WOLF CREEK
NUCLEAR OPERATING CORPORATION

Ron Benham
Manager Nuclear and Regulatory Affairs

April 29, 2019
RA 19-0052

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

Subject: Docket No. 50-482: 2018 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, 2018, through December 31, 2018.

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

Sincerely,

Ron Benham

RDB/rlt

Enclosure

cc: S. A. Morris (NRC), w/e
B. K. Singal (NRC), w/e
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Senior Resident Inspector (NRC), w/e

IE25
NRR

Enclosure to RA 19-0052

Wolf Creek Generating Station
2018 Annual Radiological Environmental Operating Report

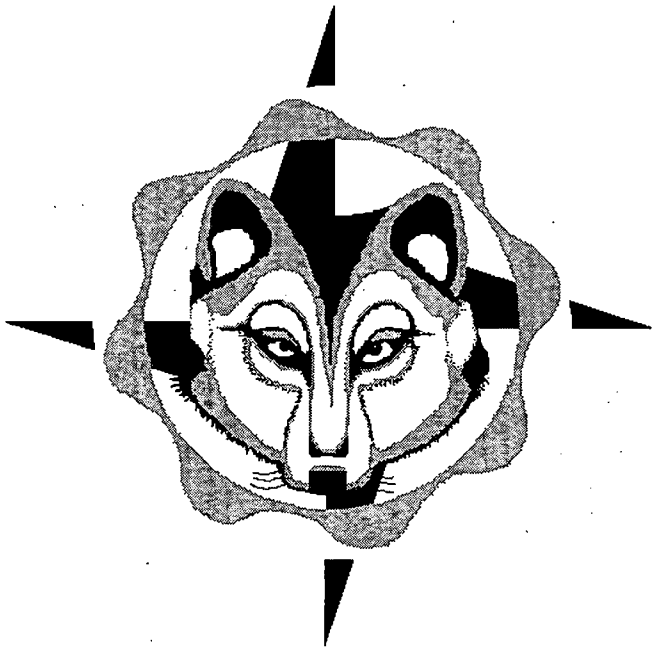
(169 pages including this page)

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

2018 ANNUAL RADIOLOGICAL

ENVIRONMENTAL OPERATING REPORT



April 10, 2019

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 2018 in air particulate filters, radioiodine canisters, ground water, drinking 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 2018 in 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 2018 Annual Radiological Environmental Operating Report for Wolf Creek Generating Station (WCGS) covers the period from January 1 through December 31, 2018. 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, H-2 and Q-6) 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 semiannually from indicator sample locations at the Discharge Cove (DC), Essential Service Water (ESW) channel, 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. Two bottom sediment samples were collected from indicator sample locations at Stringtown Cemetery (SC) and the Makeup Discharge Structure (MUDS) 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 at the Makeup Discharge Structure (MUDS), Discharge Cove (DC) and Stringtown Cemetery (SC). 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) and the Makeup Discharge Structure (MUDS) indicator sample locations. Gamma isotopic analysis was performed on the grass samples. These samples were collected as part of a cooperative sampling effort with the KDHE. The sample locations are identified on Figure 4.

Soil was sampled from the Environmental Education Area (EEA). 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 locations are identified on Figure 4.

Turkey was sampled from indicator sample location A2.0. Gamma isotopic analysis and tritium analysis was performed on the turkey 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 2018 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 2018 weekly gross beta analyses range for indicator locations was 0.006 to 0.059 pCi/m^3. The 2018 weekly gross beta analyses range was within the 1983 and 1984 pre-operational range. Additionally, the annual mean for indicator locations for 2018 (0.026 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 2018 (0.026 pCi/m^3) was slightly higher than 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 2018, the range for Be-7 detected activity was 0.060 to 0.117 pCi/m^3 for indicator locations and the annual mean for indicator locations was 0.082 pCi/m^3. The control location annual mean for Be-7 detected activity (0.077 pCi/m^3) was slightly lower than the annual mean of the indicator locations (0.082 pCi/m^3). The indicator location with the highest annual mean of detected Be-7 activity (0.087 pCi/ m^3) was location 37.

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 2018 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 2018 was 18.3 mR per standardized 90-day quarter. The annual mean of the control sample locations in 2018 was 18.5 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 50 (21.2 mR per standardized 90-day quarter) which is slightly higher than the annual mean of the control sample locations (18.5 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 since 2010. Chart 3 also displays how closely the indicator and control location OSL dosimeter results are for 2018. Condition Report 00128355 was written to reduce data elimination based on standard deviation starting in Quarter 3 of 2018. No change in trend was noted.

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 11,941 pCi/L and the range was 9101 to 14,775 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 declined the last three years. Tritium activity was not detected in samples obtained from the John Redmond Reservoir (JRR) control sample location.

