Jun-16	20-Jun-16	258	0.027 +/- 0.005	< 0.019	
20-Jun-16	29-Jun-16	387	0.024 +/- 0.004	< 0.020	
29-Jun-16	05-Jul-16	235	0.020 +/- 0.005	< 0.021	
05-Jul-16	12-Jul-16	303	0.021 +/- 0.004	< 0.010	
12-Jul-16	18-Jul-16	257	0.024 +/- 0.005	< 0.011	
18-Jul-16	25-Jul-16	301	0.023 +/- 0.004	< 0.010	
18-Jul-16	25-Jul-16	301	0.020 +/- 0.004		Duplicate
25-Jul-16	01-Aug-16	296	0.023 +/- 0.004	< 0.008	
01-Aug-16	09-Aug-16	340	0.024 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	303	0.027 +/- 0.005	< 0.011	
16-Aug-16	22-Aug-16	257	0.019 +/- 0.005	< 0.014	
22-Aug-16	31-Aug-16	388	0.024 +/- 0.004	< 0.019	
31-Aug-16	06-Sep-16	262	0.023 +/- 0.005	< 0.021	

Air Particulate Filters and Radioiodine Canisters

Location: 049

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
06-Sep-16	12-Sep-16	258	0.015 +/- 0.005	< 0.010	
12-Sep-16	20-Sep-16	342	0.020 +/- 0.004	< 0.012	
20-Sep-16	27-Sep-16	305	0.029 +/- 0.005	< 0.020	
27-Sep-16	03-Oct-16	257	0.022 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	304	0.025 +/- 0.004	< 0.016	
10-Oct-16	17-Oct-16	296	0.023 +/- 0.004	< 0.010	
17-Oct-16	24-Oct-16	312	0.026 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	295	0.051 +/- 0.005	< 0.012	
31-Oct-16	08-Nov-16	351	0.038 +/- 0.004	< 0.009	
08-Nov-16	14-Nov-16	253	0.023 +/- 0.005	< 0.012	
14-Nov-16	22-Nov-16	341	0.043 +/- 0.005	< 0.022	
22-Nov-16	30-Nov-16	348	0.047 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	216	0.030 +/- 0.006	< 0.023	
05-Dec-16	12-Dec-16	307	0.026 +/- 0.005	< 0.008	
12-Dec-16	19-Dec-16	306	0.044 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	335	0.035 +/- 0.004	< 0.017	
27-Dec-16	04-Jan-17	344	0.027 +/- 0.004	< 0.019	

Air Particulate Filters and Radioiodine Canisters

Location: 053

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
29-Dec-15	04-Jan-16	258	0.044 +/- 0.006	< 0.012	
29-Dec-15	04-Jan-16	258	0.051 +/- 0.006		Duplicate
04-Jan-16	11-Jan-16	298	0.024 +/- 0.005	< 0.013	
04-Jan-16	11-Jan-16	298	0.027 +/- 0.005		Duplicate
11-Jan-16	19-Jan-16	346	0.031 +/- 0.005	< 0.007	
19-Jan-16	25-Jan-16	258	0.033 +/- 0.006	< 0.013	
25-Jan-16	01-Feb-16	301	0.026 +/- 0.005	< 0.010	
01-Feb-16	08-Feb-16	305	0.022 +/- 0.005	< 0.009	
08-Feb-16	16-Feb-16	346	0.021 +/- 0.004	< 0.011	
16-Feb-16	23-Feb-16	299	0.019 +/- 0.004	< 0.009	
23-Feb-16	29-Feb-16	260	0.025 +/- 0.005	< 0.011	
29-Feb-16	07-Mar-16	302	0.018 +/- 0.004	< 0.007	
07-Mar-16	14-Mar-16	300	0.021 +/- 0.005	< 0.011	
14-Mar-16	21-Mar-16	309	0.017 +/- 0.004	< 0.010	
21-Mar-16	30-Mar-16	375	0.021 +/- 0.003	< 0.010	
30-Mar-16	04-Apr-16	220	0.018 +/- 0.005	< 0.021	
04-Apr-16	11-Apr-16	298	0.019 +/- 0.004	< 0.011	
11-Apr-16	18-Apr-16	302	0.023 +/- 0.004	< 0.010	
18-Apr-16	25-Apr-16	298	0.020 +/- 0.004	< 0.014	
18-Apr-16	25-Apr-16	298	0.023 +/- 0.004		Duplicate
25-Apr-16	03-May-16	317		< 0.016	
25-Apr-16	03-May-16	317	0.013 +/- 0.004		Reanalysis
25-Apr-16	03-May-16	317	0.010 +/- 0.004		
03-May-16	10-May-16	287	0.019 +/- 0.005	< 0.011	
10-May-16	17-May-16	307	0.011 +/- 0.004	< 0.009	
17-May-16	25-May-16	335	0.023 +/- 0.004	< 0.015	
25-May-16	01-Jun-16	302	0.021 +/- 0.004	< 0.014	
01-Jun-16	06-Jun-16	211	0.014 +/- 0.005	< 0.017	
06-Jun-16	14-Jun-16	342	0.021 +/- 0.004	< 0.008	
14-Jun-16	20-Jun-16	255	0.025 +/- 0.005	< 0.019	
20-Jun-16	29-Jun-16	382	0.025 +/- 0.004	< 0.020	
29-Jun-16	05-Jul-16	253	0.026 +/- 0.005	< 0.020	
05-Jul-16	12-Jul-16	300	0.019 +/- 0.004	< 0.010	
12-Jul-16	18-Jul-16	257	0.023 +/- 0.005	< 0.011	
18-Jul-16	25-Jul-16	300	0.017 +/- 0.004	< 0.010	
25-Jul-16	01-Aug-16	297	0.026 +/- 0.005	< 0.008	
01-Aug-16	09-Aug-16	338	0.022 +/- 0.004	< 0.010	
09-Aug-16	16-Aug-16	300	0.029 +/- 0.005	< 0.011	
09-Aug-16	16-Aug-16	300	0.025 +/- 0.004		Duplicate
16-Aug-16	22-Aug-16	256	0.019 +/- 0.005	< 0.014	
22-Aug-16	31-Aug-16	384	0.020 +/- 0.003	< 0.019	

Air Particulate Filters and Radioiodine Canisters

Location: 053

Collection StartDate	Collection EndDate	Volume m3	Gross Beta Concentration (pCi/m3)	I-131 Concentration (pCi/m3)	Duplicate Analysis
31-Aug-16	06-Sep-16	260	0.027 +/- 0.005	< 0.021	
06-Sep-16	12-Sep-16	261	0.010 +/- 0.004	< 0.010	
12-Sep-16	20-Sep-16	341	0.019 +/- 0.004	< 0.012	
20-Sep-16	27-Sep-16	299	0.031 +/- 0.005	< 0.021	
27-Sep-16	03-Oct-16	256	0.025 +/- 0.005	< 0.009	
03-Oct-16	10-Oct-16	302	0.023 +/- 0.004	< 0.016	
10-Oct-16	17-Oct-16	300	0.022 +/- 0.004	< 0.010	
17-Oct-16	24-Oct-16	307	0.023 +/- 0.004	< 0.011	
24-Oct-16	31-Oct-16	296	0.047 +/- 0.005	< 0.012	
31-Oct-16	08-Nov-16	350	0.036 +/- 0.004	< 0.009	
08-Nov-16	14-Nov-16	252	0.024 +/- 0.005	< 0.012	
08-Nov-16	14-Nov-16	252	0.021 +/- 0.005		Duplicate
14-Nov-16	22-Nov-16	344	0.044 +/- 0.005	< 0.022	
22-Nov-16	30-Nov-16	356	0.050 +/- 0.005	< 0.012	
30-Nov-16	05-Dec-16	209	0.034 +/- 0.006	< 0.024	
05-Dec-16	12-Dec-16	308	0.026 +/- 0.005	< 0.008	
05-Dec-16	12-Dec-16	308	0.028 +/- 0.005		Duplicate
12-Dec-16	19-Dec-16	309	0.048 +/- 0.005	< 0.010	
19-Dec-16	27-Dec-16	325	0.036 +/- 0.005	< 0.017	
27-Dec-16	04-Jan-17	342	0.027 +/- 0.004	< 0.019	

Quarterly Air Particulates - Gamma

Location: 002

30-Mar-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.068	+/-	0.015
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

29-Jun-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.084	+/-	0.011
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

03-Oct-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.082	+/-	0.013
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.002
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

27-Dec-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.071	+/-	0.015
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 018

30-Mar-16

Nuclide	Concentration (pCi/m3)			
BE-7	0.065	+/-	0.014	
MN-54		<	0.001	
CO-58		<	0.001	
FE-59		<	0.001	
CO-60		<	0.001	
ZN-65		<	0.001	
ZR-NB-95		<	0.001	
CS-134		<	0.001	
CS-137		<	0.001	

29-Jun-16

Nuclide	Concentration (pCi/m3)			
BE-7	0.095	+/-	0.011	
MN-54		<	0.001	
CO-58		<	0.001	
FE-59		<	0.001	
CO-60		<	0.001	
ZN-65		<	0.001	
ZR-NB-95		<	0.001	
CS-134		<	0.001	
CS-137		<	0.001	

03-Oct-16

Nuclide	Concentration (pCi/m3)			
BE-7	0.077	+/-	0.012	
MN-54		<	0.001	
CO-58		<	0.001	
FE-59		<	0.001	
CO-60		<	0.001	
ZN-65		<	0.001	
ZR-NB-95		<	0.001	
CS-134		<	0.001	
CS-137		<	0.001	

27-Dec-16

Nuclide	Concentration (pCi/m3)			
BE-7	0.072	+/-	0.014	*
BE-7	0.081	+/-	0.016	
MN-54		<	0.001	*
MN-54		<	0.001	
CO-58		<	0.001	*
CO-58		<	0.001	
FE-59		<	0.001	*
FE-59		<	0.002	
CO-60		<	0.001	*
CO-60		<	0.001	

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 018

ZN-65	<	0.001	*
ZN-65	<	0.001	
ZR-NB-95	<	0.001	*
ZR-NB-95	<	0.001	
CS-134	<	0.001	*
CS-134	<	0.001	
CS-137	<	0.001	*
CS-137	<	0.001	

*Duplicate Analysis

Quarterly Air Particulates - Gamma

Location: 032

30-Mar-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.078	+/-	0.014
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

29-Jun-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.104	+/-	0.015
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

03-Oct-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.082	+/-	0.014
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.002
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

27-Dec-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.073	+/-	0.014
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 037

30-Mar-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.066	+/-	0.014
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.002
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

29-Jun-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.107	+/-	0.015
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.002
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

03-Oct-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.081	+/-	0.015
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

27-Dec-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.080	+/-	0.018
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 049

30-Mar-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.072	+/-	0.011
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

29-Jun-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.104	+/-	0.017
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

03-Oct-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.086	+/-	0.013
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

27-Dec-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.072	+/-	0.017
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.002
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 053

30-Mar-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.073	+/-	0.012
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

29-Jun-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.100	+/-	0.016
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

03-Oct-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.077	+/-	0.012
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.001
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

27-Dec-16

Nuclide	Concentration (pCi/m3)		
BE-7	0.082	+/-	0.014
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

***Duplicate Analysis**

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
14-Jan-16	SURFACE WATER	MN-54	<	3.5	
14-Jan-16	SURFACE WATER	CO-58	<	2.9	
14-Jan-16	SURFACE WATER	FE-59	<	4.4	
14-Jan-16	SURFACE WATER	CO-60	<	2.2	
14-Jan-16	SURFACE WATER	ZN-65	<	4.1	
14-Jan-16	SURFACE WATER	ZR-NB-95	<	3.1	
14-Jan-16	SURFACE WATER	I-131	<	7.6	
14-Jan-16	SURFACE WATER	CS-134	<	3.2	
14-Jan-16	SURFACE WATER	CS-137	<	3.2	
14-Jan-16	SURFACE WATER	BA-LA-140	<	2.3	
14-Jan-16	SURFACE WATER	H-3	<	141.0	
22-Feb-16	SURFACE WATER	MN-54	<	2.6	
22-Feb-16	SURFACE WATER	CO-58	<	1.7	
22-Feb-16	SURFACE WATER	FE-59	<	5.7	
22-Feb-16	SURFACE WATER	CO-60	<	2.2	
22-Feb-16	SURFACE WATER	ZN-65	<	6.1	
22-Feb-16	SURFACE WATER	ZR-NB-95	<	3.1	
22-Feb-16	SURFACE WATER	I-131	<	4.9	
22-Feb-16	SURFACE WATER	CS-134	<	2.7	
22-Feb-16	SURFACE WATER	CS-137	<	2.0	
22-Feb-16	SURFACE WATER	BA-LA-140	<	1.4	
22-Feb-16	SURFACE WATER	H-3	<	145.0	
22-Feb-16	SURFACE WATER	FE-55	<	73.0	
30-Mar-16	SURFACE WATER	MN-54	<	2.9	
30-Mar-16	SURFACE WATER	CO-58	<	2.9	
30-Mar-16	SURFACE WATER	FE-59	<	4.9	
30-Mar-16	SURFACE WATER	CO-60	<	1.3	
30-Mar-16	SURFACE WATER	ZN-65	<	5.5	
30-Mar-16	SURFACE WATER	ZR-NB-95	<	3.6	
30-Mar-16	SURFACE WATER	I-131	<	4.3	
30-Mar-16	SURFACE WATER	CS-134	<	3.4	
30-Mar-16	SURFACE WATER	CS-137	<	3.9	
30-Mar-16	SURFACE WATER	BA-LA-140	<	3.6	
30-Mar-16	SURFACE WATER	H-3	<	152.0	
13-Apr-16	SURFACE WATER	MN-54	<	1.8	
13-Apr-16	SURFACE WATER	CO-58	<	1.6	
13-Apr-16	SURFACE WATER	FE-59	<	4.8	
13-Apr-16	SURFACE WATER	CO-60	<	2.5	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Apr-16	SURFACE WATER	ZN-65	<	3.6	
13-Apr-16	SURFACE WATER	ZR-NB-95	<	2.3	
13-Apr-16	SURFACE WATER	I-131	<	4.5	
13-Apr-16	SURFACE WATER	CS-134	<	3.4	
13-Apr-16	SURFACE WATER	CS-137	<	2.4	
13-Apr-16	SURFACE WATER	BA-LA-140	<	2.1	
13-Apr-16	SURFACE WATER	H-3	<	148.0	
10-May-16	SURFACE WATER	MN-54	<	2.3	
10-May-16	SURFACE WATER	CO-58	<	1.6	
10-May-16	SURFACE WATER	FE-59	<	3.5	
10-May-16	SURFACE WATER	CO-60	<	1.3	
10-May-16	SURFACE WATER	ZN-65	<	5.1	
10-May-16	SURFACE WATER	ZR-NB-95	<	2.9	
10-May-16	SURFACE WATER	I-131	<	3.8	
10-May-16	SURFACE WATER	CS-134	<	3.0	
10-May-16	SURFACE WATER	CS-137	<	3.5	
10-May-16	SURFACE WATER	BA-LA-140	<	1.4	
10-May-16	SURFACE WATER	H-3	<	150.0	
10-May-16	SURFACE WATER	FE-55	<	99.0	
08-Jun-16	SURFACE WATER	MN-54	<	3.4	
08-Jun-16	SURFACE WATER	CO-58	<	3.0	
08-Jun-16	SURFACE WATER	FE-59	<	6.8	
08-Jun-16	SURFACE WATER	CO-60	<	3.2	
08-Jun-16	SURFACE WATER	ZN-65	<	7.6	
08-Jun-16	SURFACE WATER	ZR-NB-95	<	3.2	
08-Jun-16	SURFACE WATER	I-131	<	9.6	
08-Jun-16	SURFACE WATER	CS-134	<	4.3	
08-Jun-16	SURFACE WATER	CS-137	<	3.5	
08-Jun-16	SURFACE WATER	BA-LA-140	<	4.8	
08-Jun-16	SURFACE WATER	H-3	<	146.0	
19-Jul-16	SURFACE WATER	MN-54	<	2.9	
19-Jul-16	SURFACE WATER	CO-58	<	2.2	
19-Jul-16	SURFACE WATER	FE-59	<	4.6	
19-Jul-16	SURFACE WATER	CO-60	<	2.3	
19-Jul-16	SURFACE WATER	ZN-65	<	4.2	
19-Jul-16	SURFACE WATER	ZR-NB-95	<	3.8	
19-Jul-16	SURFACE WATER	I-131	<	3.4	
19-Jul-16	SURFACE WATER	CS-134	<	3.4	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
19-Jul-16	SURFACE WATER	CS-137	<	3.0	
19-Jul-16	SURFACE WATER	BA-LA-140	<	2.5	
19-Jul-16	SURFACE WATER	H-3	<	151.0	
17-Aug-16	SURFACE WATER	MN-54	<	3.9	
17-Aug-16	SURFACE WATER	CO-58	<	3.8	
17-Aug-16	SURFACE WATER	FE-59	<	2.7	
17-Aug-16	SURFACE WATER	CO-60	<	3.2	
17-Aug-16	SURFACE WATER	ZN-65	<	5.6	
17-Aug-16	SURFACE WATER	ZR-NB-95	<	3.7	
17-Aug-16	SURFACE WATER	I-131	<	7.7	
17-Aug-16	SURFACE WATER	CS-134	<	4.6	
17-Aug-16	SURFACE WATER	CS-137	<	4.6	
17-Aug-16	SURFACE WATER	BA-LA-140	<	2.3	
17-Aug-16	SURFACE WATER	H-3	<	149.0	
17-Aug-16	SURFACE WATER	FE-55	<	81.0	
13-Sep-16	SURFACE WATER	MN-54	<	2.2	
13-Sep-16	SURFACE WATER	CO-58	<	2.6	
13-Sep-16	SURFACE WATER	FE-59	<	5.9	
13-Sep-16	SURFACE WATER	CO-60	<	1.8	
13-Sep-16	SURFACE WATER	ZN-65	<	5.4	
13-Sep-16	SURFACE WATER	ZR-NB-95	<	2.5	
13-Sep-16	SURFACE WATER	I-131	<	5.0	
13-Sep-16	SURFACE WATER	CS-134	<	2.8	
13-Sep-16	SURFACE WATER	CS-137	<	2.5	
13-Sep-16	SURFACE WATER	BA-LA-140	<	2.5	
13-Sep-16	SURFACE WATER	H-3	<	149.0	
12-Oct-16	SURFACE WATER	MN-54	<	2.9	
12-Oct-16	SURFACE WATER	CO-58	<	3.7	
12-Oct-16	SURFACE WATER	FE-59	<	4.5	
12-Oct-16	SURFACE WATER	CO-60	<	3.0	
12-Oct-16	SURFACE WATER	ZN-65	<	4.6	
12-Oct-16	SURFACE WATER	ZR-NB-95	<	3.6	
12-Oct-16	SURFACE WATER	I-131	<	7.3	
12-Oct-16	SURFACE WATER	CS-134	<	4.0	
12-Oct-16	SURFACE WATER	CS-137	<	4.4	
12-Oct-16	SURFACE WATER	BA-LA-140	<	4.9	
12-Oct-16	SURFACE WATER	H-3	<	154.0	
30-Nov-16	SURFACE WATER	MN-54	<	5.7	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	SURFACE WATER	CO-58	<	3.2	
30-Nov-16	SURFACE WATER	FE-59	<	8.0	
30-Nov-16	SURFACE WATER	CO-60	<	4.6	
30-Nov-16	SURFACE WATER	ZN-65	<	6.9	
30-Nov-16	SURFACE WATER	ZR-NB-95	<	4.7	
30-Nov-16	SURFACE WATER	I-131	<	5.5	
30-Nov-16	SURFACE WATER	CS-134	<	4.9	
30-Nov-16	SURFACE WATER	CS-137	<	5.6	
30-Nov-16	SURFACE WATER	BA-LA-140	<	3.5	
30-Nov-16	SURFACE WATER	H-3	<	174.0	
30-Nov-16	SURFACE WATER	FE-55	<	97.0	
27-Dec-16	SURFACE WATER	MN-54	<	2.9	
27-Dec-16	SURFACE WATER	CO-58	<	2.5	
27-Dec-16	SURFACE WATER	FE-59	<	4.6	
27-Dec-16	SURFACE WATER	CO-60	<	3.1	
27-Dec-16	SURFACE WATER	ZN-65	<	4.4	
27-Dec-16	SURFACE WATER	ZR-NB-95	<	2.9	
27-Dec-16	SURFACE WATER	I-131	<	6.1	
27-Dec-16	SURFACE WATER	CS-134	<	3.6	
27-Dec-16	SURFACE WATER	CS-137	<	2.3	
27-Dec-16	SURFACE WATER	BA-LA-140	<	3.8	
27-Dec-16	SURFACE WATER	H-3	<	143.0	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
14-Jan-16	SURFACE WATER	MN-54	<	2.6	
14-Jan-16	SURFACE WATER	CO-58	<	1.9	
14-Jan-16	SURFACE WATER	FE-59	<	3.7	
14-Jan-16	SURFACE WATER	CO-60	<	2.2	
14-Jan-16	SURFACE WATER	ZN-65	<	4.3	
14-Jan-16	SURFACE WATER	ZR-NB-95	<	2.5	
14-Jan-16	SURFACE WATER	I-131	<	7.5	
14-Jan-16	SURFACE WATER	CS-134	<	3.2	
14-Jan-16	SURFACE WATER	CS-137	<	2.0	
14-Jan-16	SURFACE WATER	BA-LA-140	<	1.5	
14-Jan-16	SURFACE WATER	H-3	7,971 +/-	264.0	
22-Feb-16	SURFACE WATER	MN-54	<	2.4	
22-Feb-16	SURFACE WATER	CO-58	<	2.6	
22-Feb-16	SURFACE WATER	FE-59	<	5.7	
22-Feb-16	SURFACE WATER	CO-60	<	2.7	
22-Feb-16	SURFACE WATER	ZN-65	<	3.0	
22-Feb-16	SURFACE WATER	ZR-NB-95	<	2.6	
22-Feb-16	SURFACE WATER	I-131	<	5.2	
22-Feb-16	SURFACE WATER	CS-134	<	3.0	
22-Feb-16	SURFACE WATER	CS-137	<	1.7	
22-Feb-16	SURFACE WATER	BA-LA-140	<	2.3	
22-Feb-16	SURFACE WATER	H-3	10,183 +/-	282.0	
22-Feb-16	SURFACE WATER	FE-55	<	75.0	
30-Mar-16	SURFACE WATER	MN-54	<	1.9	
30-Mar-16	SURFACE WATER	CO-58	<	2.8	
30-Mar-16	SURFACE WATER	FE-59	<	2.9	
30-Mar-16	SURFACE WATER	CO-60	<	2.4	
30-Mar-16	SURFACE WATER	ZN-65	<	3.7	
30-Mar-16	SURFACE WATER	ZR-NB-95	<	2.7	
30-Mar-16	SURFACE WATER	I-131	<	4.4	
30-Mar-16	SURFACE WATER	CS-134	<	3.0	
30-Mar-16	SURFACE WATER	CS-137	<	2.7	
30-Mar-16	SURFACE WATER	BA-LA-140	<	1.5	
30-Mar-16	SURFACE WATER	H-3	9,549 +/-	291.0	
13-Apr-16	SURFACE WATER	MN-54	<	2.2	
13-Apr-16	SURFACE WATER	CO-58	<	1.3	
13-Apr-16	SURFACE WATER	FE-59	<	6.3	
13-Apr-16	SURFACE WATER	CO-60	<	1.6	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Apr-16	SURFACE WATER	ZN-65	<	3.0	
13-Apr-16	SURFACE WATER	ZR-NB-95	<	2.8	
13-Apr-16	SURFACE WATER	I-131	<	4.4	
13-Apr-16	SURFACE WATER	CS-134	<	2.9	
13-Apr-16	SURFACE WATER	CS-137	<	1.6	
13-Apr-16	SURFACE WATER	BA-LA-140	<	1.7	
13-Apr-16	SURFACE WATER	H-3	10,377 +/-	304.0	
10-May-16	SURFACE WATER	MN-54	<	5.7	
10-May-16	SURFACE WATER	CO-58	<	4.6	
10-May-16	SURFACE WATER	FE-59	<	4.5	
10-May-16	SURFACE WATER	CO-60	<	3.4	
10-May-16	SURFACE WATER	ZN-65	<	5.7	
10-May-16	SURFACE WATER	ZR-NB-95	<	4.3	
10-May-16	SURFACE WATER	I-131	<	6.7	
10-May-16	SURFACE WATER	CS-134	<	6.2	
10-May-16	SURFACE WATER	CS-137	<	3.2	
10-May-16	SURFACE WATER	BA-LA-140	<	5.5	
10-May-16	SURFACE WATER	H-3	9,779 +/-	296.0	
10-May-16	SURFACE WATER	FE-55	<	95.0	
08-Jun-16	SURFACE WATER	MN-54	<	6.9	
08-Jun-16	SURFACE WATER	CO-58	<	2.9	
08-Jun-16	SURFACE WATER	FE-59	<	5.2	
08-Jun-16	SURFACE WATER	CO-60	<	2.5	
08-Jun-16	SURFACE WATER	ZN-65	<	7.5	
08-Jun-16	SURFACE WATER	ZR-NB-95	<	7.7	
08-Jun-16	SURFACE WATER	I-131	<	9.2	
08-Jun-16	SURFACE WATER	CS-134	<	5.2	
08-Jun-16	SURFACE WATER	CS-137	<	3.5	
08-Jun-16	SURFACE WATER	BA-LA-140	<	3.0	
08-Jun-16	SURFACE WATER	H-3	9,217 +/-	286.0	
19-Jul-16	SURFACE WATER	MN-54	<	2.2	
19-Jul-16	SURFACE WATER	CO-58	<	1.8	
19-Jul-16	SURFACE WATER	FE-59	<	4.4	
19-Jul-16	SURFACE WATER	CO-60	<	1.1	
19-Jul-16	SURFACE WATER	ZN-65	<	3.1	
19-Jul-16	SURFACE WATER	ZR-NB-95	<	2.8	
19-Jul-16	SURFACE WATER	I-131	<	5.3	
19-Jul-16	SURFACE WATER	CS-134	<	2.8	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
19-Jul-16	SURFACE WATER	CS-137	<	3.2	
19-Jul-16	SURFACE WATER	BA-LA-140	<	3.4	
19-Jul-16	SURFACE WATER	H-3	10,513 +/-	305.0	
17-Aug-16	SURFACE WATER	MN-54	<	4.6	
17-Aug-16	SURFACE WATER	CO-58	<	3.2	
17-Aug-16	SURFACE WATER	FE-59	<	6.2	
17-Aug-16	SURFACE WATER	CO-60	<	2.6	
17-Aug-16	SURFACE WATER	ZN-65	<	5.9	
17-Aug-16	SURFACE WATER	ZR-NB-95	<	4.2	
17-Aug-16	SURFACE WATER	I-131	<	8.1	
17-Aug-16	SURFACE WATER	CS-134	<	4.9	
17-Aug-16	SURFACE WATER	CS-137	<	4.6	
17-Aug-16	SURFACE WATER	BA-LA-140	<	3.6	
17-Aug-16	SURFACE WATER	H-3	12,300 +/-	331.0	
17-Aug-16	SURFACE WATER	FE-55	<	81.0	
13-Sep-16	SURFACE WATER	MN-54	<	2.7	
13-Sep-16	SURFACE WATER	CO-58	<	2.0	
13-Sep-16	SURFACE WATER	FE-59	<	3.8	
13-Sep-16	SURFACE WATER	CO-60	<	2.2	
13-Sep-16	SURFACE WATER	ZN-65	<	7.1	
13-Sep-16	SURFACE WATER	ZR-NB-95	<	3.5	
13-Sep-16	SURFACE WATER	I-131	<	5.4	
13-Sep-16	SURFACE WATER	CS-134	<	3.8	
13-Sep-16	SURFACE WATER	CS-137	<	3.2	
13-Sep-16	SURFACE WATER	BA-LA-140	<	1.8	
13-Sep-16	SURFACE WATER	H-3	11,912 +/-	327.0	
12-Oct-16	SURFACE WATER	MN-54	<	2.8	
12-Oct-16	SURFACE WATER	CO-58	<	2.8	
12-Oct-16	SURFACE WATER	FE-59	<	5.1	
12-Oct-16	SURFACE WATER	CO-60	<	3.1	
12-Oct-16	SURFACE WATER	ZN-65	<	4.8	
12-Oct-16	SURFACE WATER	ZR-NB-95	<	4.1	
12-Oct-16	SURFACE WATER	I-131	<	5.2	
12-Oct-16	SURFACE WATER	CS-134	<	4.3	
12-Oct-16	SURFACE WATER	CS-137	<	3.7	
12-Oct-16	SURFACE WATER	BA-LA-140	<	5.0	
12-Oct-16	SURFACE WATER	H-3	11,484 +/-	322.0	
30-Nov-16	SURFACE WATER	MN-54	<	2.6	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	SURFACE WATER	CO-58	<	2.1	
30-Nov-16	SURFACE WATER	FE-59	<	6.0	
30-Nov-16	SURFACE WATER	CO-60	<	1.5	
30-Nov-16	SURFACE WATER	ZN-65	<	3.8	
30-Nov-16	SURFACE WATER	ZR-NB-95	<	2.7	
30-Nov-16	SURFACE WATER	I-131	<	4.8	
30-Nov-16	SURFACE WATER	CS-134	<	3.1	
30-Nov-16	SURFACE WATER	CS-137	<	2.8	
30-Nov-16	SURFACE WATER	BA-LA-140	<	3.3	
30-Nov-16	SURFACE WATER	H-3	11,339 +/-	320.0	
30-Nov-16	SURFACE WATER	FE-55	<	98.0	
27-Dec-16	SURFACE WATER	MN-54	<	3.7	
27-Dec-16	SURFACE WATER	CO-58	<	3.7	
27-Dec-16	SURFACE WATER	FE-59	<	2.5	
27-Dec-16	SURFACE WATER	CO-60	<	1.6	
27-Dec-16	SURFACE WATER	ZN-65	<	3.0	
27-Dec-16	SURFACE WATER	ZR-NB-95	<	3.0	
27-Dec-16	SURFACE WATER	I-131	<	3.7	
27-Dec-16	SURFACE WATER	CS-134	<	3.1	
27-Dec-16	SURFACE WATER	CS-137	<	3.0	
27-Dec-16	SURFACE WATER	BA-LA-140	<	3.9	
27-Dec-16	SURFACE WATER	H-3	10,910 +/-	311.0	

Exposure Pathway - Waterborne
Ground Water
Location: B-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	2.3	
22-Feb-16	GROUND WATER	CO-58	<	2.4	
22-Feb-16	GROUND WATER	FE-59	<	6.8	
22-Feb-16	GROUND WATER	CO-60	<	2.9	
22-Feb-16	GROUND WATER	ZN-65	<	5.9	
22-Feb-16	GROUND WATER	ZR-NB-95	<	3.6	
22-Feb-16	GROUND WATER	I-131	<	0.207	
22-Feb-16	GROUND WATER	CS-134	<	3.7	
22-Feb-16	GROUND WATER	CS-137	<	3.6	
22-Feb-16	GROUND WATER	BA-LA-140	<	2.0	
22-Feb-16	GROUND WATER	H-3	<	172.0	
10-May-16	GROUND WATER	MN-54	<	1.4	
10-May-16	GROUND WATER	MN-54	<	4.0	Duplicate
10-May-16	GROUND WATER	CO-58	<	3.7	
10-May-16	GROUND WATER	CO-58	<	3.5	Duplicate
10-May-16	GROUND WATER	FE-59	<	9.8	Duplicate
10-May-16	GROUND WATER	FE-59	<	4.5	
10-May-16	GROUND WATER	CO-60	<	4.6	Duplicate
10-May-16	GROUND WATER	CO-60	<	1.7	
10-May-16	GROUND WATER	ZN-65	<	3.4	
10-May-16	GROUND WATER	ZN-65	<	6.2	Duplicate
10-May-16	GROUND WATER	ZR-NB-95	<	5.5	Duplicate
10-May-16	GROUND WATER	ZR-NB-95	<	2.0	
10-May-16	GROUND WATER	I-131	<	0.238	
10-May-16	GROUND WATER	I-131	<	0.367	Duplicate
10-May-16	GROUND WATER	CS-134	<	3.9	
10-May-16	GROUND WATER	CS-134	<	5.8	Duplicate
10-May-16	GROUND WATER	CS-137	<	1.7	
10-May-16	GROUND WATER	CS-137	<	4.8	Duplicate
10-May-16	GROUND WATER	BA-LA-140	<	1.3	
10-May-16	GROUND WATER	BA-LA-140	<	2.3	Duplicate
10-May-16	GROUND WATER	H-3	<	150.0	Duplicate
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	2.3	
17-Aug-16	GROUND WATER	CO-58	<	3.7	
17-Aug-16	GROUND WATER	FE-59	<	8.2	
17-Aug-16	GROUND WATER	CO-60	<	2.7	
17-Aug-16	GROUND WATER	ZN-65	<	3.0	

Exposure Pathway - Waterborne
Ground Water
Location: B-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
17-Aug-16	GROUND WATER	ZR-NB-95	<	4.4	
17-Aug-16	GROUND WATER	I-131	<	0.31	
17-Aug-16	GROUND WATER	CS-134	<	4.4	
17-Aug-16	GROUND WATER	CS-137	<	2.5	
17-Aug-16	GROUND WATER	BA-LA-140	<	5.6	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	3.8	
30-Nov-16	GROUND WATER	CO-58	<	2.6	
30-Nov-16	GROUND WATER	FE-59	<	4.9	
30-Nov-16	GROUND WATER	CO-60	<	1.8	
30-Nov-16	GROUND WATER	ZN-65	<	2.5	
30-Nov-16	GROUND WATER	ZR-NB-95	<	2.4	
30-Nov-16	GROUND WATER	I-131	<	0.384	
30-Nov-16	GROUND WATER	CS-134	<	3.8	
30-Nov-16	GROUND WATER	CS-137	<	4.1	
30-Nov-16	GROUND WATER	BA-LA-140	<	3.4	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: C-10

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	2.8	Duplicate
22-Feb-16	GROUND WATER	MN-54	<	3.5	
22-Feb-16	GROUND WATER	CO-58	<	1.7	Duplicate
22-Feb-16	GROUND WATER	CO-58	<	1.1	
22-Feb-16	GROUND WATER	FE-59	<	4.3	Duplicate
22-Feb-16	GROUND WATER	FE-59	<	5.3	
22-Feb-16	GROUND WATER	CO-60	<	2.3	Duplicate
22-Feb-16	GROUND WATER	CO-60	<	3.3	
22-Feb-16	GROUND WATER	ZN-65	<	2.6	
22-Feb-16	GROUND WATER	ZN-65	<	3.1	Duplicate
22-Feb-16	GROUND WATER	ZR-NB-95	<	3.2	
22-Feb-16	GROUND WATER	ZR-NB-95	<	3.4	Duplicate
22-Feb-16	GROUND WATER	I-131	<	0.416	Duplicate
22-Feb-16	GROUND WATER	I-131	<	0.434	
22-Feb-16	GROUND WATER	CS-134	<	3.2	
22-Feb-16	GROUND WATER	CS-134	<	3.4	Duplicate
22-Feb-16	GROUND WATER	CS-137	<	2.2	Duplicate
22-Feb-16	GROUND WATER	CS-137	<	2.7	
22-Feb-16	GROUND WATER	BA-LA-140	<	1.4	Duplicate
22-Feb-16	GROUND WATER	BA-LA-140	<	2.5	
22-Feb-16	GROUND WATER	H-3	<	172.0	
22-Feb-16	GROUND WATER	H-3	<	145.0	Duplicate
10-May-16	GROUND WATER	MN-54	<	1.6	
10-May-16	GROUND WATER	CO-58	<	2.1	
10-May-16	GROUND WATER	FE-59	<	2.9	
10-May-16	GROUND WATER	CO-60	<	1.3	
10-May-16	GROUND WATER	ZN-65	<	2.3	
10-May-16	GROUND WATER	ZR-NB-95	<	2.5	
10-May-16	GROUND WATER	I-131	<	0.404	
10-May-16	GROUND WATER	CS-134	<	3.2	
10-May-16	GROUND WATER	CS-137	<	3.1	
10-May-16	GROUND WATER	BA-LA-140	<	1.8	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	3.4	
17-Aug-16	GROUND WATER	CO-58	<	3.3	
17-Aug-16	GROUND WATER	FE-59	<	5.7	
17-Aug-16	GROUND WATER	CO-60	<	2.5	
17-Aug-16	GROUND WATER	ZN-65	<	7.3	