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 2018 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 2018 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 (3.02 pCi/L) was slightly lower when compared to the annual mean of the control sample location gross beta activity (3.05 pCi/L). The 2018 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 was detected in the indicator sample location during the third quarter 2018 (252 pCi/L), which is attributable to plant operation. Heavy rainfall increased outfall from Wolf Creek Cooling Lake and was detected downstream. No release limits were exceeded and results were well below required detection limits. No other radionuclides were detected by the gamma isotopic analyses of the indicator or control location samples.

The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2018 in drinking water samples and 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.

No other radionuclides were detected in the DC or JRR shoreline sediment samples during 2018. The AP 07B-004 required lower limits of detection were met. Plant-related activation, corrosion, or fission products were not detected during 2018 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 2018 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 (7,474 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 (9,791 pCi/kg), would receive a committed effective dose equivalent of 0.013 mRem.

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

No other radionuclides were detected in fish samples during 2018. 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 2018 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 2018 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 three samples obtained from indicator locations (range 46.8 to 89.7 pCi/kg). Cs-137 was detected in one sample obtained from control location (95.7 pCi/kg).

Cs-137 activity was detected in pre-operational samples. The Cs-137 activity detected in 2018 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 34 to 415 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.

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 (range 32.4 to 32.6 pCi/kg) was detected in two 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 38 to 171 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 below 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 2018 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 2018 in aquatic vegetation samples and no unusual trends were noted.

(3) Terrestrial Vegetation

Naturally occurring Be-7 and K-40 activity were detected in the terrestrial vegetation indicator location samples. No other radionuclides were detected in terrestrial vegetation. Plant-related activation, corrosion or fission products were not detected during 2018 in terrestrial vegetation and no unusual trends were noted.

(4) Soil

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

Cs-137 activity was also detected in the soil sample (181.9 pCi/kg) obtained from the 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 120 to 1,014 pCi/kg. The detected Cs-137 activity in soil sampled in 2018 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 2018 in soil samples and no unusual trends were noted.

(5) Turkey

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

Tritium activity (612 pCi/kg) was also detected in the turkey sample. The detected tritium activity was attributable to plant operation.

An adult consuming 72.6 kilograms of turkey meat, at the measured tritium concentration (612 pCi/kg), would receive a committed effective dose equivalent of 0.003 mRem.

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

III. PROGRAM REVISIONS/CHANGES

Procedure changes were made in AP 07B-004, *Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program),* in 2018. Procedure was reformatted in VEPROMS for future revisions. Unnecessary references and redundant notes were removed. Changes were made in Attachment B for steps involving handling of vendor records and vendor qualifications to clarify responsibilities.

OSL Dosimeters data will no longer be excluded based on standard deviation. Data exclusion should be a rare exception. Due to the nature of OSLs and being in the environment, standard deviation is not a good indicator of data validity (Condition Report 00128355).

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.

Location	Sample Period	Percent Discrepancy/ Hours Unavailable	Explanation of Deviation/Comments Condition Report Number
49	06/04/18 – 06/11/18	5.1 / 8.5	Power Outage / Condition Report 00124188

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 laboratory participated in the intercomparison studies administered by Environmental Resource Associates, Inc. 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 0.245 mRem for 2018.

Using sample data obtained from the REMP, an adult drinking two liters per day of surface water from Coffey County Lake, using the average tritium activity (11,941 pCi/L), would receive a committed effective dose equivalent of 0.545 mRem per year. For an adult eating 21 kg of fish per year from Coffey County Lake, using the average tritium activity (7,474 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 0.555 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
	SC	0.8	NNW	R
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
	Q-6	2.4	NW	Q
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
	UHS	0.6	E	E
Aquatic Vegetation	DC ALT	1.5	NW	Q
	EEA	3.0	NNW	R
	MUDS	1.5	WNW	P
	SC	0.8	NNW	R

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
	MUDS	1.5	WNW	P
Soil	EEA	3.0	NNW	R
	MUDS	1.5	WNW	P
Meat (Turkey)	A2.0	2.0	N	A