Exposure Pathway - Waterborne
Ground Water
Location: C-10

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
17-Aug-16	GROUND WATER	ZR-NB-95	<	2.8	
17-Aug-16	GROUND WATER	I-131	<	0.392	
17-Aug-16	GROUND WATER	CS-134	<	4.0	
17-Aug-16	GROUND WATER	CS-137	<	4.1	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.3	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	2.5	
30-Nov-16	GROUND WATER	CO-58	<	3.2	
30-Nov-16	GROUND WATER	FE-59	<	4.1	
30-Nov-16	GROUND WATER	CO-60	<	3.1	
30-Nov-16	GROUND WATER	ZN-65	<	6.3	
30-Nov-16	GROUND WATER	ZR-NB-95	<	1.9	
30-Nov-16	GROUND WATER	I-131	<	0.396	
30-Nov-16	GROUND WATER	CS-134	<	3.2	
30-Nov-16	GROUND WATER	CS-137	<	3.2	
30-Nov-16	GROUND WATER	BA-LA-140	<	3.5	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: C-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	3.4	
22-Feb-16	GROUND WATER	CO-58	<	1.9	
22-Feb-16	GROUND WATER	FE-59	<	5.5	
22-Feb-16	GROUND WATER	CO-60	<	2.5	
22-Feb-16	GROUND WATER	ZN-65	<	6.3	
22-Feb-16	GROUND WATER	ZR-NB-95	<	4.7	
22-Feb-16	GROUND WATER	I-131	<	0.492	
22-Feb-16	GROUND WATER	CS-134	<	2.9	
22-Feb-16	GROUND WATER	CS-137	<	3.3	
22-Feb-16	GROUND WATER	BA-LA-140	<	2.5	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	4.5	
10-May-16	GROUND WATER	CO-58	<	3.4	
10-May-16	GROUND WATER	FE-59	<	6.1	
10-May-16	GROUND WATER	CO-60	<	4.3	
10-May-16	GROUND WATER	ZN-65	<	6.6	
10-May-16	GROUND WATER	ZR-NB-95	<	5.2	
10-May-16	GROUND WATER	I-131	<	0.363	
10-May-16	GROUND WATER	CS-134	<	5.5	
10-May-16	GROUND WATER	CS-137	<	3.5	
10-May-16	GROUND WATER	BA-LA-140	<	2.7	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	1.9	
17-Aug-16	GROUND WATER	CO-58	<	3.3	
17-Aug-16	GROUND WATER	FE-59	<	5.5	
17-Aug-16	GROUND WATER	CO-60	<	1.5	
17-Aug-16	GROUND WATER	ZN-65	<	6.1	
17-Aug-16	GROUND WATER	ZR-NB-95	<	1.9	
17-Aug-16	GROUND WATER	I-131	<	0.454	
17-Aug-16	GROUND WATER	CS-134	<	4.0	
17-Aug-16	GROUND WATER	CS-137	<	3.3	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.1	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	3.5	
30-Nov-16	GROUND WATER	CO-58	<	3.5	
30-Nov-16	GROUND WATER	FE-59	<	6.0	
30-Nov-16	GROUND WATER	CO-60	<	3.6	
30-Nov-16	GROUND WATER	ZN-65	<	5.4	

Exposure Pathway - Waterborne
Ground Water
Location: C-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	3.5	
30-Nov-16	GROUND WATER	I-131	<	0.316	
30-Nov-16	GROUND WATER	CS-134	<	4.1	
30-Nov-16	GROUND WATER	CS-137	<	3.0	
30-Nov-16	GROUND WATER	BA-LA-140	<	4.6	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: F-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	3.4	
22-Feb-16	GROUND WATER	CO-58	<	1.9	
22-Feb-16	GROUND WATER	FE-59	<	2.8	
22-Feb-16	GROUND WATER	CO-60	<	2.4	
22-Feb-16	GROUND WATER	ZN-65	<	2.7	
22-Feb-16	GROUND WATER	ZR-NB-95	<	2.0	
22-Feb-16	GROUND WATER	I-131	<	0.474	
22-Feb-16	GROUND WATER	CS-134	<	3.5	
22-Feb-16	GROUND WATER	CS-137	<	2.3	
22-Feb-16	GROUND WATER	BA-LA-140	<	2.1	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	2.0	
10-May-16	GROUND WATER	CO-58	<	2.1	
10-May-16	GROUND WATER	FE-59	<	4.7	
10-May-16	GROUND WATER	CO-60	<	2.3	
10-May-16	GROUND WATER	ZN-65	<	4.7	
10-May-16	GROUND WATER	ZR-NB-95	<	2.5	
10-May-16	GROUND WATER	I-131	<	0.337	
10-May-16	GROUND WATER	CS-134	<	2.9	
10-May-16	GROUND WATER	CS-137	<	3.1	
10-May-16	GROUND WATER	BA-LA-140	<	1.1	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	2.3	
17-Aug-16	GROUND WATER	CO-58	<	2.3	
17-Aug-16	GROUND WATER	FE-59	<	6.1	
17-Aug-16	GROUND WATER	CO-60	<	1.2	
17-Aug-16	GROUND WATER	ZN-65	<	1.7	
17-Aug-16	GROUND WATER	ZR-NB-95	<	2.8	
17-Aug-16	GROUND WATER	I-131	<	0.298	
17-Aug-16	GROUND WATER	CS-134	<	2.7	
17-Aug-16	GROUND WATER	CS-137	<	3.1	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.0	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	2.9	
30-Nov-16	GROUND WATER	CO-58	<	1.3	
30-Nov-16	GROUND WATER	FE-59	<	3.8	
30-Nov-16	GROUND WATER	CO-60	<	2.4	
30-Nov-16	GROUND WATER	ZN-65	<	2.3	

Exposure Pathway - Waterborne
Ground Water
Location: F-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	3.0	
30-Nov-16	GROUND WATER	I-131	<	0.307	
30-Nov-16	GROUND WATER	CS-134	<	2.7	
30-Nov-16	GROUND WATER	CS-137	<	2.7	
30-Nov-16	GROUND WATER	BA-LA-140	<	3.5	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: G-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	6.8	
22-Feb-16	GROUND WATER	CO-58	<	3.3	
22-Feb-16	GROUND WATER	FE-59	<	6.8	
22-Feb-16	GROUND WATER	CO-60	<	6.9	
22-Feb-16	GROUND WATER	ZN-65	<	16.4	
22-Feb-16	GROUND WATER	ZR-NB-95	<	10.2	
22-Feb-16	GROUND WATER	I-131	<	0.419	
22-Feb-16	GROUND WATER	CS-134	<	8.4	
22-Feb-16	GROUND WATER	CS-137	<	8.2	
22-Feb-16	GROUND WATER	BA-LA-140	<	7.9	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	2.9	
10-May-16	GROUND WATER	CO-58	<	2.3	
10-May-16	GROUND WATER	FE-59	<	2.6	
10-May-16	GROUND WATER	CO-60	<	2.0	
10-May-16	GROUND WATER	ZN-65	<	3.9	
10-May-16	GROUND WATER	ZR-NB-95	<	2.8	
10-May-16	GROUND WATER	I-131	<	0.485	
10-May-16	GROUND WATER	CS-134	<	2.7	
10-May-16	GROUND WATER	CS-137	<	3.0	
10-May-16	GROUND WATER	BA-LA-140	<	2.0	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	4.6	
17-Aug-16	GROUND WATER	CO-58	<	3.0	
17-Aug-16	GROUND WATER	FE-59	<	7.1	
17-Aug-16	GROUND WATER	CO-60	<	5.3	
17-Aug-16	GROUND WATER	ZN-65	<	9.3	
17-Aug-16	GROUND WATER	ZR-NB-95	<	3.6	
17-Aug-16	GROUND WATER	I-131	<	0.383	
17-Aug-16	GROUND WATER	CS-134	<	6.0	
17-Aug-16	GROUND WATER	CS-137	<	4.4	
17-Aug-16	GROUND WATER	BA-LA-140	<	5.3	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	1.4	
30-Nov-16	GROUND WATER	CO-58	<	1.7	
30-Nov-16	GROUND WATER	FE-59	<	5.4	
30-Nov-16	GROUND WATER	CO-60	<	2.1	
30-Nov-16	GROUND WATER	ZN-65	<	2.7	

Exposure Pathway - Waterborne
Ground Water
Location: G-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	3.3	
30-Nov-16	GROUND WATER	I-131	<	0.281	
30-Nov-16	GROUND WATER	CS-134	<	3.0	
30-Nov-16	GROUND WATER	CS-137	<	1.8	
30-Nov-16	GROUND WATER	BA-LA-140	<	2.7	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: J-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	2.9	
22-Feb-16	GROUND WATER	CO-58	<	1.4	
22-Feb-16	GROUND WATER	FE-59	<	7.5	
22-Feb-16	GROUND WATER	CO-60	<	3.4	
22-Feb-16	GROUND WATER	ZN-65	<	9.2	
22-Feb-16	GROUND WATER	ZR-NB-95	<	4.8	
22-Feb-16	GROUND WATER	I-131	<	0.163	
22-Feb-16	GROUND WATER	CS-134	<	4.2	
22-Feb-16	GROUND WATER	CS-137	<	2.4	
22-Feb-16	GROUND WATER	BA-LA-140	<	2.6	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	4.0	
10-May-16	GROUND WATER	CO-58	<	2.7	
10-May-16	GROUND WATER	FE-59	<	5.8	
10-May-16	GROUND WATER	CO-60	<	2.1	
10-May-16	GROUND WATER	ZN-65	<	7.1	
10-May-16	GROUND WATER	ZR-NB-95	<	3.1	
10-May-16	GROUND WATER	I-131	<	0.475	
10-May-16	GROUND WATER	CS-134	<	4.1	
10-May-16	GROUND WATER	CS-137	<	2.9	
10-May-16	GROUND WATER	BA-LA-140	<	1.8	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	1.9	
17-Aug-16	GROUND WATER	CO-58	<	2.3	
17-Aug-16	GROUND WATER	FE-59	<	5.7	
17-Aug-16	GROUND WATER	CO-60	<	3.8	
17-Aug-16	GROUND WATER	ZN-65	<	5.4	
17-Aug-16	GROUND WATER	ZR-NB-95	<	2.5	
17-Aug-16	GROUND WATER	I-131	<	0.391	
17-Aug-16	GROUND WATER	CS-134	<	4.3	
17-Aug-16	GROUND WATER	CS-137	<	2.6	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.0	
17-Aug-16	GROUND WATER	H-3	<	148.0	
30-Nov-16	GROUND WATER	MN-54	<	5.9	
30-Nov-16	GROUND WATER	CO-58	<	4.8	
30-Nov-16	GROUND WATER	FE-59	<	8.3	
30-Nov-16	GROUND WATER	CO-60	<	5.4	
30-Nov-16	GROUND WATER	ZN-65	<	5.2	

Exposure Pathway - Waterborne
Ground Water
Location: J-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	8.0	
30-Nov-16	GROUND WATER	I-131	<	0.311	
30-Nov-16	GROUND WATER	CS-134	<	6.1	
30-Nov-16	GROUND WATER	CS-137	<	6.0	
30-Nov-16	GROUND WATER	BA-LA-140	<	4.2	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: J-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	2.7	
22-Feb-16	GROUND WATER	CO-58	<	1.7	
22-Feb-16	GROUND WATER	FE-59	<	4.9	
22-Feb-16	GROUND WATER	CO-60	<	2.0	
22-Feb-16	GROUND WATER	ZN-65	<	5.3	
22-Feb-16	GROUND WATER	ZR-NB-95	<	3.1	
22-Feb-16	GROUND WATER	I-131	<	0.188	
22-Feb-16	GROUND WATER	CS-134	<	2.9	
22-Feb-16	GROUND WATER	CS-137	<	3.0	
22-Feb-16	GROUND WATER	BA-LA-140	<	3.0	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	2.0	
10-May-16	GROUND WATER	CO-58	<	1.6	
10-May-16	GROUND WATER	FE-59	<	2.6	
10-May-16	GROUND WATER	CO-60	<	2.0	
10-May-16	GROUND WATER	ZN-65	<	3.4	
10-May-16	GROUND WATER	ZR-NB-95	<	2.5	
10-May-16	GROUND WATER	I-131	<	0.453	
10-May-16	GROUND WATER	CS-134	<	2.6	
10-May-16	GROUND WATER	CS-137	<	2.2	
10-May-16	GROUND WATER	BA-LA-140	<	2.9	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	3.4	
17-Aug-16	GROUND WATER	CO-58	<	1.2	
17-Aug-16	GROUND WATER	FE-59	<	4.9	
17-Aug-16	GROUND WATER	CO-60	<	2.0	
17-Aug-16	GROUND WATER	ZN-65	<	4.5	
17-Aug-16	GROUND WATER	ZR-NB-95	<	2.0	
17-Aug-16	GROUND WATER	I-131	<	0.276	
17-Aug-16	GROUND WATER	CS-134	<	3.6	
17-Aug-16	GROUND WATER	CS-137	<	2.9	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.0	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	2.4	
30-Nov-16	GROUND WATER	CO-58	<	2.2	
30-Nov-16	GROUND WATER	FE-59	<	4.1	
30-Nov-16	GROUND WATER	CO-60	<	2.4	
30-Nov-16	GROUND WATER	ZN-65	<	4.1	

Exposure Pathway - Waterborne
Ground Water
Location: J-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	2.9	
30-Nov-16	GROUND WATER	I-131	<	0.329	
30-Nov-16	GROUND WATER	CS-134	<	3.7	
30-Nov-16	GROUND WATER	CS-137	<	2.1	
30-Nov-16	GROUND WATER	BA-LA-140	<	4.5	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Ground Water
Location: L-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
22-Feb-16	GROUND WATER	MN-54	<	2.3	
22-Feb-16	GROUND WATER	CO-58	<	2.5	
22-Feb-16	GROUND WATER	FE-59	<	3.7	
22-Feb-16	GROUND WATER	CO-60	<	2.1	
22-Feb-16	GROUND WATER	ZN-65	<	2.9	
22-Feb-16	GROUND WATER	ZR-NB-95	<	2.8	
22-Feb-16	GROUND WATER	I-131	<	0.265	
22-Feb-16	GROUND WATER	CS-134	<	2.7	
22-Feb-16	GROUND WATER	CS-137	<	2.6	
22-Feb-16	GROUND WATER	BA-LA-140	<	1.9	
22-Feb-16	GROUND WATER	H-3	<	145.0	
10-May-16	GROUND WATER	MN-54	<	4.4	
10-May-16	GROUND WATER	CO-58	<	5.2	
10-May-16	GROUND WATER	FE-59	<	7.7	
10-May-16	GROUND WATER	CO-60	<	4.6	
10-May-16	GROUND WATER	ZN-65	<	8.1	
10-May-16	GROUND WATER	ZR-NB-95	<	6.5	
10-May-16	GROUND WATER	I-131	<	0.435	
10-May-16	GROUND WATER	CS-134	<	5.6	
10-May-16	GROUND WATER	CS-137	<	3.7	
10-May-16	GROUND WATER	BA-LA-140	<	2.8	
10-May-16	GROUND WATER	H-3	<	150.0	
17-Aug-16	GROUND WATER	MN-54	<	3.3	
17-Aug-16	GROUND WATER	CO-58	<	3.0	
17-Aug-16	GROUND WATER	FE-59	<	4.1	
17-Aug-16	GROUND WATER	CO-60	<	2.7	
17-Aug-16	GROUND WATER	ZN-65	<	8.4	
17-Aug-16	GROUND WATER	ZR-NB-95	<	4.3	
17-Aug-16	GROUND WATER	I-131	<	0.291	
17-Aug-16	GROUND WATER	CS-134	<	4.5	
17-Aug-16	GROUND WATER	CS-137	<	3.4	
17-Aug-16	GROUND WATER	BA-LA-140	<	3.4	
17-Aug-16	GROUND WATER	H-3	<	149.0	
30-Nov-16	GROUND WATER	MN-54	<	3.1	
30-Nov-16	GROUND WATER	CO-58	<	3.1	
30-Nov-16	GROUND WATER	FE-59	<	5.1	
30-Nov-16	GROUND WATER	CO-60	<	3.8	
30-Nov-16	GROUND WATER	ZN-65	<	3.7	