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	18.5	20.1	21.0	19.4	79.0
2	17.7	18.9	18.3	16.5	71.4
4	18.6	20.5	18.6	18.7	76.4
5	17.5	18.5	17.6	19.1	72.7
7	18.0	20.5	18.2	17.2	73.9
8	18.0	21.0	20.9	20.9	80.8
9	13.0	18.6	16.6	17.2	65.4
11	18.0	20.0	19.6	20.1	77.7
12	17.0	20.0	19.6	17.9	74.5
13	18.0	22.9	22.2	19.0	82.1
14	19.5	21.4	21.6	19.0	81.5
15	16.7	19.5	18.0	18.7	72.9
16	16.5	17.1	17.3	15.4	66.3
17	15.5	19.5	19.3	19.3	73.6
18	18.0	17.9	18.3	17.2	71.4
19	19.4	19.5	18.6	16.4	73.9
20	17.3	20.5	15.6	17.5	70.9
22	20.0	20.8	19.3	22.2	82.3
23	17.3	20.0	19.3	20.1	76.7
24	18.5	18.1	20.6	18.3	75.5
25	14.6	16.6	17.0	16.1	64.3
26	17.0	18.6	17.3	15.7	68.6
27	13.5	19.5	20.6	19.4	73.0
29	14.6	14.1	15.0	14.7	58.4
30	17.5	17.6	18.0	16.8	69.9
32	17.7	17.6	18.6	17.2	71.1
34	20.1	19.5	22.6	21.1	83.3
35	17.0	21.4	18.9	19.8	77.1
36	16.0	20.0	21.6	17.3	74.9
37	15.5	18.5	18.6	17.9	70.5
38	18.5	19.5	20.3	21.5	79.8
39	18.0	17.1	18.3	15.4	68.8
41	18.5	19.2	20.6	20.1	78.4
42	11.2	11.0	11.1	12.6	45.9
43	11.8	14.4	15.5	11.1	52.8
44	17.0	18.5	20.0	16.8	72.3
46	15.5	18.5	19.6	20.1	73.7
49	13.9	19.0	18.3	15.4	66.6
50	18.5	22.9	21.6	21.9	84.9
51	18.4	17.1	19.3	19.3	74.1
52	18.0	21.7	20.3	21.9	81.9
53	21.1	19.5	20.6	17.6	78.8