Exposure Pathway - Waterborne
Ground Water
Location: L-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
30-Nov-16	GROUND WATER	ZR-NB-95	<	2.8	
30-Nov-16	GROUND WATER	I-131	<	0.349	
30-Nov-16	GROUND WATER	CS-134	<	4.1	
30-Nov-16	GROUND WATER	CS-137	<	5.4	
30-Nov-16	GROUND WATER	BA-LA-140	<	4.8	
30-Nov-16	GROUND WATER	H-3	<	174.0	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
01-Feb-16	MN-54	< 2.7	
01-Feb-16	CO-58	< 3.8	
01-Feb-16	FE-59	< 6.4	
01-Feb-16	CO-60	< 2.4	
01-Feb-16	ZN-65	< 5.2	
01-Feb-16	ZR-NB-95	< 4.0	
01-Feb-16	I-131	< 0.165	
01-Feb-16	CS-134	< 3.2	
01-Feb-16	CS-137	< 2.0	
01-Feb-16	BA-LA-140	< 6.4	
01-Feb-16	GROSS BETA	2.657 +/- 0.353	
01-Mar-16	MN-54	< 2.4	
01-Mar-16	CO-58	< 1.5	
01-Mar-16	FE-59	< 4.1	
01-Mar-16	CO-60	< 2.2	
01-Mar-16	ZN-65	< 1.9	
01-Mar-16	ZR-NB-95	< 2.2	
01-Mar-16	I-131	< 0.282	
01-Mar-16	CS-134	< 2.7	
01-Mar-16	CS-137	< 2.5	
01-Mar-16	BA-LA-140	< 1.0	
01-Mar-16	GROSS BETA	2.610 +/- 0.657	
04-Apr-16	MN-54	< 2.6	
04-Apr-16	CO-58	< 2.4	
04-Apr-16	FE-59	< 5.6	
04-Apr-16	CO-60	< 2.4	
04-Apr-16	ZN-65	< 5.7	
04-Apr-16	ZR-NB-95	< 2.9	
04-Apr-16	I-131	< 0.338	
04-Apr-16	CS-134	< 3.8	
04-Apr-16	CS-137	< 1.4	
04-Apr-16	BA-LA-140	< 2.3	
04-Apr-16	GROSS BETA	2.526 +/- 0.668	
04-May-16	MN-54	< 1.6	
04-May-16	CO-58	< 3.1	
04-May-16	FE-59	< 3.2	
04-May-16	CO-60	< 2.5	
04-May-16	ZN-65	< 5.4	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
04-May-16	ZR-NB-95	< 2.7	
04-May-16	I-131	< 0.348	
04-May-16	CS-134	< 3.2	
04-May-16	CS-137	< 2.3	
04-May-16	BA-LA-140	< 2.0	
04-May-16	GROSS BETA	2.641 +/- 0.661	
06-Jun-16	MN-54	< 5.3	
06-Jun-16	CO-58	< 3.7	
06-Jun-16	FE-59	< 10.6	
06-Jun-16	CO-60	< 3.3	
06-Jun-16	ZN-65	< 4.7	
06-Jun-16	ZR-NB-95	< 5.2	
06-Jun-16	I-131	< 0.45	
06-Jun-16	CS-134	< 5.4	
06-Jun-16	CS-137	< 2.5	
06-Jun-16	BA-LA-140	< 2.6	
06-Jun-16	GROSS BETA	2.185 +/- 0.631	
12-Jul-16	MN-54	< 3.1	
12-Jul-16	CO-58	< 1.9	
12-Jul-16	FE-59	< 2.5	
12-Jul-16	CO-60	< 1.7	
12-Jul-16	ZN-65	< 4.5	
12-Jul-16	ZR-NB-95	< 1.8	
12-Jul-16	I-131	< 0.337	
12-Jul-16	CS-134	< 2.7	
12-Jul-16	CS-137	< 1.6	
12-Jul-16	BA-LA-140	< 3.5	
12-Jul-16	GROSS BETA	2.483 +/- 0.637	
02-Aug-16	MN-54	< 3.8	
02-Aug-16	CO-58	< 2.1	
02-Aug-16	FE-59	< 4.1	
02-Aug-16	CO-60	< 1.1	
02-Aug-16	ZN-65	< 4.1	
02-Aug-16	ZR-NB-95	< 2.4	
02-Aug-16	I-131	< 0.177	
02-Aug-16	CS-134	< 3.9	
02-Aug-16	CS-137	< 1.7	
02-Aug-16	BA-LA-140	< 2.7	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
02-Aug-16	GROSS BETA	3.227 +/- 0.683	
07-Sep-16	MN-54	< 5.5	
07-Sep-16	CO-58	< 5.1	
07-Sep-16	FE-59	< 4.1	
07-Sep-16	CO-60	< 4.8	
07-Sep-16	ZN-65	< 3.0	
07-Sep-16	ZR-NB-95	< 5.5	
07-Sep-16	I-131	< 0.293	
07-Sep-16	CS-134	< 5.8	
07-Sep-16	CS-137	< 4.5	
07-Sep-16	BA-LA-140	< 5.9	
07-Sep-16	GROSS BETA	2.954 +/- 0.505	
03-Oct-16	MN-54	< 2.9	
03-Oct-16	CO-58	< 1.4	
03-Oct-16	FE-59	< 5.7	
03-Oct-16	CO-60	< 1.9	
03-Oct-16	ZN-65	< 8.0	
03-Oct-16	ZR-NB-95	< 3.1	
03-Oct-16	I-131	< 0.216	
03-Oct-16	CS-134	< 3.8	
03-Oct-16	CS-137	< 2.1	
03-Oct-16	BA-LA-140	< 3.6	
03-Oct-16	GROSS BETA	3.087 +/- 0.495	
08-Nov-16	MN-54	< 3.9	
08-Nov-16	CO-58	< 3.8	
08-Nov-16	FE-59	< 1.8	
08-Nov-16	CO-60	< 3.9	
08-Nov-16	ZN-65	< 7.7	
08-Nov-16	ZR-NB-95	< 4.4	
08-Nov-16	I-131	< 0.294	
08-Nov-16	CS-134	< 3.9	
08-Nov-16	CS-137	< 4.1	
08-Nov-16	BA-LA-140	< 3.3	
08-Nov-16	GROSS BETA	2.727 +/- 0.66	
05-Dec-16	MN-54	< 2.8	
05-Dec-16	CO-58	< 2.9	
05-Dec-16	FE-59	< 4.2	
05-Dec-16	CO-60	< 2.0	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
05-Dec-16	ZN-65	< 2.4	
05-Dec-16	ZR-NB-95	< 2.6	
05-Dec-16	I-131	< 0.367	
05-Dec-16	CS-134	< 2.4	
05-Dec-16	CS-137	< 1.7	
05-Dec-16	BA-LA-140	< 3.1	
05-Dec-16	GROSS BETA	3.051 +/- 0.685	
04-Jan-17	MN-54	< 2.1	
04-Jan-17	CO-58	< 2.6	
04-Jan-17	FE-59	< 5.1	
04-Jan-17	CO-60	< 1.9	
04-Jan-17	ZN-65	< 1.7	
04-Jan-17	ZR-NB-95	< 3.5	
04-Jan-17	I-131	< 0.432	
04-Jan-17	CS-134	< 3.3	
04-Jan-17	CS-137	< 3.2	
04-Jan-17	BA-LA-140	< 4.7	
04-Jan-17	GROSS BETA	2.430 +/- 0.647	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
01-Feb-16	MN-54	< 2.0	
01-Feb-16	CO-58	< 2.8	
01-Feb-16	FE-59	< 3.7	
01-Feb-16	CO-60	< 2.7	
01-Feb-16	ZN-65	< 4.6	
01-Feb-16	ZR-NB-95	< 3.3	
01-Feb-16	I-131	< 0.17	
01-Feb-16	CS-134	< 2.8	
01-Feb-16	CS-137	< 3.2	
01-Feb-16	BA-LA-140	< 2.3	
01-Feb-16	GROSS BETA	2.291 +/- 0.355	
01-Mar-16	MN-54	< 2.3	
01-Mar-16	CO-58	< 2.7	
01-Mar-16	FE-59	< 3.4	
01-Mar-16	CO-60	< 2.2	
01-Mar-16	ZN-65	< 4.6	
01-Mar-16	ZR-NB-95	< 2.3	
01-Mar-16	I-131	< 0.251	
01-Mar-16	CS-134	< 3.6	
01-Mar-16	CS-137	< 1.9	
01-Mar-16	BA-LA-140	< 2.1	
01-Mar-16	GROSS BETA	2.613 +/- 0.706	
04-Apr-16	MN-54	< 2.0	
04-Apr-16	CO-58	< 2.6	
04-Apr-16	FE-59	< 3.6	
04-Apr-16	CO-60	< 2.9	
04-Apr-16	ZN-65	< 4.5	
04-Apr-16	ZR-NB-95	< 2.3	
04-Apr-16	I-131	< 0.308	
04-Apr-16	CS-134	< 2.9	
04-Apr-16	CS-137	< 2.7	
04-Apr-16	BA-LA-140	< 1.5	
04-Apr-16	GROSS BETA	2.538 +/- 0.667	
04-May-16	MN-54	< 2.5	
04-May-16	CO-58	< 1.2	
04-May-16	FE-59	< 3.9	
04-May-16	CO-60	< 2.5	
04-May-16	ZN-65	< 3.8	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
04-May-16	ZR-NB-95	< 3.4	
04-May-16	I-131	< 0.36	
04-May-16	CS-134	< 2.6	
04-May-16	CS-137	< 2.9	
04-May-16	BA-LA-140	< 3.2	
04-May-16	GROSS BETA	2.254 +/- 0.628	
06-Jun-16	MN-54	< 2.2	
06-Jun-16	CO-58	< 1.4	
06-Jun-16	FE-59	< 4.2	
06-Jun-16	CO-60	< 2.1	
06-Jun-16	ZN-65	< 4.5	
06-Jun-16	ZR-NB-95	< 1.4	
06-Jun-16	I-131	< 0.28	
06-Jun-16	CS-134	< 2.6	
06-Jun-16	CS-137	< 3.1	
06-Jun-16	BA-LA-140	< 2.0	
06-Jun-16	GROSS BETA	1.928 +/- 0.601	
12-Jul-16	MN-54	< 2.2	
12-Jul-16	CO-58	< 1.7	
12-Jul-16	FE-59	< 2.0	
12-Jul-16	CO-60	< 2.0	
12-Jul-16	ZN-65	< 2.6	
12-Jul-16	ZR-NB-95	< 2.7	
12-Jul-16	I-131	< 0.43	
12-Jul-16	CS-134	< 2.6	
12-Jul-16	CS-137	< 3.2	
12-Jul-16	BA-LA-140	< 2.5	
12-Jul-16	GROSS BETA	3.060 +/- 0.668	
02-Aug-16	MN-54	< 2.8	
02-Aug-16	CO-58	< 2.0	
02-Aug-16	FE-59	< 3.6	
02-Aug-16	CO-60	< 1.5	
02-Aug-16	ZN-65	< 2.1	
02-Aug-16	ZR-NB-95	< 2.3	
02-Aug-16	I-131	< 0.167	
02-Aug-16	CS-134	< 2.9	
02-Aug-16	CS-137	< 3.8	
02-Aug-16	BA-LA-140	< 2.8	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
02-Aug-16	GROSS BETA	2.935 +/- 0.674	
07-Sep-16	MN-54	< 4.2	
07-Sep-16	CO-58	< 1.9	
07-Sep-16	FE-59	< 3.8	
07-Sep-16	CO-60	< 2.8	
07-Sep-16	ZN-65	< 4.7	
07-Sep-16	ZR-NB-95	< 3.7	
07-Sep-16	I-131	< 0.268	
07-Sep-16	CS-134	< 3.9	
07-Sep-16	CS-137	< 3.6	
07-Sep-16	BA-LA-140	< 2.5	
07-Sep-16	GROSS BETA	3.084 +/- 0.511	
03-Oct-16	MN-54	< 2.6	
03-Oct-16	CO-58	< 2.1	
03-Oct-16	FE-59	< 4.4	
03-Oct-16	CO-60	< 2.0	
03-Oct-16	ZN-65	< 3.0	
03-Oct-16	ZR-NB-95	< 1.4	
03-Oct-16	I-131	< 0.409	
03-Oct-16	CS-134	< 2.8	
03-Oct-16	CS-137	< 2.2	
03-Oct-16	BA-LA-140	< 2.7	
03-Oct-16	GROSS BETA	3.279 +/- 0.507	
08-Nov-16	MN-54	< 2.5	
08-Nov-16	CO-58	< 2.1	
08-Nov-16	FE-59	< 5.4	
08-Nov-16	CO-60	< 2.8	
08-Nov-16	ZN-65	< 5.8	
08-Nov-16	ZR-NB-95	< 3.3	
08-Nov-16	I-131	< 0.293	
08-Nov-16	CS-134	< 3.8	
08-Nov-16	CS-137	< 3.2	
08-Nov-16	BA-LA-140	< 4.1	
08-Nov-16	GROSS BETA	3.779 +/- 0.739	
05-Dec-16	MN-54	< 2.9	
05-Dec-16	CO-58	< 1.4	
05-Dec-16	FE-59	< 3.5	
05-Dec-16	CO-60	< 2.3	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
05-Dec-16	ZN-65	< 6.4	
05-Dec-16	ZR-NB-95	< 2.3	
05-Dec-16	I-131	< 0.474	
05-Dec-16	CS-134	< 3.8	
05-Dec-16	CS-137	< 3.5	
05-Dec-16	BA-LA-140	< 3.5	
05-Dec-16	GROSS BETA	3.969 +/- 0.772	
04-Jan-17	MN-54	< 2.4	
04-Jan-17	CO-58	< 2.3	
04-Jan-17	FE-59	< 3.7	
04-Jan-17	CO-60	< 2.6	
04-Jan-17	ZN-65	< 1.7	
04-Jan-17	ZR-NB-95	< 1.7	
04-Jan-17	I-131	< 0.486	
04-Jan-17	CS-134	< 2.8	
04-Jan-17	CS-137	< 2.8	
04-Jan-17	BA-LA-140	< 3.6	
04-Jan-17	GROSS BETA	2.588 +/- 0.655	

Exposure Pathway - Waterborne
Drinking Water
Quarterly Tritium Analysis
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
04-Apr-16	H-3	<	138	
04-Apr-16	H-3	<	138	Duplicate
12-Jul-16	H-3	<	143	
03-Oct-16	H-3	<	157	
04-Jan-17	H-3	<	155	

Exposure Pathway - Waterborne
Drinking Water
Quarterly Tritium Analysis
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
04-Apr-16	H-3	< 142	
12-Jul-16	H-3	228 +/- 83	
12-Jul-16	H-3	238 +/- 85	Reanalysis
03-Oct-16	H-3	< 157	
04-Jan-17	H-3	< 155	

Exposure Pathway - Waterborne
Shoreline Sediment
Location: DC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Apr-16	SHORELINE SEDIMENT	K-40	12,005.0 +/-	801.9	
27-Apr-16	SHORELINE SEDIMENT	MN-54	<	34.0	
27-Apr-16	SHORELINE SEDIMENT	CO-58	<	29.7	
27-Apr-16	SHORELINE SEDIMENT	FE-59	<	62.1	
27-Apr-16	SHORELINE SEDIMENT	CO-60	<	16.3	
27-Apr-16	SHORELINE SEDIMENT	ZN-65	<	64.8	
27-Apr-16	SHORELINE SEDIMENT	CS-134	<	22.4	
27-Apr-16	SHORELINE SEDIMENT	CS-137	199.8 +/-	35.1	
27-Oct-16	SHORELINE SEDIMENT	K-40	10,437.0 +/-	258.6	
27-Oct-16	SHORELINE SEDIMENT	MN-54	<	10.6	
27-Oct-16	SHORELINE SEDIMENT	CO-58	<	12.2	
27-Oct-16	SHORELINE SEDIMENT	FE-59	<	18.3	
27-Oct-16	SHORELINE SEDIMENT	CO-60	<	9.1	
27-Oct-16	SHORELINE SEDIMENT	ZN-65	<	19.3	
27-Oct-16	SHORELINE SEDIMENT	CS-134	<	7.1	
27-Oct-16	SHORELINE SEDIMENT	CS-137	120.1 +/-	8.8	

Exposure Pathway - Waterborne
Shoreline Sediment
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-Jun-16	SHORELINE SEDIMENT	K-40	11,433.0 +/-	711.5	Duplicate
09-Jun-16	SHORELINE SEDIMENT	K-40	11,155.0 +/-	654.2	
09-Jun-16	SHORELINE SEDIMENT	MN-54	<	29.6	Duplicate
09-Jun-16	SHORELINE SEDIMENT	MN-54	<	30.5	
09-Jun-16	SHORELINE SEDIMENT	CO-58	<	31.5	Duplicate
09-Jun-16	SHORELINE SEDIMENT	CO-58	<	23.8	
09-Jun-16	SHORELINE SEDIMENT	FE-59	<	99.3	Duplicate
09-Jun-16	SHORELINE SEDIMENT	FE-59	<	39.5	
09-Jun-16	SHORELINE SEDIMENT	CO-60	<	23.5	
09-Jun-16	SHORELINE SEDIMENT	CO-60	<	13.9	Duplicate
09-Jun-16	SHORELINE SEDIMENT	ZN-65	<	68.9	Duplicate
09-Jun-16	SHORELINE SEDIMENT	ZN-65	<	43.5	
09-Jun-16	SHORELINE SEDIMENT	CS-134	<	21.5	Duplicate
09-Jun-16	SHORELINE SEDIMENT	CS-134	<	18.8	
09-Jun-16	SHORELINE SEDIMENT	CS-137	257.6 +/-	39.1	Duplicate
09-Jun-16	SHORELINE SEDIMENT	CS-137	270.8 +/-	37.2	
01-Aug-16	SHORELINE SEDIMENT	K-40	12,465.0 +/-	706.1	
01-Aug-16	SHORELINE SEDIMENT	K-40	13,244.0 +/-	805.7	Duplicate
01-Aug-16	SHORELINE SEDIMENT	MN-54	<	26.3	
01-Aug-16	SHORELINE SEDIMENT	MN-54	<	32.8	Duplicate
01-Aug-16	SHORELINE SEDIMENT	CO-58	<	29.1	Duplicate
01-Aug-16	SHORELINE SEDIMENT	CO-58	<	25.5	
01-Aug-16	SHORELINE SEDIMENT	FE-59	<	40.7	Duplicate
01-Aug-16	SHORELINE SEDIMENT	FE-59	<	32.5	
01-Aug-16	SHORELINE SEDIMENT	CO-60	<	20.3	
01-Aug-16	SHORELINE SEDIMENT	CO-60	<	15.5	Duplicate
01-Aug-16	SHORELINE SEDIMENT	ZN-65	<	60.2	
01-Aug-16	SHORELINE SEDIMENT	ZN-65	<	63.8	Duplicate
01-Aug-16	SHORELINE SEDIMENT	CS-134	<	23.1	
01-Aug-16	SHORELINE SEDIMENT	CS-134	<	27.4	Duplicate
01-Aug-16	SHORELINE SEDIMENT	CS-137	96.9 +/-	27.2	
01-Aug-16	SHORELINE SEDIMENT	CS-137	134.1 +/-	41.7	Duplicate