FIGURE 1

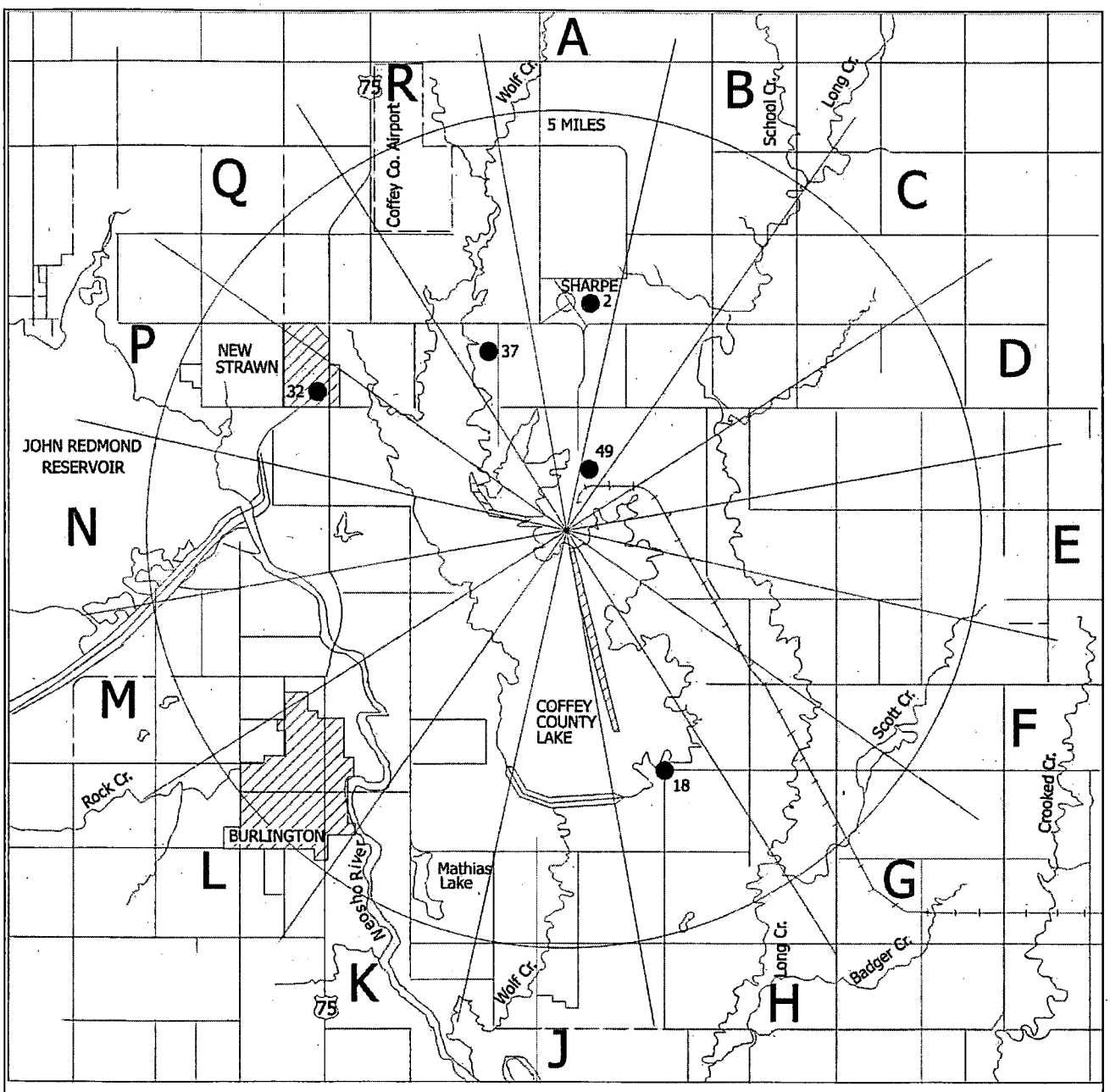
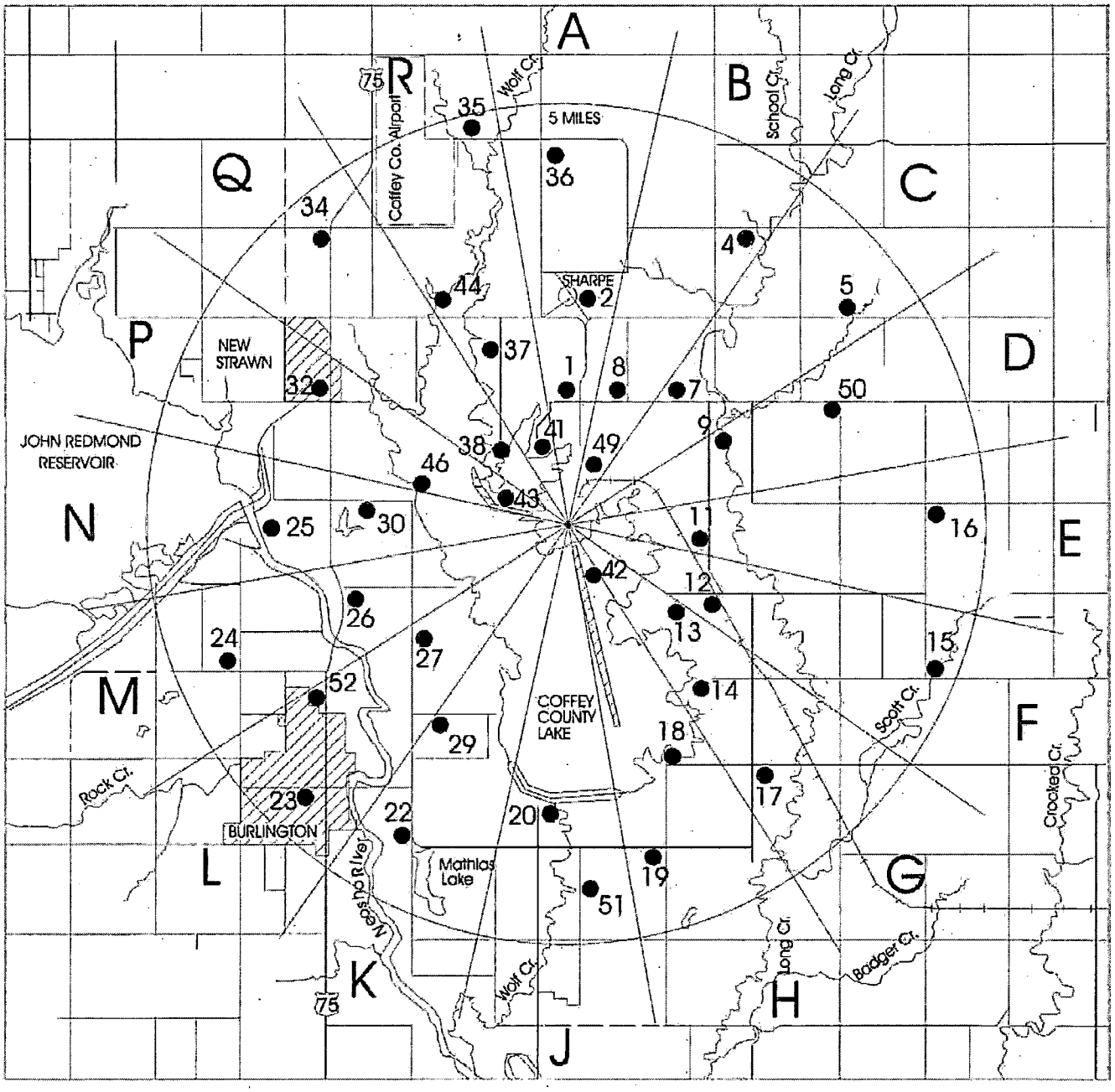

A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
5 MILES
Coffey Co. Airport
Wolf Cr.
School Cr.
Long Cr.
SHARPE
2
37
NEW STRAWN
32
JOHN REDMOND RESERVOIR
49
COFFEY COUNTY LAKE
18
Scott Cr.
Crooked Cr.
Rock Cr.
BURLINGTON
Neosho River
Mathias Lake
Badger Cr.
75
AIRBORNE PATHWAY SAMPLING LOCATIONS
● = AIRBORNE PARTICULATE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