Exposure Pathway - Waterborne
Shoreline Sediment
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
25-Apr-16	SHORELINE SEDIMENT	K-40	11,582.0 +/-	913.6	
25-Apr-16	SHORELINE SEDIMENT	MN-54	<	40.7	
25-Apr-16	SHORELINE SEDIMENT	CO-58	<	36.3	
25-Apr-16	SHORELINE SEDIMENT	FE-59	<	119.8	
25-Apr-16	SHORELINE SEDIMENT	CO-60	<	30.2	
25-Apr-16	SHORELINE SEDIMENT	ZN-65	<	79.4	
25-Apr-16	SHORELINE SEDIMENT	CS-134	<	36.6	
25-Apr-16	SHORELINE SEDIMENT	CS-137	<	37.5	
27-Oct-16	SHORELINE SEDIMENT	K-40	16,380.0 +/-	1,435.0	
27-Oct-16	SHORELINE SEDIMENT	MN-54	<	72.4	
27-Oct-16	SHORELINE SEDIMENT	CO-58	<	55.5	
27-Oct-16	SHORELINE SEDIMENT	FE-59	<	145.9	
27-Oct-16	SHORELINE SEDIMENT	CO-60	<	53.5	
27-Oct-16	SHORELINE SEDIMENT	ZN-65	<	80.9	
27-Oct-16	SHORELINE SEDIMENT	CS-134	<	48.6	
27-Oct-16	SHORELINE SEDIMENT	CS-137	112.9 +/-	59.3	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
05-May-16	COMMON CARP	K-40	3,180.2 +/-	374.6	
05-May-16	COMMON CARP	MN-54	<	15.6	
05-May-16	COMMON CARP	CO-58	<	10.6	
05-May-16	COMMON CARP	FE-59	<	27.9	
05-May-16	COMMON CARP	CO-60	<	9.6	
05-May-16	COMMON CARP	ZN-65	<	24.8	
05-May-16	COMMON CARP	I-131	<	31.9	
05-May-16	COMMON CARP	CS-134	<	14.6	
05-May-16	COMMON CARP	CS-137	<	14.0	
05-May-16	COMMON CARP	H-3	7,005.0 +/-	223.0	
05-May-16	FRESHWATER DRUM	K-40	3,869.7 +/-	408.2	
05-May-16	FRESHWATER DRUM	MN-54	<	7.6	
05-May-16	FRESHWATER DRUM	CO-58	<	9.5	
05-May-16	FRESHWATER DRUM	FE-59	<	23.7	
05-May-16	FRESHWATER DRUM	CO-60	<	9.3	
05-May-16	FRESHWATER DRUM	ZN-65	<	16.6	
05-May-16	FRESHWATER DRUM	I-131	<	33.8	
05-May-16	FRESHWATER DRUM	CS-134	<	13.7	
05-May-16	FRESHWATER DRUM	CS-137	<	11.9	
05-May-16	FRESHWATER DRUM	H-3	6,956.0 +/-	224.0	
05-May-16	SMALLMOUTH BASS	K-40	3,810.7 +/-	409.0	
05-May-16	SMALLMOUTH BASS	MN-54	<	7.7	
05-May-16	SMALLMOUTH BASS	CO-58	<	11.4	
05-May-16	SMALLMOUTH BASS	FE-59	<	29.1	
05-May-16	SMALLMOUTH BASS	CO-60	<	13.7	
05-May-16	SMALLMOUTH BASS	ZN-65	<	24.7	
05-May-16	SMALLMOUTH BASS	I-131	<	27.5	
05-May-16	SMALLMOUTH BASS	CS-134	<	14.1	
05-May-16	SMALLMOUTH BASS	CS-137	<	14.0	
05-May-16	SMALLMOUTH BASS	H-3	7,317.0 +/-	227.0	
05-May-16	SMALLMOUTH BUFFALO	K-40	3,787.6 +/-	457.2	
05-May-16	SMALLMOUTH BUFFALO	MN-54	<	11.9	
05-May-16	SMALLMOUTH BUFFALO	CO-58	<	13.2	
05-May-16	SMALLMOUTH BUFFALO	FE-59	<	26.5	
05-May-16	SMALLMOUTH BUFFALO	CO-60	<	11.7	
05-May-16	SMALLMOUTH BUFFALO	ZN-65	<	17.8	
05-May-16	SMALLMOUTH BUFFALO	I-131	<	40.8	
05-May-16	SMALLMOUTH BUFFALO	CS-134	<	13.8	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
05-May-16	SMALLMOUTH BUFFALO	CS-137	<	16.7	
05-May-16	SMALLMOUTH BUFFALO	H-3	6,407.0 +/-	204.0	
05-May-16	WHITE CRAPPIE	K-40	3,165.1 +/-	400.5	
05-May-16	WHITE CRAPPIE	MN-54	<	17.2	
05-May-16	WHITE CRAPPIE	CO-58	<	13.3	
05-May-16	WHITE CRAPPIE	FE-59	<	24.2	
05-May-16	WHITE CRAPPIE	CO-60	<	12.8	
05-May-16	WHITE CRAPPIE	ZN-65	<	22.3	
05-May-16	WHITE CRAPPIE	I-131	<	40.6	
05-May-16	WHITE CRAPPIE	CS-134	<	15.7	
05-May-16	WHITE CRAPPIE	CS-137	<	11.1	
05-May-16	WHITE CRAPPIE	H-3	7,189.0 +/-	227.0	
02-Nov-16	BLUE CATFISH	K-40	2,771.9 +/-	349.3	
02-Nov-16	BLUE CATFISH	MN-54	<	11.7	
02-Nov-16	BLUE CATFISH	CO-58	<	9.3	
02-Nov-16	BLUE CATFISH	FE-59	<	22.5	
02-Nov-16	BLUE CATFISH	CO-60	<	12.7	
02-Nov-16	BLUE CATFISH	ZN-65	<	12.9	
02-Nov-16	BLUE CATFISH	I-131	<	51.0	
02-Nov-16	BLUE CATFISH	CS-134	<	12.5	
02-Nov-16	BLUE CATFISH	CS-137	<	12.4	
02-Nov-16	BLUE CATFISH	H-3	8,243.0 +/-	248.0	
02-Nov-16	CHANNEL CATFISH	K-40	3,629.5 +/-	395.3	
02-Nov-16	CHANNEL CATFISH	MN-54	<	9.7	
02-Nov-16	CHANNEL CATFISH	CO-58	<	6.5	
02-Nov-16	CHANNEL CATFISH	FE-59	<	26.4	
02-Nov-16	CHANNEL CATFISH	CO-60	<	12.7	
02-Nov-16	CHANNEL CATFISH	ZN-65	<	12.5	
02-Nov-16	CHANNEL CATFISH	I-131	<	67.0	
02-Nov-16	CHANNEL CATFISH	CS-134	<	13.7	
02-Nov-16	CHANNEL CATFISH	CS-137	<	11.6	
02-Nov-16	CHANNEL CATFISH	H-3	7,885.0 +/-	241.0	
02-Nov-16	SMALLMOUTH BUFFALO	K-40	2,895.9 +/-	394.0	
02-Nov-16	SMALLMOUTH BUFFALO	MN-54	<	13.9	
02-Nov-16	SMALLMOUTH BUFFALO	CO-58	<	12.0	
02-Nov-16	SMALLMOUTH BUFFALO	FE-59	<	36.3	
02-Nov-16	SMALLMOUTH BUFFALO	CO-60	<	6.3	
02-Nov-16	SMALLMOUTH BUFFALO	ZN-65	<	24.1	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
02-Nov-16	SMALLMOUTH BUFFALO	I-131	<	83.5	
02-Nov-16	SMALLMOUTH BUFFALO	CS-134	<	17.7	
02-Nov-16	SMALLMOUTH BUFFALO	CS-137	<	13.3	
02-Nov-16	SMALLMOUTH BUFFALO	H-3	7,364.0 +/-	228.0	
02-Nov-16	WALLEYE	K-40	4,132.7 +/-	442.2	
02-Nov-16	WALLEYE	MN-54	<	14.1	
02-Nov-16	WALLEYE	CO-58	<	10.0	
02-Nov-16	WALLEYE	FE-59	<	26.9	
02-Nov-16	WALLEYE	CO-60	<	11.4	
02-Nov-16	WALLEYE	ZN-65	<	33.1	
02-Nov-16	WALLEYE	I-131	<	42.2	
02-Nov-16	WALLEYE	CS-134	<	17.7	
02-Nov-16	WALLEYE	CS-137	<	16.7	
02-Nov-16	WALLEYE	H-3	6,601.0 +/-	255.0	
02-Nov-16	WHITE BASS	K-40	3,525.4 +/-	421.6	
02-Nov-16	WHITE BASS	MN-54	<	11.4	
02-Nov-16	WHITE BASS	CO-58	<	15.7	
02-Nov-16	WHITE BASS	FE-59	<	23.6	
02-Nov-16	WHITE BASS	CO-60	<	9.8	
02-Nov-16	WHITE BASS	ZN-65	<	23.2	
02-Nov-16	WHITE BASS	I-131	<	50.8	
02-Nov-16	WHITE BASS	CS-134	<	15.3	
02-Nov-16	WHITE BASS	CS-137	<	11.1	
02-Nov-16	WHITE BASS	H-3	7,770.0 +/-	238.0	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
25-Apr-16	BIGMOUTH BUFFALO	K-40	3,921.5 +/-	383.5	
25-Apr-16	BIGMOUTH BUFFALO	MN-54	<	8.5	
25-Apr-16	BIGMOUTH BUFFALO	CO-58	<	12.9	
25-Apr-16	BIGMOUTH BUFFALO	FE-59	<	25.7	
25-Apr-16	BIGMOUTH BUFFALO	CO-60	<	16.5	
25-Apr-16	BIGMOUTH BUFFALO	ZN-65	<	19.1	
25-Apr-16	BIGMOUTH BUFFALO	I-131	<	21.3	
25-Apr-16	BIGMOUTH BUFFALO	CS-134	<	15.5	
25-Apr-16	BIGMOUTH BUFFALO	CS-137	<	8.8	
25-Apr-16	BIGMOUTH BUFFALO	H-3	<	117.0	
25-Apr-16	CHANNEL CATFISH	K-40	3,216.3 +/-	390.7	
25-Apr-16	CHANNEL CATFISH	MN-54	<	10.8	
25-Apr-16	CHANNEL CATFISH	CO-58	<	7.4	
25-Apr-16	CHANNEL CATFISH	FE-59	<	29.2	
25-Apr-16	CHANNEL CATFISH	CO-60	<	11.4	
25-Apr-16	CHANNEL CATFISH	ZN-65	<	29.3	
25-Apr-16	CHANNEL CATFISH	I-131	<	19.3	
25-Apr-16	CHANNEL CATFISH	CS-134	<	13.9	
25-Apr-16	CHANNEL CATFISH	CS-137	<	13.8	
25-Apr-16	CHANNEL CATFISH	H-3	<	120.0	
25-Apr-16	COMMON CARP	K-40	3,399.3 +/-	415.2	
25-Apr-16	COMMON CARP	MN-54	<	14.0	
25-Apr-16	COMMON CARP	CO-58	<	8.9	
25-Apr-16	COMMON CARP	FE-59	<	25.6	
25-Apr-16	COMMON CARP	CO-60	<	13.1	
25-Apr-16	COMMON CARP	ZN-65	<	23.8	
25-Apr-16	COMMON CARP	I-131	<	27.8	
25-Apr-16	COMMON CARP	CS-134	<	16.5	
25-Apr-16	COMMON CARP	CS-137	<	11.0	
25-Apr-16	COMMON CARP	H-3	<	117.0	
25-Apr-16	LARGEMOUTH BASS	K-40	3,498.8 +/-	399.3	
25-Apr-16	LARGEMOUTH BASS	MN-54	<	12.1	
25-Apr-16	LARGEMOUTH BASS	CO-58	<	11.8	
25-Apr-16	LARGEMOUTH BASS	FE-59	<	38.7	
25-Apr-16	LARGEMOUTH BASS	CO-60	<	9.7	
25-Apr-16	LARGEMOUTH BASS	ZN-65	<	35.3	
25-Apr-16	LARGEMOUTH BASS	I-131	<	33.6	
25-Apr-16	LARGEMOUTH BASS	CS-134	<	13.5	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
25-Apr-16	LARGEMOUTH BASS	CS-137	<	14.0	
25-Apr-16	LARGEMOUTH BASS	H-3	<	122.0	
25-Apr-16	SMALLMOUTH BUFFALO	K-40	3,523.9 +/-	400.0	
25-Apr-16	SMALLMOUTH BUFFALO	MN-54	<	13.4	
25-Apr-16	SMALLMOUTH BUFFALO	CO-58	<	8.2	
25-Apr-16	SMALLMOUTH BUFFALO	FE-59	<	26.1	
25-Apr-16	SMALLMOUTH BUFFALO	CO-60	<	10.9	
25-Apr-16	SMALLMOUTH BUFFALO	ZN-65	<	21.0	
25-Apr-16	SMALLMOUTH BUFFALO	I-131	<	23.1	
25-Apr-16	SMALLMOUTH BUFFALO	CS-134	<	15.0	
25-Apr-16	SMALLMOUTH BUFFALO	CS-137	<	16.3	
25-Apr-16	SMALLMOUTH BUFFALO	H-3	<	116.0	
25-Apr-16	WHITE CRAPPIE	K-40	3,374.7 +/-	365.8	
25-Apr-16	WHITE CRAPPIE	MN-54	<	14.9	
25-Apr-16	WHITE CRAPPIE	CO-58	<	10.7	
25-Apr-16	WHITE CRAPPIE	FE-59	<	20.7	
25-Apr-16	WHITE CRAPPIE	CO-60	<	12.6	
25-Apr-16	WHITE CRAPPIE	ZN-65	<	21.7	
25-Apr-16	WHITE CRAPPIE	I-131	<	16.3	
25-Apr-16	WHITE CRAPPIE	CS-134	<	12.0	
25-Apr-16	WHITE CRAPPIE	CS-137	<	12.1	
25-Apr-16	WHITE CRAPPIE	H-3	<	118.0	
17-Oct-16	BASS	K-40	3,696.1 +/-	485.1	
17-Oct-16	BASS	MN-54	<	12.3	
17-Oct-16	BASS	CO-58	<	7.8	
17-Oct-16	BASS	FE-59	<	28.9	
17-Oct-16	BASS	CO-60	<	13.4	
17-Oct-16	BASS	ZN-65	<	22.7	
17-Oct-16	BASS	I-131	<	74.3	
17-Oct-16	BASS	CS-134	<	16.8	
17-Oct-16	BASS	CS-137	<	12.2	
17-Oct-16	BASS	H-3	<	133.0	
17-Oct-16	BIGMOUTH BUFFALO	K-40	3,552.5 +/-	331.8	
17-Oct-16	BIGMOUTH BUFFALO	MN-54	<	13.4	
17-Oct-16	BIGMOUTH BUFFALO	CO-58	<	12.0	
17-Oct-16	BIGMOUTH BUFFALO	FE-59	<	26.6	
17-Oct-16	BIGMOUTH BUFFALO	CO-60	<	8.0	
17-Oct-16	BIGMOUTH BUFFALO	ZN-65	<	24.1	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-Oct-16	BIGMOUTH BUFFALO	I-131	<	44.8	
17-Oct-16	BIGMOUTH BUFFALO	CS-134	<	12.7	
17-Oct-16	BIGMOUTH BUFFALO	CS-137	<	11.9	
17-Oct-16	BIGMOUTH BUFFALO	H-3	<	135.0	
17-Oct-16	COMMON CARP	K-40	3,348.8 +/-	370.9	
17-Oct-16	COMMON CARP	MN-54	<	10.7	
17-Oct-16	COMMON CARP	CO-58	<	12.1	
17-Oct-16	COMMON CARP	FE-59	<	39.9	
17-Oct-16	COMMON CARP	CO-60	<	13.2	
17-Oct-16	COMMON CARP	ZN-65	<	30.5	
17-Oct-16	COMMON CARP	I-131	<	85.9	
17-Oct-16	COMMON CARP	CS-134	<	12.8	
17-Oct-16	COMMON CARP	CS-137	<	12.4	
17-Oct-16	COMMON CARP	H-3	<	135.0	
17-Oct-16	CRAPPIE	K-40	3,347.3 +/-	311.0	
17-Oct-16	CRAPPIE	MN-54	<	10.1	
17-Oct-16	CRAPPIE	CO-58	<	9.6	
17-Oct-16	CRAPPIE	FE-59	<	20.3	
17-Oct-16	CRAPPIE	CO-60	<	8.7	
17-Oct-16	CRAPPIE	ZN-65	<	23.3	
17-Oct-16	CRAPPIE	I-131	<	48.9	
17-Oct-16	CRAPPIE	CS-134	<	10.6	
17-Oct-16	CRAPPIE	CS-137	<	13.4	
17-Oct-16	CRAPPIE	H-3	<	135.0	
17-Oct-16	SMALLMOUTH BUFFALO	K-40	3,127.6 +/-	408.3	
17-Oct-16	SMALLMOUTH BUFFALO	MN-54	<	8.8	
17-Oct-16	SMALLMOUTH BUFFALO	CO-58	<	12.1	
17-Oct-16	SMALLMOUTH BUFFALO	FE-59	<	26.2	
17-Oct-16	SMALLMOUTH BUFFALO	CO-60	<	13.1	
17-Oct-16	SMALLMOUTH BUFFALO	ZN-65	<	24.6	
17-Oct-16	SMALLMOUTH BUFFALO	I-131	<	60.7	
17-Oct-16	SMALLMOUTH BUFFALO	CS-134	<	14.4	
17-Oct-16	SMALLMOUTH BUFFALO	CS-137	<	15.0	
17-Oct-16	SMALLMOUTH BUFFALO	H-3	<	131.0	
17-Oct-16	WHITE BASS	K-40	3,413.6 +/-	317.5	
17-Oct-16	WHITE BASS	MN-54	<	11.6	
17-Oct-16	WHITE BASS	CO-58	<	12.5	
17-Oct-16	WHITE BASS	FE-59	<	15.9	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-Oct-16	WHITE BASS	CO-60	<	6.0	
17-Oct-16	WHITE BASS	ZN-65	<	25.3	
17-Oct-16	WHITE BASS	I-131	<	57.7	
17-Oct-16	WHITE BASS	CS-134	<	13.4	
17-Oct-16	WHITE BASS	CS-137	<	12.7	
17-Oct-16	WHITE BASS	H-3	<	133.0	

Exposure Pathway - Ingestion
Food/Garden
Location: A-3

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-May-16	HORSERADISH LEAVES	BE-7	368.3 +/-	159.9	
10-May-16	HORSERADISH LEAVES	K-40	3,723.0 +/-	430.3	
10-May-16	HORSERADISH LEAVES	MN-54	<	16.9	
10-May-16	HORSERADISH LEAVES	CO-58	<	13.1	
10-May-16	HORSERADISH LEAVES	FE-59	<	31.7	
10-May-16	HORSERADISH LEAVES	CO-60	<	10.6	
10-May-16	HORSERADISH LEAVES	ZN-65	<	22.1	
10-May-16	HORSERADISH LEAVES	ZR-NB-95	<	17.1	
10-May-16	HORSERADISH LEAVES	I-131	<	17.9	
10-May-16	HORSERADISH LEAVES	CS-134	<	16.1	
10-May-16	HORSERADISH LEAVES	CS-137	<	13.9	
14-Jun-16	HORSERADISH LEAVES	BE-7	953.8 +/-	145.5	
14-Jun-16	HORSERADISH LEAVES	K-40	5,899.3 +/-	348.6	
14-Jun-16	HORSERADISH LEAVES	MN-54	<	10.9	
14-Jun-16	HORSERADISH LEAVES	CO-58	<	12.2	
14-Jun-16	HORSERADISH LEAVES	FE-59	<	17.7	
14-Jun-16	HORSERADISH LEAVES	CO-60	<	10.1	
14-Jun-16	HORSERADISH LEAVES	ZN-65	<	27.8	
14-Jun-16	HORSERADISH LEAVES	ZR-NB-95	<	11.1	
14-Jun-16	HORSERADISH LEAVES	I-131	<	18.0	
14-Jun-16	HORSERADISH LEAVES	CS-134	<	11.4	
14-Jun-16	HORSERADISH LEAVES	CS-137	<	13.6	
18-Jul-16	HORSERADISH LEAVES	BE-7	2,093.4 +/-	296.4	
18-Jul-16	HORSERADISH LEAVES	K-40	7,138.3 +/-	552.2	
18-Jul-16	HORSERADISH LEAVES	MN-54	<	13.9	
18-Jul-16	HORSERADISH LEAVES	CO-58	<	14.5	
18-Jul-16	HORSERADISH LEAVES	FE-59	<	39.8	
18-Jul-16	HORSERADISH LEAVES	CO-60	<	15.9	
18-Jul-16	HORSERADISH LEAVES	ZN-65	<	42.3	
18-Jul-16	HORSERADISH LEAVES	ZR-NB-95	<	21.7	
18-Jul-16	HORSERADISH LEAVES	I-131	<	27.8	
18-Jul-16	HORSERADISH LEAVES	CS-134	<	15.8	
18-Jul-16	HORSERADISH LEAVES	CS-137	<	23.4	
22-Aug-16	HORSERADISH LEAVES	BE-7	861.4 +/-	125.8	
22-Aug-16	HORSERADISH LEAVES	K-40	6,279.3 +/-	232.8	
22-Aug-16	HORSERADISH LEAVES	MN-54	<	6.6	
22-Aug-16	HORSERADISH LEAVES	CO-58	<	9.2	
22-Aug-16	HORSERADISH LEAVES	FE-59	<	20.8	