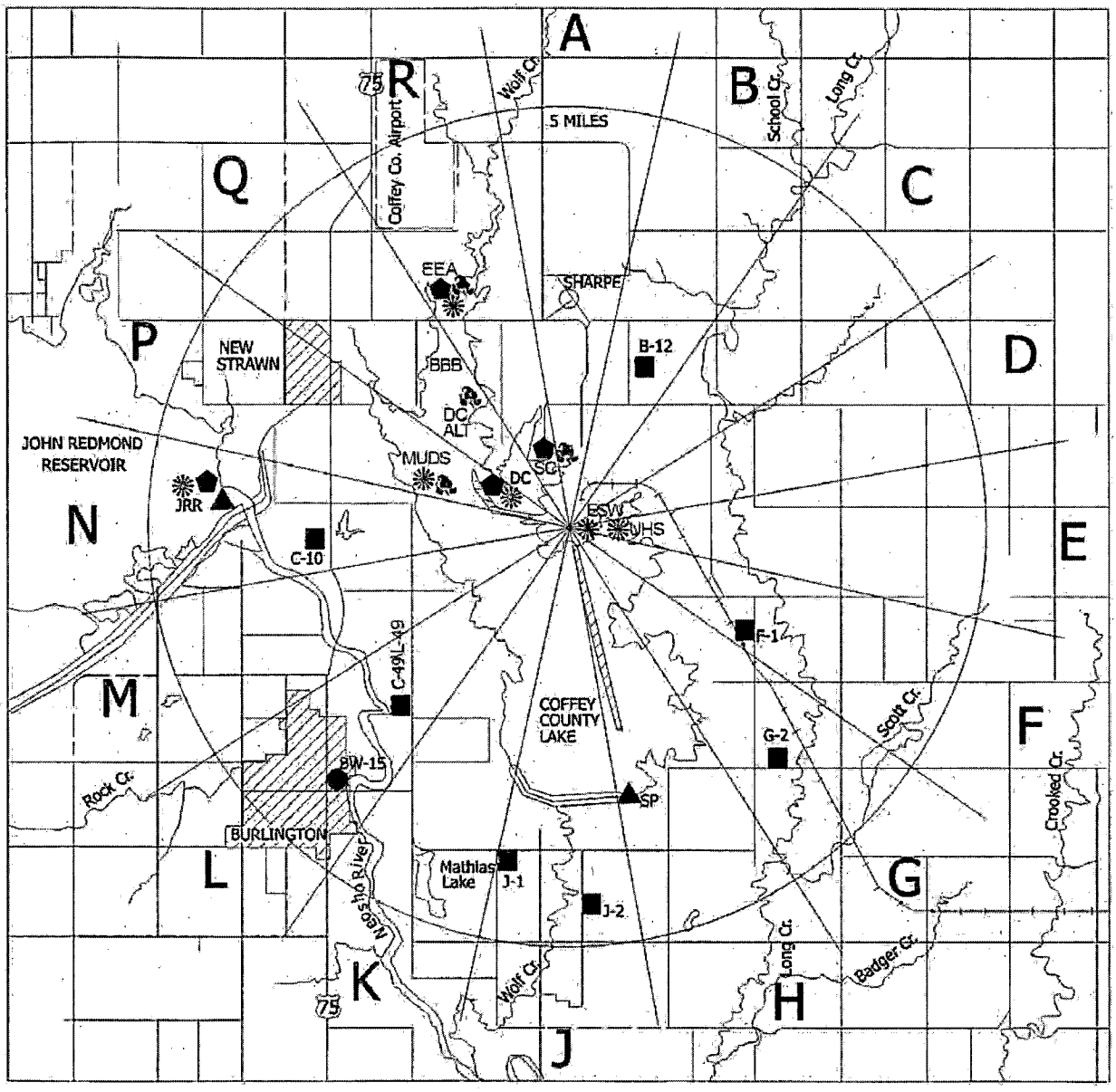
FIGURE 2



DIRECT RADIATION PATHWAY SAMPLING LOCATIONS

● = DOSIMETER LOCATIONS

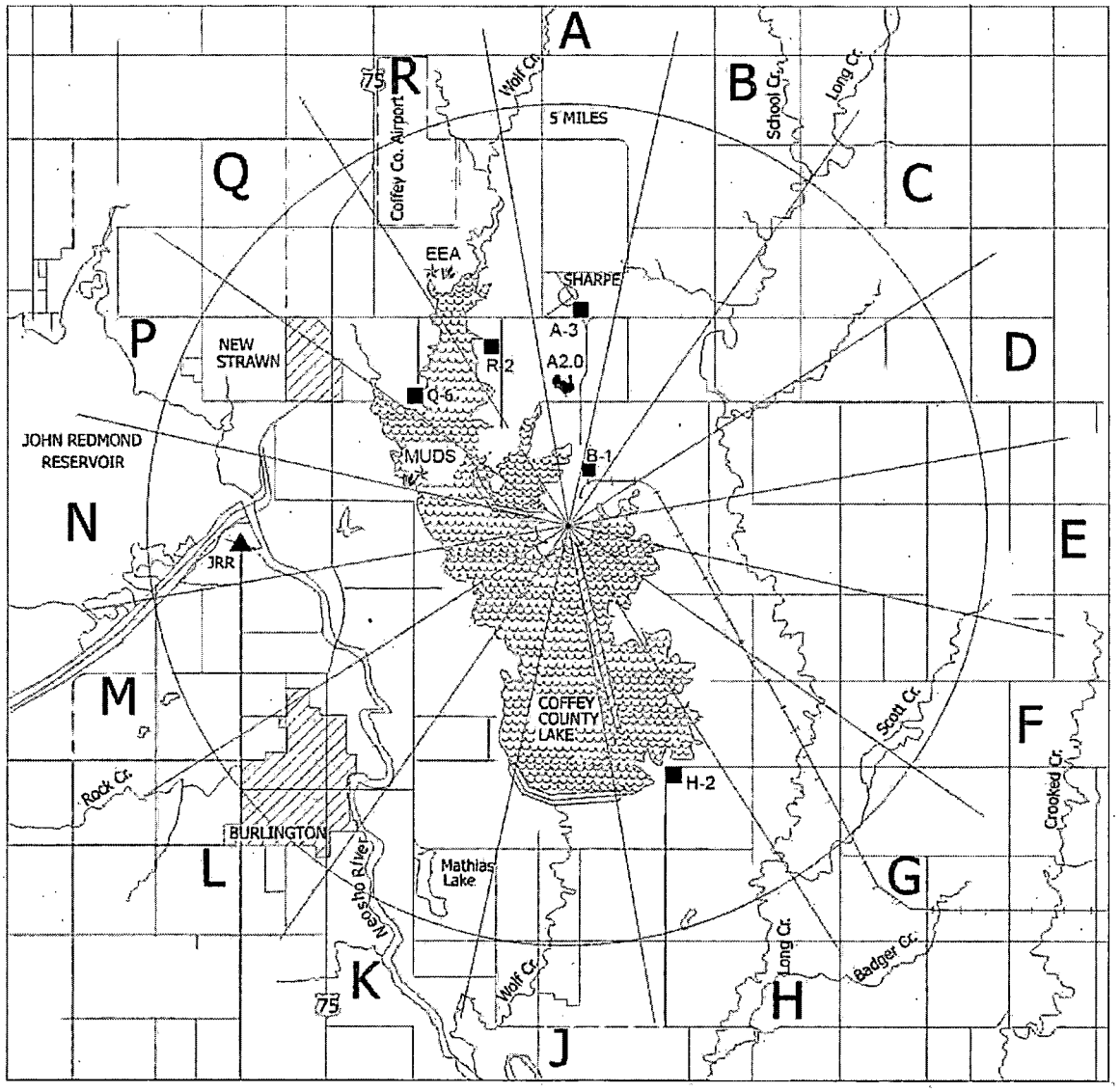
FIGURE 3



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 = Turkey

FIGURE 5

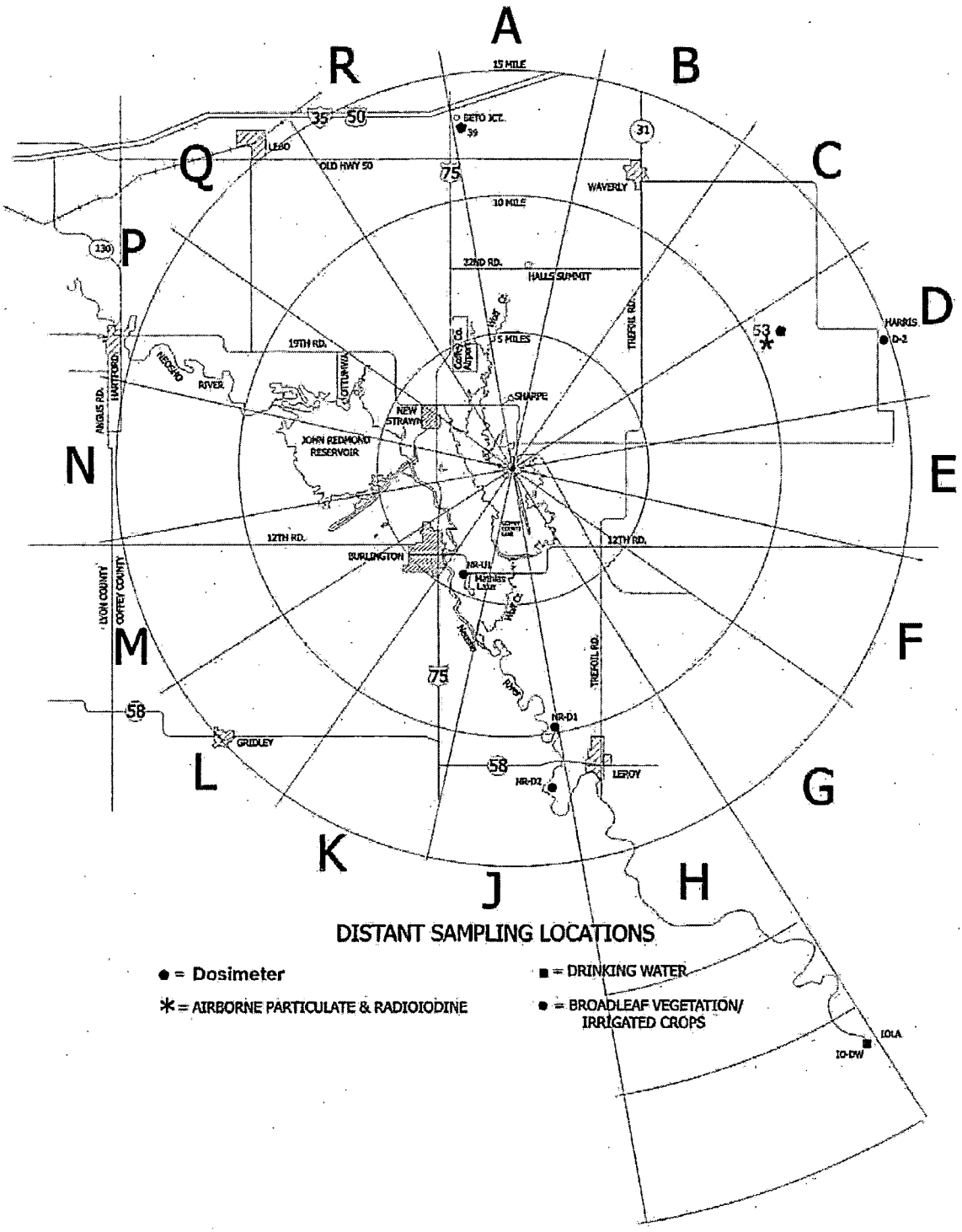

A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
15 MILE
10 MILE
5 MILES
OLD HWY 50
LEGO
BETO JCT.
WAVERLY
HALLS SUMMIT
22ND RD.
19TH RD.
12TH RD.
TREFOIL RD.
HARRIS
D-2
SHARPE
NEW STRAWN
JOHN REDMOND RESERVOIR
NEOSHO RIVER
OTTUMWA
HARTFORD
ANGUS RD.
BURLINGTON
GRIDLEY
LEROY
IOLA
IO-DW
NR-D1
NR-D2
NR-U1
LYON COUNTY
COFFEY COUNTY
35
50
31
130
75
58
53
DISTANT SAMPLING LOCATIONS
● = Dosimeter
✱ = AIRBORNE PARTICULATE & RADIOIODINE
■ = DRINKING WATER
● = BROADLEAF VEGETATION/ IRRIGATED CROPS