Exposure Pathway - Ingestion
Food/Garden
Location: A-3

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
22-Aug-16	HORSERADISH LEAVES	CO-60	<	7.7	
22-Aug-16	HORSERADISH LEAVES	ZN-65	<	9.7	
22-Aug-16	HORSERADISH LEAVES	ZR-NB-95	<	11.6	
22-Aug-16	HORSERADISH LEAVES	I-131	<	24.4	
22-Aug-16	HORSERADISH LEAVES	CS-134	<	8.6	
22-Aug-16	HORSERADISH LEAVES	CS-137	<	6.6	
20-Sep-16	HORSERADISH LEAVES	BE-7	709.0 +/-	200.7	
20-Sep-16	HORSERADISH LEAVES	K-40	5,834.0 +/-	465.8	
20-Sep-16	HORSERADISH LEAVES	MN-54	<	14.6	
20-Sep-16	HORSERADISH LEAVES	CO-58	<	13.6	
20-Sep-16	HORSERADISH LEAVES	FE-59	<	21.8	
20-Sep-16	HORSERADISH LEAVES	CO-60	<	15.2	
20-Sep-16	HORSERADISH LEAVES	ZN-65	<	26.5	
20-Sep-16	HORSERADISH LEAVES	ZR-NB-95	<	12.0	
20-Sep-16	HORSERADISH LEAVES	I-131	<	47.9	
20-Sep-16	HORSERADISH LEAVES	CS-134	<	15.1	
20-Sep-16	HORSERADISH LEAVES	CS-137	<	17.0	
24-Oct-16	HORSERADISH LEAVES	BE-7	965.1 +/-	112.1	
24-Oct-16	HORSERADISH LEAVES	K-40	5,688.6 +/-	218.2	
24-Oct-16	HORSERADISH LEAVES	MN-54	<	7.1	
24-Oct-16	HORSERADISH LEAVES	CO-58	<	8.1	
24-Oct-16	HORSERADISH LEAVES	FE-59	<	18.7	
24-Oct-16	HORSERADISH LEAVES	CO-60	<	6.8	
24-Oct-16	HORSERADISH LEAVES	ZN-65	<	16.0	
24-Oct-16	HORSERADISH LEAVES	ZR-NB-95	<	6.2	
24-Oct-16	HORSERADISH LEAVES	I-131	<	20.5	
24-Oct-16	HORSERADISH LEAVES	CS-134	<	7.4	
24-Oct-16	HORSERADISH LEAVES	CS-137	<	7.2	
10-Nov-16	HORSERADISH LEAVES	BE-7	943.6 +/-	221.8	
10-Nov-16	HORSERADISH LEAVES	K-40	5,785.5 +/-	488.3	
10-Nov-16	HORSERADISH LEAVES	MN-54	<	14.1	
10-Nov-16	HORSERADISH LEAVES	CO-58	<	14.9	
10-Nov-16	HORSERADISH LEAVES	FE-59	<	29.5	
10-Nov-16	HORSERADISH LEAVES	CO-60	<	9.4	
10-Nov-16	HORSERADISH LEAVES	ZN-65	<	29.2	
10-Nov-16	HORSERADISH LEAVES	ZR-NB-95	<	16.5	
10-Nov-16	HORSERADISH LEAVES	I-131	<	36.1	
10-Nov-16	HORSERADISH LEAVES	CS-134	<	15.5	

Exposure Pathway - Ingestion
Food/Garden
Location: A-3

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-Nov-16	HORSERADISH LEAVES	CS-137	<	11.6	

Exposure Pathway - Ingestion
Food/Garden
Location: B-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-May-16	HORSERADISH LEAVES	BE-7	837.8 +/-	229.9	
10-May-16	HORSERADISH LEAVES	K-40	4,234.9 +/-	452.8	
10-May-16	HORSERADISH LEAVES	MN-54	<	17.6	
10-May-16	HORSERADISH LEAVES	CO-58	<	16.6	
10-May-16	HORSERADISH LEAVES	FE-59	<	28.8	
10-May-16	HORSERADISH LEAVES	CO-60	<	12.7	
10-May-16	HORSERADISH LEAVES	ZN-65	<	31.7	
10-May-16	HORSERADISH LEAVES	ZR-NB-95	<	10.1	
10-May-16	HORSERADISH LEAVES	I-131	<	30.5	
10-May-16	HORSERADISH LEAVES	CS-134	<	15.5	
10-May-16	HORSERADISH LEAVES	CS-137	<	14.2	
14-Jun-16	HORSERADISH LEAVES	BE-7	874.9 +/-	215.3	
14-Jun-16	HORSERADISH LEAVES	K-40	5,192.7 +/-	469.7	
14-Jun-16	HORSERADISH LEAVES	MN-54	<	15.4	
14-Jun-16	HORSERADISH LEAVES	CO-58	<	8.4	
14-Jun-16	HORSERADISH LEAVES	FE-59	<	23.8	
14-Jun-16	HORSERADISH LEAVES	CO-60	<	14.8	
14-Jun-16	HORSERADISH LEAVES	ZN-65	<	20.8	
14-Jun-16	HORSERADISH LEAVES	ZR-NB-95	<	15.9	
14-Jun-16	HORSERADISH LEAVES	I-131	<	27.2	
14-Jun-16	HORSERADISH LEAVES	CS-134	<	15.0	
14-Jun-16	HORSERADISH LEAVES	CS-137	<	19.8	
18-Jul-16	HORSERADISH LEAVES	BE-7	1,974.0 +/-	323.2	
18-Jul-16	HORSERADISH LEAVES	K-40	6,454.4 +/-	568.8	
18-Jul-16	HORSERADISH LEAVES	MN-54	<	13.3	
18-Jul-16	HORSERADISH LEAVES	CO-58	<	16.3	
18-Jul-16	HORSERADISH LEAVES	FE-59	<	26.1	
18-Jul-16	HORSERADISH LEAVES	CO-60	<	11.7	
18-Jul-16	HORSERADISH LEAVES	ZN-65	<	34.3	
18-Jul-16	HORSERADISH LEAVES	ZR-NB-95	<	14.6	
18-Jul-16	HORSERADISH LEAVES	I-131	<	45.2	
18-Jul-16	HORSERADISH LEAVES	CS-134	<	18.1	
18-Jul-16	HORSERADISH LEAVES	CS-137	<	11.8	
22-Aug-16	HORSERADISH LEAVES	BE-7	727.9 +/-	165.5	
22-Aug-16	HORSERADISH LEAVES	K-40	5,664.3 +/-	231.7	
22-Aug-16	HORSERADISH LEAVES	MN-54	<	10.6	
22-Aug-16	HORSERADISH LEAVES	CO-58	<	9.4	
22-Aug-16	HORSERADISH LEAVES	FE-59	<	21.2	

Exposure Pathway - Ingestion
Food/Garden
Location: B-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
22-Aug-16	HORSERADISH LEAVES	CO-60	<	10.6	
22-Aug-16	HORSERADISH LEAVES	ZN-65	<	14.3	
22-Aug-16	HORSERADISH LEAVES	ZR-NB-95	<	10.1	
22-Aug-16	HORSERADISH LEAVES	I-131	<	23.1	
22-Aug-16	HORSERADISH LEAVES	CS-134	<	8.6	
22-Aug-16	HORSERADISH LEAVES	CS-137	<	6.3	
20-Sep-16	HORSERADISH LEAVES	BE-7	508.8 +/-	153.6	
20-Sep-16	HORSERADISH LEAVES	K-40	4,117.9 +/-	409.1	
20-Sep-16	HORSERADISH LEAVES	MN-54	<	10.0	
20-Sep-16	HORSERADISH LEAVES	CO-58	<	8.5	
20-Sep-16	HORSERADISH LEAVES	FE-59	<	19.2	
20-Sep-16	HORSERADISH LEAVES	CO-60	<	11.8	
20-Sep-16	HORSERADISH LEAVES	ZN-65	<	16.3	
20-Sep-16	HORSERADISH LEAVES	ZR-NB-95	<	16.3	
20-Sep-16	HORSERADISH LEAVES	I-131	<	19.3	
20-Sep-16	HORSERADISH LEAVES	CS-134	<	12.6	
20-Sep-16	HORSERADISH LEAVES	CS-137	<	13.4	
24-Oct-16	HORSERADISH LEAVES	BE-7	772.4 +/-	101.9	
24-Oct-16	HORSERADISH LEAVES	K-40	5,317.0 +/-	193.8	
24-Oct-16	HORSERADISH LEAVES	MN-54	<	6.9	
24-Oct-16	HORSERADISH LEAVES	CO-58	<	7.6	
24-Oct-16	HORSERADISH LEAVES	FE-59	<	10.1	
24-Oct-16	HORSERADISH LEAVES	CO-60	<	8.6	
24-Oct-16	HORSERADISH LEAVES	ZN-65	<	18.2	
24-Oct-16	HORSERADISH LEAVES	ZR-NB-95	<	9.2	
24-Oct-16	HORSERADISH LEAVES	I-131	<	21.4	
24-Oct-16	HORSERADISH LEAVES	CS-134	<	7.4	
24-Oct-16	HORSERADISH LEAVES	CS-137	<	8.4	
10-Nov-16	HORSERADISH LEAVES	BE-7	677.7 +/-	155.1	
10-Nov-16	HORSERADISH LEAVES	K-40	5,359.5 +/-	415.1	
10-Nov-16	HORSERADISH LEAVES	MN-54	<	14.4	
10-Nov-16	HORSERADISH LEAVES	CO-58	<	7.6	
10-Nov-16	HORSERADISH LEAVES	FE-59	<	19.8	
10-Nov-16	HORSERADISH LEAVES	CO-60	<	10.5	
10-Nov-16	HORSERADISH LEAVES	ZN-65	<	31.0	
10-Nov-16	HORSERADISH LEAVES	ZR-NB-95	<	9.6	
10-Nov-16	HORSERADISH LEAVES	I-131	<	42.2	
10-Nov-16	HORSERADISH LEAVES	CS-134	<	13.0	

Exposure Pathway - Ingestion
Food/Garden
Location: B-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-Nov-16	HORSERADISH LEAVES	CS-137	<	16.8	

Exposure Pathway - Ingestion
Food/Garden
Location: D-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-May-16	HORSERADISH LEAVES	BE-7	1,210.7 +/-	201.2	
10-May-16	HORSERADISH LEAVES	K-40	4,596.9 +/-	423.7	
10-May-16	HORSERADISH LEAVES	MN-54	<	12.4	
10-May-16	HORSERADISH LEAVES	CO-58	<	14.8	
10-May-16	HORSERADISH LEAVES	FE-59	<	14.6	
10-May-16	HORSERADISH LEAVES	CO-60	<	9.0	
10-May-16	HORSERADISH LEAVES	ZN-65	<	20.7	
10-May-16	HORSERADISH LEAVES	ZR-NB-95	<	16.3	
10-May-16	HORSERADISH LEAVES	I-131	<	21.1	
10-May-16	HORSERADISH LEAVES	CS-134	<	15.1	
10-May-16	HORSERADISH LEAVES	CS-137	<	10.8	
14-Jun-16	HORSERADISH LEAVES	BE-7	554.7 +/-	131.0	
14-Jun-16	HORSERADISH LEAVES	K-40	6,305.4 +/-	330.1	
14-Jun-16	HORSERADISH LEAVES	MN-54	<	8.4	
14-Jun-16	HORSERADISH LEAVES	CO-58	<	9.6	
14-Jun-16	HORSERADISH LEAVES	FE-59	<	21.0	
14-Jun-16	HORSERADISH LEAVES	CO-60	<	10.2	
14-Jun-16	HORSERADISH LEAVES	ZN-65	<	23.9	
14-Jun-16	HORSERADISH LEAVES	ZR-NB-95	<	7.5	
14-Jun-16	HORSERADISH LEAVES	I-131	<	23.6	
14-Jun-16	HORSERADISH LEAVES	CS-134	<	10.7	
14-Jun-16	HORSERADISH LEAVES	CS-137	<	11.7	
18-Jul-16	HORSERADISH LEAVES	BE-7	1,879.5 +/-	227.4	
18-Jul-16	HORSERADISH LEAVES	K-40	7,484.2 +/-	510.2	
18-Jul-16	HORSERADISH LEAVES	MN-54	<	12.0	
18-Jul-16	HORSERADISH LEAVES	CO-58	<	15.6	
18-Jul-16	HORSERADISH LEAVES	FE-59	<	27.6	
18-Jul-16	HORSERADISH LEAVES	CO-60	<	10.7	
18-Jul-16	HORSERADISH LEAVES	ZN-65	<	36.1	
18-Jul-16	HORSERADISH LEAVES	ZR-NB-95	<	15.8	
18-Jul-16	HORSERADISH LEAVES	I-131	<	28.3	
18-Jul-16	HORSERADISH LEAVES	CS-134	<	13.4	
18-Jul-16	HORSERADISH LEAVES	CS-137	<	14.8	
22-Aug-16	HORSERADISH LEAVES	BE-7	888.7 +/-	114.5	Duplicate
22-Aug-16	HORSERADISH LEAVES	BE-7	912.4 +/-	87.0	
22-Aug-16	HORSERADISH LEAVES	K-40	7,601.5 +/-	234.7	Duplicate
22-Aug-16	HORSERADISH LEAVES	K-40	7,479.1 +/-	255.2	
22-Aug-16	HORSERADISH LEAVES	MN-54	<	8.0	Duplicate

Exposure Pathway - Ingestion
Food/Garden
Location: D-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
22-Aug-16	HORSERADISH LEAVES	MN-54	<	7.9	
22-Aug-16	HORSERADISH LEAVES	CO-58	<	7.3	
22-Aug-16	HORSERADISH LEAVES	CO-58	<	7.4	Duplicate
22-Aug-16	HORSERADISH LEAVES	FE-59	<	15.9	Duplicate
22-Aug-16	HORSERADISH LEAVES	FE-59	<	21.7	
22-Aug-16	HORSERADISH LEAVES	CO-60	<	6.8	
22-Aug-16	HORSERADISH LEAVES	CO-60	<	4.9	Duplicate
22-Aug-16	HORSERADISH LEAVES	ZN-65	<	18.7	Duplicate
22-Aug-16	HORSERADISH LEAVES	ZN-65	<	18.2	
22-Aug-16	HORSERADISH LEAVES	ZR-NB-95	<	11.4	Duplicate
22-Aug-16	HORSERADISH LEAVES	ZR-NB-95	<	10.4	
22-Aug-16	HORSERADISH LEAVES	I-131	<	44.5	Duplicate
22-Aug-16	HORSERADISH LEAVES	I-131	<	16.6	
22-Aug-16	HORSERADISH LEAVES	CS-134	<	7.0	
22-Aug-16	HORSERADISH LEAVES	CS-134	<	7.1	Duplicate
22-Aug-16	HORSERADISH LEAVES	CS-137	<	7.7	Duplicate
22-Aug-16	HORSERADISH LEAVES	CS-137	<	8.8	
20-Sep-16	HORSERADISH LEAVES	BE-7	787.8 +/-	240.8	
20-Sep-16	HORSERADISH LEAVES	K-40	5,545.5 +/-	523.3	
20-Sep-16	HORSERADISH LEAVES	MN-54	<	21.7	
20-Sep-16	HORSERADISH LEAVES	CO-58	<	12.3	
20-Sep-16	HORSERADISH LEAVES	FE-59	<	30.4	
20-Sep-16	HORSERADISH LEAVES	CO-60	<	17.0	
20-Sep-16	HORSERADISH LEAVES	ZN-65	<	41.3	
20-Sep-16	HORSERADISH LEAVES	ZR-NB-95	<	15.8	
20-Sep-16	HORSERADISH LEAVES	I-131	<	42.4	
20-Sep-16	HORSERADISH LEAVES	CS-134	<	20.2	
20-Sep-16	HORSERADISH LEAVES	CS-137	<	21.9	
24-Oct-16	HORSERADISH LEAVES	BE-7	1,154.3 +/-	109.5	
24-Oct-16	HORSERADISH LEAVES	K-40	6,309.8 +/-	218.1	
24-Oct-16	HORSERADISH LEAVES	MN-54	<	7.3	
24-Oct-16	HORSERADISH LEAVES	CO-58	<	7.7	
24-Oct-16	HORSERADISH LEAVES	FE-59	<	16.1	
24-Oct-16	HORSERADISH LEAVES	CO-60	<	6.2	
24-Oct-16	HORSERADISH LEAVES	ZN-65	<	20.0	
24-Oct-16	HORSERADISH LEAVES	ZR-NB-95	<	9.6	
24-Oct-16	HORSERADISH LEAVES	I-131	<	25.3	
24-Oct-16	HORSERADISH LEAVES	CS-134	<	8.0	

Exposure Pathway - Ingestion
Food/Garden
Location: D-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
24-Oct-16	HORSERADISH LEAVES	CS-137	<	9.0	
10-Nov-16	HORSERADISH LEAVES	BE-7	921.5 +/-	192.8	
10-Nov-16	HORSERADISH LEAVES	K-40	6,365.6 +/-	424.9	
10-Nov-16	HORSERADISH LEAVES	MN-54	<	11.6	
10-Nov-16	HORSERADISH LEAVES	CO-58	<	11.9	
10-Nov-16	HORSERADISH LEAVES	FE-59	<	19.6	
10-Nov-16	HORSERADISH LEAVES	CO-60	<	13.0	
10-Nov-16	HORSERADISH LEAVES	ZN-65	<	21.8	
10-Nov-16	HORSERADISH LEAVES	ZR-NB-95	<	8.0	
10-Nov-16	HORSERADISH LEAVES	I-131	<	32.3	
10-Nov-16	HORSERADISH LEAVES	CS-134	<	11.6	
10-Nov-16	HORSERADISH LEAVES	CS-137	<	7.3	

Exposure Pathway - Ingestion
Food/Garden
Location: H-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-May-16	HORSERADISH LEAVES	BE-7	1,130.2 +/-	202.5	
10-May-16	HORSERADISH LEAVES	K-40	4,680.9 +/-	421.1	
10-May-16	HORSERADISH LEAVES	MN-54	<	7.8	
10-May-16	HORSERADISH LEAVES	CO-58	<	9.1	
10-May-16	HORSERADISH LEAVES	FE-59	<	19.2	
10-May-16	HORSERADISH LEAVES	CO-60	<	5.7	
10-May-16	HORSERADISH LEAVES	ZN-65	<	25.1	
10-May-16	HORSERADISH LEAVES	ZR-NB-95	<	14.6	
10-May-16	HORSERADISH LEAVES	I-131	<	30.4	
10-May-16	HORSERADISH LEAVES	CS-134	<	14.8	
10-May-16	HORSERADISH LEAVES	CS-137	<	13.0	
14-Jun-16	HORSERADISH LEAVES	BE-7	819.9 +/-	139.9	
14-Jun-16	HORSERADISH LEAVES	K-40	5,142.5 +/-	308.9	
14-Jun-16	HORSERADISH LEAVES	MN-54	<	9.3	
14-Jun-16	HORSERADISH LEAVES	CO-58	<	7.7	
14-Jun-16	HORSERADISH LEAVES	FE-59	<	24.1	
14-Jun-16	HORSERADISH LEAVES	CO-60	<	9.6	
14-Jun-16	HORSERADISH LEAVES	ZN-65	<	11.7	
14-Jun-16	HORSERADISH LEAVES	ZR-NB-95	<	10.9	
14-Jun-16	HORSERADISH LEAVES	I-131	<	11.7	
14-Jun-16	HORSERADISH LEAVES	CS-134	<	9.2	
14-Jun-16	HORSERADISH LEAVES	CS-137	<	12.0	
18-Jul-16	HORSERADISH LEAVES	BE-7	1,295.9 +/-	246.6	
18-Jul-16	HORSERADISH LEAVES	K-40	7,323.0 +/-	544.0	
18-Jul-16	HORSERADISH LEAVES	MN-54	<	17.2	
18-Jul-16	HORSERADISH LEAVES	CO-58	<	14.9	
18-Jul-16	HORSERADISH LEAVES	FE-59	<	29.6	
18-Jul-16	HORSERADISH LEAVES	CO-60	<	10.8	
18-Jul-16	HORSERADISH LEAVES	ZN-65	<	38.4	
18-Jul-16	HORSERADISH LEAVES	ZR-NB-95	<	17.9	
18-Jul-16	HORSERADISH LEAVES	I-131	<	42.4	
18-Jul-16	HORSERADISH LEAVES	CS-134	<	14.7	
18-Jul-16	HORSERADISH LEAVES	CS-137	<	14.3	
22-Aug-16	HORSERADISH LEAVES	BE-7	638.0 +/-	111.3	
22-Aug-16	HORSERADISH LEAVES	K-40	7,043.6 +/-	254.8	
22-Aug-16	HORSERADISH LEAVES	MN-54	<	8.6	
22-Aug-16	HORSERADISH LEAVES	CO-58	<	5.5	
22-Aug-16	HORSERADISH LEAVES	FE-59	<	22.3	

Exposure Pathway - Ingestion
Food/Garden
Location: H-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
22-Aug-16	HORSERADISH LEAVES	CO-60	<	8.0	
22-Aug-16	HORSERADISH LEAVES	ZN-65	<	10.2	
22-Aug-16	HORSERADISH LEAVES	ZR-NB-95	<	9.7	
22-Aug-16	HORSERADISH LEAVES	I-131	<	15.3	
22-Aug-16	HORSERADISH LEAVES	CS-134	<	8.5	
22-Aug-16	HORSERADISH LEAVES	CS-137	<	8.6	
20-Sep-16	HORSERADISH LEAVES	BE-7	576.4 +/-	146.2	
20-Sep-16	HORSERADISH LEAVES	K-40	6,516.5 +/-	463.1	
20-Sep-16	HORSERADISH LEAVES	MN-54	<	15.6	
20-Sep-16	HORSERADISH LEAVES	CO-58	<	13.1	
20-Sep-16	HORSERADISH LEAVES	FE-59	<	21.5	
20-Sep-16	HORSERADISH LEAVES	CO-60	<	12.9	
20-Sep-16	HORSERADISH LEAVES	ZN-65	<	30.4	
20-Sep-16	HORSERADISH LEAVES	ZR-NB-95	<	14.1	
20-Sep-16	HORSERADISH LEAVES	I-131	<	32.4	
20-Sep-16	HORSERADISH LEAVES	CS-134	<	14.0	
20-Sep-16	HORSERADISH LEAVES	CS-137	<	9.8	
24-Oct-16	HORSERADISH LEAVES	BE-7	480.8 +/-	100.2	
24-Oct-16	HORSERADISH LEAVES	K-40	6,435.7 +/-	228.2	
24-Oct-16	HORSERADISH LEAVES	MN-54	<	8.2	
24-Oct-16	HORSERADISH LEAVES	CO-58	<	4.7	
24-Oct-16	HORSERADISH LEAVES	FE-59	<	18.9	
24-Oct-16	HORSERADISH LEAVES	CO-60	<	6.1	
24-Oct-16	HORSERADISH LEAVES	ZN-65	<	9.0	
24-Oct-16	HORSERADISH LEAVES	ZR-NB-95	<	10.2	
24-Oct-16	HORSERADISH LEAVES	I-131	<	16.6	
24-Oct-16	HORSERADISH LEAVES	CS-134	<	7.1	
24-Oct-16	HORSERADISH LEAVES	CS-137	<	4.4	
10-Nov-16	HORSERADISH LEAVES	BE-7	943.4 +/-	200.8	
10-Nov-16	HORSERADISH LEAVES	K-40	6,935.8 +/-	467.3	
10-Nov-16	HORSERADISH LEAVES	MN-54	<	13.6	
10-Nov-16	HORSERADISH LEAVES	CO-58	<	11.0	
10-Nov-16	HORSERADISH LEAVES	FE-59	<	19.3	
10-Nov-16	HORSERADISH LEAVES	CO-60	<	12.2	
10-Nov-16	HORSERADISH LEAVES	ZN-65	<	27.3	
10-Nov-16	HORSERADISH LEAVES	ZR-NB-95	<	8.3	
10-Nov-16	HORSERADISH LEAVES	I-131	<	35.7	
10-Nov-16	HORSERADISH LEAVES	CS-134	<	13.3	

Exposure Pathway - Ingestion
Food/Garden
Location: H-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-Nov-16	HORSERADISH LEAVES	CS-137	<	14.6	

Exposure Pathway - Ingestion
Food/Crops
Location: NR-D1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
19-Oct-16	IRRIGATED SOYBEANS	BE-7	<	127.3	
19-Oct-16	IRRIGATED SOYBEANS	K-40	15,833.0 +/-	545.0	
19-Oct-16	IRRIGATED SOYBEANS	MN-54	<	12.8	
19-Oct-16	IRRIGATED SOYBEANS	CO-58	<	15.7	
19-Oct-16	IRRIGATED SOYBEANS	FE-59	<	40.5	
19-Oct-16	IRRIGATED SOYBEANS	CO-60	<	6.8	
19-Oct-16	IRRIGATED SOYBEANS	ZN-65	<	27.4	
19-Oct-16	IRRIGATED SOYBEANS	ZR-NB-95	<	15.2	
19-Oct-16	IRRIGATED SOYBEANS	I-131	<	41.3	
19-Oct-16	IRRIGATED SOYBEANS	CS-134	<	11.6	
19-Oct-16	IRRIGATED SOYBEANS	CS-137	<	10.6	

Exposure Pathway - Ingestion
Food/Crops
Location: NR-D2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
10-Oct-16	IRRIGATED CORN	BE-7	<	73.7	
10-Oct-16	IRRIGATED CORN	K-40	3,077.8 +/-	270.7	
10-Oct-16	IRRIGATED CORN	MN-54	<	7.3	
10-Oct-16	IRRIGATED CORN	CO-58	<	5.0	
10-Oct-16	IRRIGATED CORN	FE-59	<	24.8	
10-Oct-16	IRRIGATED CORN	CO-60	<	6.1	
10-Oct-16	IRRIGATED CORN	ZN-65	<	7.9	
10-Oct-16	IRRIGATED CORN	ZR-NB-95	<	8.7	
10-Oct-16	IRRIGATED CORN	I-131	<	31.5	
10-Oct-16	IRRIGATED CORN	CS-134	<	7.7	
10-Oct-16	IRRIGATED CORN	CS-137	<	9.6	

Exposure Pathway - Ingestion
Food/Crops
Location: NR-U1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
12-Oct-16	IRRIGATED CORN	BE-7	<	56.4	
12-Oct-16	IRRIGATED CORN	BE-7	<	81.7	Duplicate
12-Oct-16	IRRIGATED CORN	K-40	2,796.9 +/-	239.6	
12-Oct-16	IRRIGATED CORN	K-40	2,612.0 +/-	211.2	Duplicate
12-Oct-16	IRRIGATED CORN	MN-54	<	7.8	Duplicate
12-Oct-16	IRRIGATED CORN	MN-54	<	3.7	
12-Oct-16	IRRIGATED CORN	CO-58	<	9.1	Duplicate
12-Oct-16	IRRIGATED CORN	CO-58	<	4.5	
12-Oct-16	IRRIGATED CORN	FE-59	<	16.0	Duplicate
12-Oct-16	IRRIGATED CORN	FE-59	<	11.1	
12-Oct-16	IRRIGATED CORN	CO-60	<	6.0	
12-Oct-16	IRRIGATED CORN	CO-60	<	6.2	Duplicate
12-Oct-16	IRRIGATED CORN	ZN-65	<	11.7	Duplicate
12-Oct-16	IRRIGATED CORN	ZN-65	<	14.1	
12-Oct-16	IRRIGATED CORN	ZR-NB-95	<	8.8	
12-Oct-16	IRRIGATED CORN	ZR-NB-95	<	8.8	Duplicate
12-Oct-16	IRRIGATED CORN	I-131	<	33.5	Duplicate
12-Oct-16	IRRIGATED CORN	I-131	<	20.4	
12-Oct-16	IRRIGATED CORN	CS-134	<	8.2	Duplicate
12-Oct-16	IRRIGATED CORN	CS-134	<	7.0	
12-Oct-16	IRRIGATED CORN	CS-137	<	8.6	
12-Oct-16	IRRIGATED CORN	CS-137	<	5.7	Duplicate
19-Oct-16	IRRIGATED SOYBEANS	BE-7	<	98.1	
19-Oct-16	IRRIGATED SOYBEANS	K-40	13,941.0 +/-	505.5	
19-Oct-16	IRRIGATED SOYBEANS	MN-54	<	10.4	
19-Oct-16	IRRIGATED SOYBEANS	CO-58	<	11.6	
19-Oct-16	IRRIGATED SOYBEANS	FE-59	<	47.2	
19-Oct-16	IRRIGATED SOYBEANS	CO-60	<	6.7	
19-Oct-16	IRRIGATED SOYBEANS	ZN-65	<	14.8	
19-Oct-16	IRRIGATED SOYBEANS	ZR-NB-95	<	14.9	
19-Oct-16	IRRIGATED SOYBEANS	I-131	<	43.3	
19-Oct-16	IRRIGATED SOYBEANS	CS-134	<	9.5	
19-Oct-16	IRRIGATED SOYBEANS	CS-137	<	11.5	

Exposure Pathway - Aquatic
Bottom Sediment
Location: DC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Apr-16	BOTTOM SEDIMENT	K-40	10,166.0 +/-	1,016.0	
27-Apr-16	BOTTOM SEDIMENT	MN-54	<	47.9	
27-Apr-16	BOTTOM SEDIMENT	CO-58	<	54.7	
27-Apr-16	BOTTOM SEDIMENT	FE-59	<	143.9	
27-Apr-16	BOTTOM SEDIMENT	CO-60	<	33.4	
27-Apr-16	BOTTOM SEDIMENT	ZN-65	<	71.5	
27-Apr-16	BOTTOM SEDIMENT	CS-134	<	43.4	
27-Apr-16	BOTTOM SEDIMENT	CS-137	<	56.0	
27-Apr-16	BOTTOM SEDIMENT	FE-55	<	16,559.0	
27-Oct-16	BOTTOM SEDIMENT	K-40	12,748.0 +/-	1,022.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	44.5	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	52.0	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	83.7	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	36.4	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	84.2	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	43.1	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	55.6	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,441.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-Jun-16	BOTTOM SEDIMENT	K-40	11,443.0	+/- 674.8	
09-Jun-16	BOTTOM SEDIMENT	MN-54	<	27.0	
09-Jun-16	BOTTOM SEDIMENT	CO-58	<	20.4	
09-Jun-16	BOTTOM SEDIMENT	FE-59	<	91.9	
09-Jun-16	BOTTOM SEDIMENT	CO-60	<	19.7	
09-Jun-16	BOTTOM SEDIMENT	ZN-65	<	52.1	
09-Jun-16	BOTTOM SEDIMENT	CS-134	<	24.5	
09-Jun-16	BOTTOM SEDIMENT	CS-137	<	31.7	
26-Oct-16	BOTTOM SEDIMENT	K-40	12,714.0	+/- 751.3	
26-Oct-16	BOTTOM SEDIMENT	MN-54	<	28.2	
26-Oct-16	BOTTOM SEDIMENT	CO-58	<	27.7	
26-Oct-16	BOTTOM SEDIMENT	FE-59	<	90.6	
26-Oct-16	BOTTOM SEDIMENT	CO-60	<	24.9	
26-Oct-16	BOTTOM SEDIMENT	ZN-65	<	55.4	
26-Oct-16	BOTTOM SEDIMENT	CS-134	<	19.3	
26-Oct-16	BOTTOM SEDIMENT	CS-137	72.6	+/- 31.4	

Exposure Pathway - Aquatic
Bottom Sediment
Location: ESW 2016-11

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	5,343.8 +/-	631.9	
12-May-16	BOTTOM SEDIMENT	MN-54	<	39.0	
12-May-16	BOTTOM SEDIMENT	CO-58	<	52.4	
12-May-16	BOTTOM SEDIMENT	FE-59	<	114.1	
12-May-16	BOTTOM SEDIMENT	CO-60	<	19.5	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	57.1	
12-May-16	BOTTOM SEDIMENT	CS-134	<	26.0	
12-May-16	BOTTOM SEDIMENT	CS-137	<	32.1	
12-May-16	BOTTOM SEDIMENT	FE-55	<	17,221.8	

Exposure Pathway - Aquatic
Bottom Sediment
Location: ESW 2016-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	10,834.0 +/-	1,138.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	64.9	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	61.5	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	117.5	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	40.1	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	100.3	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	43.7	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	47.8	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,659.1	

Exposure Pathway - Aquatic
Bottom Sediment
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
25-Apr-16	BOTTOM SEDIMENT	K-40	14,722.0 +/-	1,188.0	Duplicate
25-Apr-16	BOTTOM SEDIMENT	K-40	14,399.0 +/-	1,502.0	
25-Apr-16	BOTTOM SEDIMENT	MN-54	<	47.9	Duplicate
25-Apr-16	BOTTOM SEDIMENT	MN-54	<	83.8	
25-Apr-16	BOTTOM SEDIMENT	CO-58	<	69.5	
25-Apr-16	BOTTOM SEDIMENT	CO-58	<	63.9	Duplicate
25-Apr-16	BOTTOM SEDIMENT	FE-59	<	196.5	
25-Apr-16	BOTTOM SEDIMENT	FE-59	<	172.0	Duplicate
25-Apr-16	BOTTOM SEDIMENT	CO-60	<	62.1	
25-Apr-16	BOTTOM SEDIMENT	CO-60	<	43.3	Duplicate
25-Apr-16	BOTTOM SEDIMENT	ZN-65	<	86.0	Duplicate
25-Apr-16	BOTTOM SEDIMENT	ZN-65	<	148.5	
25-Apr-16	BOTTOM SEDIMENT	CS-134	<	39.2	Duplicate
25-Apr-16	BOTTOM SEDIMENT	CS-134	<	75.2	
25-Apr-16	BOTTOM SEDIMENT	CS-137	<	55.9	Duplicate
25-Apr-16	BOTTOM SEDIMENT	CS-137	<	77.9	
27-Oct-16	BOTTOM SEDIMENT	K-40	17,039.0 +/-	1,583.0	
27-Oct-16	BOTTOM SEDIMENT	K-40	18,299.0 +/-	1,417.0	Duplicate
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	52.0	Duplicate
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	70.0	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	73.5	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	63.2	Duplicate
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	208.6	Duplicate
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	139.2	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	29.5	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	50.0	Duplicate
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	103.7	Duplicate
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	113.6	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	58.1	Duplicate
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	49.4	
27-Oct-16	BOTTOM SEDIMENT	CS-137	138.0 +/-	77.6	
27-Oct-16	BOTTOM SEDIMENT	CS-137	128.0 +/-	54.6	Duplicate

Exposure Pathway - Aquatic
Bottom Sediment
Location: MUDS

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-Jun-16	BOTTOM SEDIMENT	K-40	10,460.0 +/-	607.7	
09-Jun-16	BOTTOM SEDIMENT	MN-54	<	30.0	
09-Jun-16	BOTTOM SEDIMENT	CO-58	<	31.8	
09-Jun-16	BOTTOM SEDIMENT	FE-59	<	80.5	
09-Jun-16	BOTTOM SEDIMENT	CO-60	<	9.6	
09-Jun-16	BOTTOM SEDIMENT	ZN-65	<	45.3	
09-Jun-16	BOTTOM SEDIMENT	CS-134	<	16.9	
09-Jun-16	BOTTOM SEDIMENT	CS-137	<	25.3	

Exposure Pathway - Aquatic
Bottom Sediment
Location: SC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
17-Jun-16	BOTTOM SEDIMENT	K-40	14,051.0	+/- 801.7	
17-Jun-16	BOTTOM SEDIMENT	MN-54	<	33.3	
17-Jun-16	BOTTOM SEDIMENT	CO-58	<	32.8	
17-Jun-16	BOTTOM SEDIMENT	FE-59	<	112.7	
17-Jun-16	BOTTOM SEDIMENT	CO-60	<	11.1	
17-Jun-16	BOTTOM SEDIMENT	ZN-65	<	55.9	
17-Jun-16	BOTTOM SEDIMENT	CS-134	<	24.1	
17-Jun-16	BOTTOM SEDIMENT	CS-137	<	27.5	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-41

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	10,207.0 +/-	914.7	
12-May-16	BOTTOM SEDIMENT	MN-54	<	41.0	
12-May-16	BOTTOM SEDIMENT	CO-58	<	43.3	
12-May-16	BOTTOM SEDIMENT	FE-59	<	122.2	
12-May-16	BOTTOM SEDIMENT	CO-60	<	18.5	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	61.0	
12-May-16	BOTTOM SEDIMENT	CS-134	<	36.6	
12-May-16	BOTTOM SEDIMENT	CS-137	<	49.4	
12-May-16	BOTTOM SEDIMENT	FE-55	<	16,826.1	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-42

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	12,485.0 +/-	1,106.0	
12-May-16	BOTTOM SEDIMENT	MN-54	<	54.5	
12-May-16	BOTTOM SEDIMENT	CO-58	<	64.0	
12-May-16	BOTTOM SEDIMENT	FE-59	<	100.9	
12-May-16	BOTTOM SEDIMENT	CO-60	<	44.3	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	101.9	
12-May-16	BOTTOM SEDIMENT	CS-134	<	33.7	
12-May-16	BOTTOM SEDIMENT	CS-137	85.7 +/-	48.8	
12-May-16	BOTTOM SEDIMENT	SR-90	55.5 +/-	19.7	
12-May-16	BOTTOM SEDIMENT	SR-89	<	80.6	
12-May-16	BOTTOM SEDIMENT	NI-63	<	437.5	
12-May-16	BOTTOM SEDIMENT	FE-55	<	17,141.8	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-43

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	9,073.9 +/-	794.7	
12-May-16	BOTTOM SEDIMENT	MN-54	<	34.8	
12-May-16	BOTTOM SEDIMENT	CO-58	<	50.2	
12-May-16	BOTTOM SEDIMENT	FE-59	<	89.6	
12-May-16	BOTTOM SEDIMENT	CO-60	<	29.9	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	90.8	
12-May-16	BOTTOM SEDIMENT	CS-134	<	28.6	
12-May-16	BOTTOM SEDIMENT	CS-137	<	42.3	
12-May-16	BOTTOM SEDIMENT	FE-55	<	16,581.7	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-44

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	9,561.0 +/-	923.6	
12-May-16	BOTTOM SEDIMENT	MN-54	<	43.2	
12-May-16	BOTTOM SEDIMENT	CO-58	<	47.8	
12-May-16	BOTTOM SEDIMENT	FE-59	<	90.2	
12-May-16	BOTTOM SEDIMENT	CO-60	<	40.0	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	83.3	
12-May-16	BOTTOM SEDIMENT	CS-134	<	29.2	
12-May-16	BOTTOM SEDIMENT	CS-137	<	47.1	
12-May-16	BOTTOM SEDIMENT	FE-55	<	16,558.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-45

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	13,031.0 +/-	1,359.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	62.5	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	71.0	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	155.7	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	43.4	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	143.6	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	45.9	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	66.6	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,653.9	
27-Oct-16	BOTTOM SEDIMENT	SR-89	<	244.6	
27-Oct-16	BOTTOM SEDIMENT	NI-63	<	401.2	
27-Oct-16	BOTTOM SEDIMENT	SR-90	<	76.2	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-46

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	9,133.3 +/-	863.5	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	37.3	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	49.0	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	105.5	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	27.5	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	73.9	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	34.1	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	39.5	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	16,432.3	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-47

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	10,569.0 +/-	1,144.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	54.6	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	79.2	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	174.2	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	41.4	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	122.0	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	48.8	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	57.4	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,062.8	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2016-48

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	11,599.0 +/-	1,329.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	51.7	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	59.7	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	188.5	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	44.2	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	136.9	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	55.7	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	59.6	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,773.8	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS HS-11

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
12-May-16	BOTTOM SEDIMENT	K-40	10,267.0 +/-	755.3	Duplicate
12-May-16	BOTTOM SEDIMENT	K-40	9,959.7 +/-	911.7	
12-May-16	BOTTOM SEDIMENT	MN-54	<	40.4	Duplicate
12-May-16	BOTTOM SEDIMENT	MN-54	<	44.9	
12-May-16	BOTTOM SEDIMENT	CO-58	<	36.2	Duplicate
12-May-16	BOTTOM SEDIMENT	CO-58	<	53.2	
12-May-16	BOTTOM SEDIMENT	FE-59	<	73.3	Duplicate
12-May-16	BOTTOM SEDIMENT	FE-59	<	48.4	
12-May-16	BOTTOM SEDIMENT	CO-60	<	31.6	Duplicate
12-May-16	BOTTOM SEDIMENT	CO-60	<	16.6	
12-May-16	BOTTOM SEDIMENT	ZN-65	<	72.6	Duplicate
12-May-16	BOTTOM SEDIMENT	ZN-65	<	74.3	
12-May-16	BOTTOM SEDIMENT	CS-134	<	25.9	Duplicate
12-May-16	BOTTOM SEDIMENT	CS-134	<	34.7	
12-May-16	BOTTOM SEDIMENT	CS-137	<	38.5	Duplicate
12-May-16	BOTTOM SEDIMENT	CS-137	<	37.2	
12-May-16	BOTTOM SEDIMENT	FE-55	<	17,113.1	Duplicate
12-May-16	BOTTOM SEDIMENT	FE-55	<	16,834.2	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS HS-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
27-Oct-16	BOTTOM SEDIMENT	K-40	12,998.0 +/-	1,077.0	
27-Oct-16	BOTTOM SEDIMENT	MN-54	<	56.2	
27-Oct-16	BOTTOM SEDIMENT	CO-58	<	67.4	
27-Oct-16	BOTTOM SEDIMENT	FE-59	<	111.0	
27-Oct-16	BOTTOM SEDIMENT	CO-60	<	25.0	
27-Oct-16	BOTTOM SEDIMENT	ZN-65	<	87.9	
27-Oct-16	BOTTOM SEDIMENT	CS-134	<	34.7	
27-Oct-16	BOTTOM SEDIMENT	CS-137	<	59.6	
27-Oct-16	BOTTOM SEDIMENT	FE-55	<	17,184.8	

Exposure Pathway - Aquatic Vegetation
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-Jun-16	CATTAILS	BE-7	452.5 +/-	61.9	
17-Jun-16	CATTAILS	K-40	2,253.3 +/-	112.1	
17-Jun-16	CATTAILS	MN-54	<	3.7	
17-Jun-16	CATTAILS	CO-58	<	3.3	
17-Jun-16	CATTAILS	FE-59	<	12.6	
17-Jun-16	CATTAILS	CO-60	<	4.1	
17-Jun-16	CATTAILS	ZN-65	<	10.7	
17-Jun-16	CATTAILS	ZR-NB-95	<	6.5	
17-Jun-16	CATTAILS	I-131	<	13.6	
17-Jun-16	CATTAILS	CS-134	<	4.5	
17-Jun-16	CATTAILS	CS-137	<	4.4	
01-Aug-16	WATER PRIMROSE	BE-7	589.1 +/-	182.7	
01-Aug-16	WATER PRIMROSE	K-40	3,155.9 +/-	370.2	
01-Aug-16	WATER PRIMROSE	MN-54	<	6.4	
01-Aug-16	WATER PRIMROSE	CO-58	<	6.9	
01-Aug-16	WATER PRIMROSE	FE-59	<	20.7	
01-Aug-16	WATER PRIMROSE	CO-60	<	8.6	
01-Aug-16	WATER PRIMROSE	ZN-65	<	36.1	
01-Aug-16	WATER PRIMROSE	ZR-NB-95	<	14.6	
01-Aug-16	WATER PRIMROSE	I-131	<	25.4	
01-Aug-16	WATER PRIMROSE	CS-134	<	14.9	
01-Aug-16	WATER PRIMROSE	CS-137	<	16.5	

Exposure Pathway - Aquatic Vegetation
Location: MUDS

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
25-Jul-16	AMERICAN PONDWEED	BE-7	705.3 +/-	148.8	
25-Jul-16	AMERICAN PONDWEED	K-40	2,274.5 +/-	273.7	
25-Jul-16	AMERICAN PONDWEED	MN-54	<	8.9	
25-Jul-16	AMERICAN PONDWEED	CO-58	<	6.8	
25-Jul-16	AMERICAN PONDWEED	FE-59	<	14.4	
25-Jul-16	AMERICAN PONDWEED	CO-60	<	7.7	
25-Jul-16	AMERICAN PONDWEED	ZN-65	<	23.2	
25-Jul-16	AMERICAN PONDWEED	ZR-NB-95	<	7.8	
25-Jul-16	AMERICAN PONDWEED	I-131	<	30.9	
25-Jul-16	AMERICAN PONDWEED	CS-134	<	12.5	
25-Jul-16	AMERICAN PONDWEED	CS-137	<	11.2	

Exposure Pathway - Terrestrial
Vegetation
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-Jun-16	PASTURAGE	BE-7	2,233.4 +/-	122.5	
17-Jun-16	PASTURAGE	BE-7	2,236.5 +/-	116.4	Duplicate
17-Jun-16	PASTURAGE	K-40	7,569.4 +/-	254.4	
17-Jun-16	PASTURAGE	K-40	7,087.7 +/-	226.5	Duplicate
17-Jun-16	PASTURAGE	MN-54	<	7.4	Duplicate
17-Jun-16	PASTURAGE	MN-54	<	7.2	
17-Jun-16	PASTURAGE	CO-58	<	8.7	Duplicate
17-Jun-16	PASTURAGE	CO-58	<	6.4	
17-Jun-16	PASTURAGE	FE-59	<	15.9	
17-Jun-16	PASTURAGE	FE-59	<	17.1	Duplicate
17-Jun-16	PASTURAGE	CO-60	<	8.2	
17-Jun-16	PASTURAGE	CO-60	<	7.1	Duplicate
17-Jun-16	PASTURAGE	ZN-65	<	14.8	
17-Jun-16	PASTURAGE	ZN-65	<	15.7	Duplicate
17-Jun-16	PASTURAGE	ZR-NB-95	<	6.6	
17-Jun-16	PASTURAGE	ZR-NB-95	<	10.5	Duplicate
17-Jun-16	PASTURAGE	I-131	<	23.8	
17-Jun-16	PASTURAGE	I-131	<	24.9	Duplicate
17-Jun-16	PASTURAGE	CS-134	<	6.6	
17-Jun-16	PASTURAGE	CS-134	<	7.1	Duplicate
17-Jun-16	PASTURAGE	CS-137	<	6.4	Duplicate
17-Jun-16	PASTURAGE	CS-137	<	9.0	

Exposure Pathway - Terrestrial
Soil
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
01-Jun-16	SOIL	K-40	10,764.0 +/-	652.5	
01-Jun-16	SOIL	MN-54	<	27.3	
01-Jun-16	SOIL	CO-58	<	31.0	
01-Jun-16	SOIL	FE-59	<	37.8	
01-Jun-16	SOIL	CO-60	<	13.2	
01-Jun-16	SOIL	ZN-65	<	57.0	
01-Jun-16	SOIL	CS-134	<	20.3	
01-Jun-16	SOIL	CS-137	99.5 +/-	26.8	

Exposure Pathway - Ingestion
Meat
Location: R2.0

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
31-Oct-16	DEER	K-40	3,336.7 +/-	440.3	
31-Oct-16	DEER	MN-54	<	17.5	
31-Oct-16	DEER	CO-58	<	7.2	
31-Oct-16	DEER	FE-59	<	37.7	
31-Oct-16	DEER	CO-60	<	18.1	
31-Oct-16	DEER	ZN-65	<	28.8	
31-Oct-16	DEER	CS-134	<	15.3	
31-Oct-16	DEER	CS-137	<	14.2	
31-Oct-16	DEER	H-3	169.0 +/-	66.0	

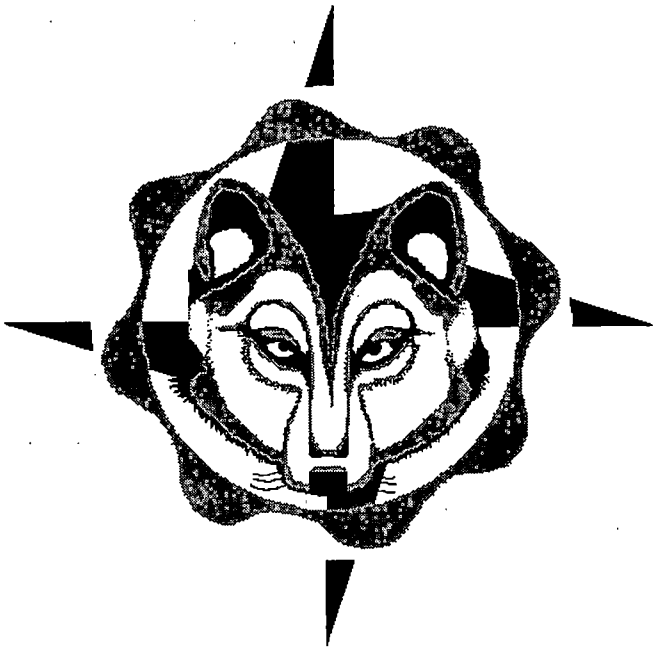
APPENDIX D

LAND USE CENSUS REPORT

WOLF CREEK GENERATING STATION

2016 LAND USE CENSUS REPORT

REVISION 1



Prepared by: Teresa L. Rice — 12-15-16

Teresa L. Rice — Date

Peer Review: Craig T. Adkinson — 1-18-17

Craig T. Adkinson — Date

Approved by: James K. Rudeen — 1-18-17

James K. Rudeen — Date

EXECUTIVE SUMMARY

The 2016 Land Use Census Report has been revised to incorporate the re-calculated D/Qs for the broadleaf vegetation locations using the data from Engineering Evaluation SA-16-004, Relative Deposition per Unit Area (D/Q) 3 Year Update (2013 – 2015).

The annual Land Use Census of rural residents within five miles of the Wolf Creek Generating Station (WCGS) has been completed in 2016 in accordance with AP 07B-004, [Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)].

No program changes are necessary regarding milk locations. Again, no milk sampling locations were identified.

The two broadleaf vegetation locations with the highest calculated annual average D/Q rankings are A2.60-17TE1527 and Q2.35-MILA1619. Since these gardens are currently listed as sample locations for the Radiological Environmental Monitoring Program in procedure AP 07B-004 (locations A-3 and Q-6), no program changes are necessary regarding broadleaf vegetation locations.

BACKGROUND

Section 5.2, Attachment A, of procedure AP 07B-004, directs that "a Land Use Census shall be conducted annually during the growing season to identify the nearest (1) milk animal, (2) residence, and (3) garden of greater than 500 square feet producing broadleaf vegetation in each of the 16 meteorological sections within five miles of the WCGS site."

Table 5-1, Attachment A, of procedure AP 07B-004, requires that broadleaf vegetation samples be collected from "two indicator locations (using the criteria from the "Land Use Census" section) with highest calculated annual average D/Q."

Table 5-1, Attachment A, of procedure AP 07B-004, also requires that milk samples be collected from "three indicator locations within 5 miles of the site having the highest dose potential."

METHODOLOGY

Over two hundred surveys were mailed to the rural residents living within five miles of WCGS. The survey excluded the residents of New Strawn and Burlington. These locations were excluded due to the large number of households and the low likelihood that information gained from these residences would affect the locations chosen for REMP sampling. Drive-by information was collected for the nearest residences in each sector that did not return surveys.

The information collected was compiled and the results are identified in Tables 1-3. Calculations were performed so that garden locations could be ranked by their respective D/Q. These results are contained in Table 4.

RESULTS

One change was identified for the nearest occupied residence in each sector. Eight changes were noted for the nearest garden producing broadleaf vegetation. There were no changes regarding milk sample locations. Again, no locations were identified that routinely milked animals for human consumption.

TABLE 1

2016 Land Use Census Data

Location of Nearest:

Sector	Residence	Milking Animals	Broadleaf Garden
A	A2.47-17RD1474	None	A2.60-17TE1527
B	B3.53-QURD1755	None	B4.12-QURD1823
C	C1.92-16RD1703	None	C4.89-18RD1859
D	D2.03-QULA1571	None	D3.00-16RD1829
E	E1.78-QULA1451	None	None
F	F1.84-QULA1419	None	F2.44-RERD1391
G	G3.03-13RD1820	None	G3.60-RERD1198
H	H3.09-12RD1711	None	None
J	J3.70-11RD1540	None	J3.75-11RD1580
K	K2.70-12LA1439	None	K4.10-NARD1120
L	L2.10-NARD1339	None	L2.39-NARD1309
M	M2.34-14RD1346	None	M3.69-LYLA1290
N	N2.08-15RD1350	None	N2.08-15RD1350
P	P2.76-HW751534	None	P2.94-16RD1309
Q	Q2.35-MILA1619	None	Q2.35-MILA1619
R	R2.08-NALN1650	None	None

Identifiers are based upon the following protocol:

EXAMPLE: A2.47-17RD1474

"A" = Sector A

"2.47" = 2.47 miles from the reactor

"17RD1474" = address

TABLE 2

SECTOR	2015 NEAREST RESIDENCE	2016 NEAREST RESIDENCE
A	A2.47-17RD1474	A2.47-17RD1474
B	B3.53-QURD1755	B3.53-QURD1755
C	C1.92-16RD1703	C1.92-16RD1703
D	D2.03-QULA1571	D2.03-QULA1571
E	E1.77-QULA1485	E1.78-QULA1451
F	F1.84-QULA1419	F1.84-QULA1419
G	G3.03-13RD1820	G3.03-13RD1820
H	H3.09-12RD1711	H3.09-12RD1711
J	J3.70-11RD1540	J3.70-11RD1540
K	K2.70-12LA1439	K2.70-12LA1439
L	L2.10-NARD1339	L2.10-NARD1339
M	M2.34-14RD1346	M2.34-14RD1346
N	N2.08-15RD1350	N2.08-15RD1350
P	P2.76-HW751534	P2.76-HW751534
Q	Q2.35-MILA1619	Q2.35-MILA1619
R	R2.08-NALN1650	R2.08-NALN1650

NOTE: Entries underlined indicate changes from the 2015 Land Use Census.

TABLE 3

2016 Land Use Census Milk and Garden Data

SECTOR	2015 MILKING ANIMALS	2016 MILKING ANIMALS	2015 NEAREST GARDEN PRODUCING BROADLEAF VEGETATION	2016 NEAREST GARDEN PRODUCING BROADLEAF VEGETATION
A	None	None	A2.60-17TE1527	A2.60-17TE1527
B	None	None	None	B4.12-QURD1823
C	None	None	C4.89-18RD1859	C4.89-18RD1859
D	None	None	None	D3.00-16RD1829
E	None	None	None	None
F	None	None	F2.44-RERD1391	F2.44-RERD1391
G	None	None	G4.08-SHRD1234	G3.60-RERD1198
H	None	None	H3.09-12RD1711	None
J	None	None	J3.90-11RD1519	J3.75-11RD1580
K	None	None	K4.10-NARD1120	K4.10-NARD1120
L	None	None	L2.60-NARD1308	L2.39-NARD1309
M	None	None	M3.69-LYLA1290	M3.69-LYLA1290
N	None	None	N2.38-RODR9	N2.08-15RD1350
P	None	None	P4.97-LARD343	P2.94-16RD1309
Q	None	None	Q2.35-MILA1619	Q2.35-MILA1619
R	None	None	None	None

NOTE: Underlined entries indicate changes from the 2015 Land Use Census.

TABLE 4

Information Used for D/Q Calculations on Gardens Producing Broadleaf Vegetation

FROM LAND USE			FROM SA-16-004					
	DIST	CALC	NEAR	NEAR	FAR	FAR		SECTOR
SECTOR	(MI)	(METERS)	DIST	D / Q	DIST	D / Q	CALC	RANKING
A	2.60	4184	4000	1.85E-09	5000	1.26E-09	1.74E-09	1
B	4.12	6630	6000	4.84E-10	7000	3.59E-10	4.05E-10	8
C	4.89	7870	7000	1.51E-10	8000	1.22E-10	1.26E-10	13
D	3.00	4828	4000	2.93E-10	5000	1.99E-10	2.15E-10	12
E								
F	2.44	3927	3000	7.00E-10	4000	4.20E-10	4.40E-10	7
G	3.60	5794	5000	5.02E-10	6000	3.69E-10	3.96E-10	9
H								
J	3.75	6035	6000	4.46E-10	7000	3.31E-10	4.42E-10	6
K	4.10	6598	6000	3.88E-10	7000	2.88E-10	3.28E-10	10
L	2.39	3846	3000	1.12E-09	4000	6.75E-10	7.44E-10	4
M	3.69	5938	5000	3.46E-10	6000	2.55E-10	2.61E-10	11
N	2.08	3347	3000	1.15E-09	4000	6.88E-10	9.90E-10	3
P	2.94	4731	4000	7.26E-10	5000	4.94E-10	5.56E-10	5
Q	2.35	3782	3000	1.51E-09	4000	9.04E-10	1.04E-09	2
R								

Originated by: Teresa L. Rice Date: 12-15-16

Verified by: Craig T. Atkinson Date: 1-18-17