CHART 1

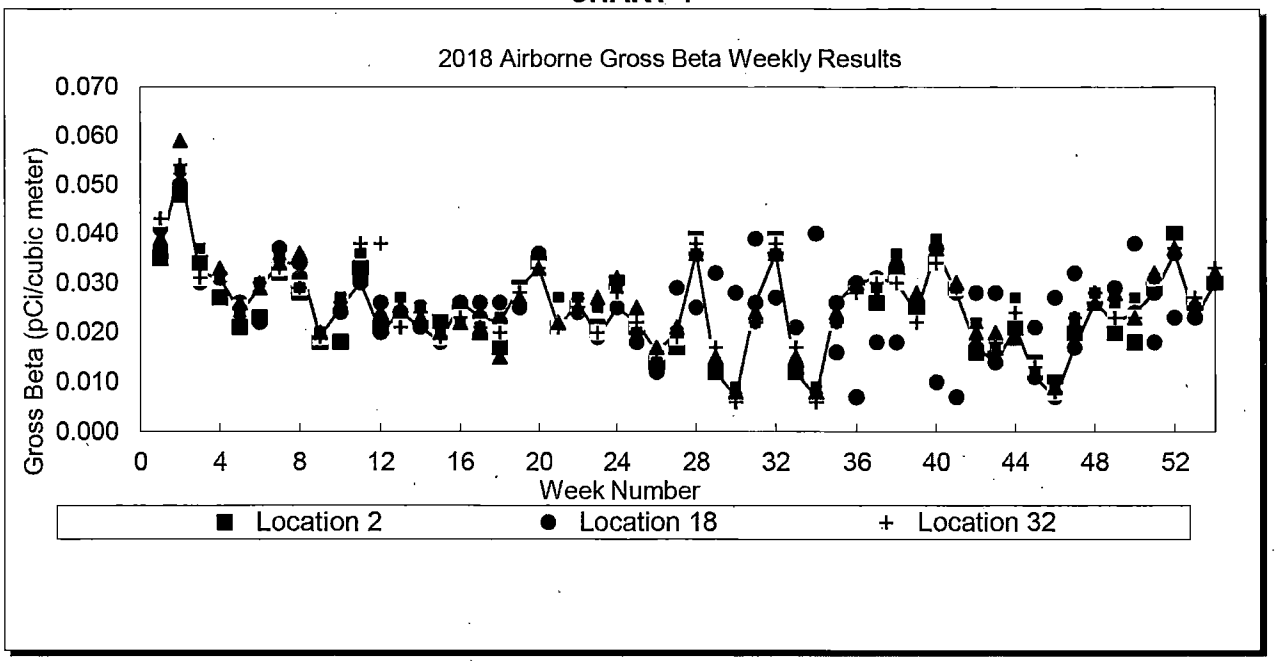


CHART 2

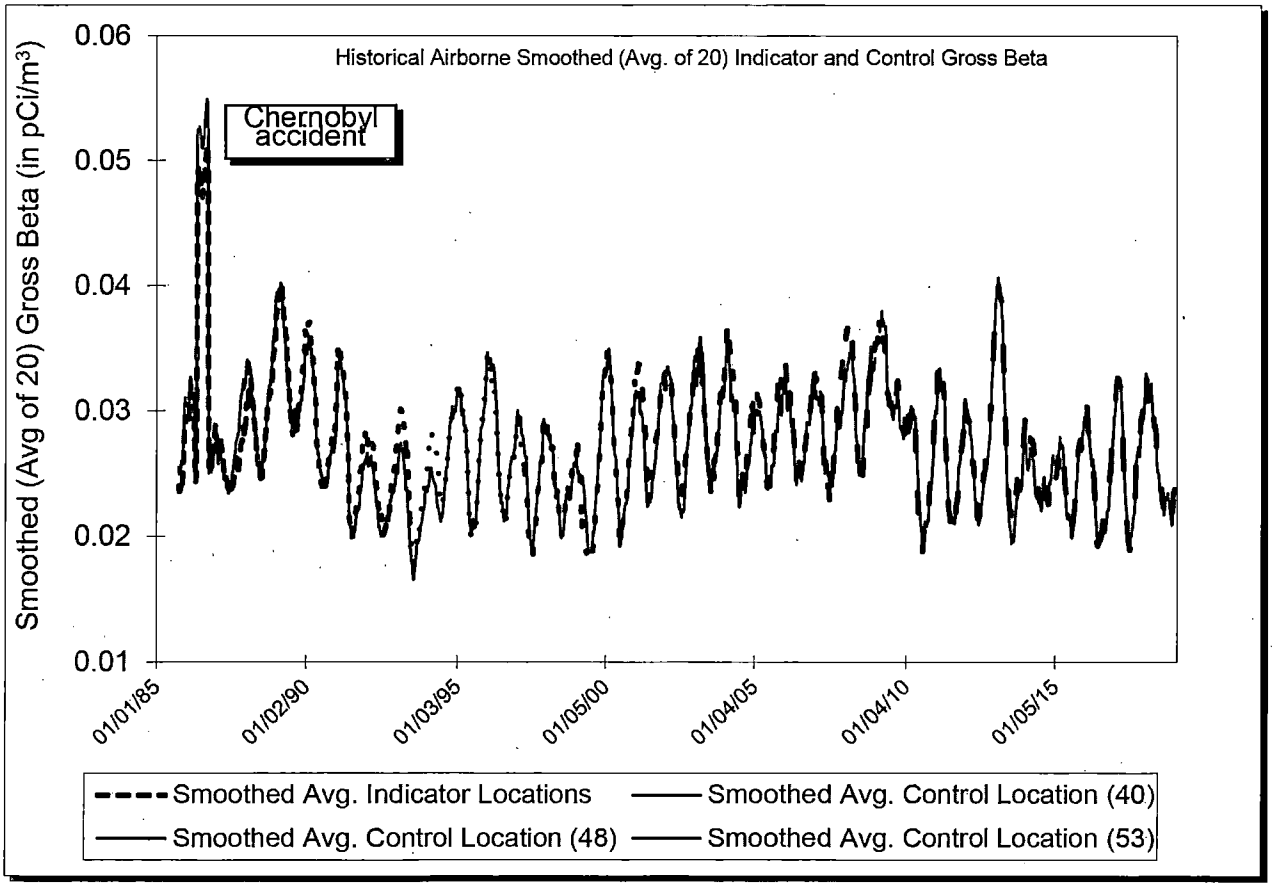
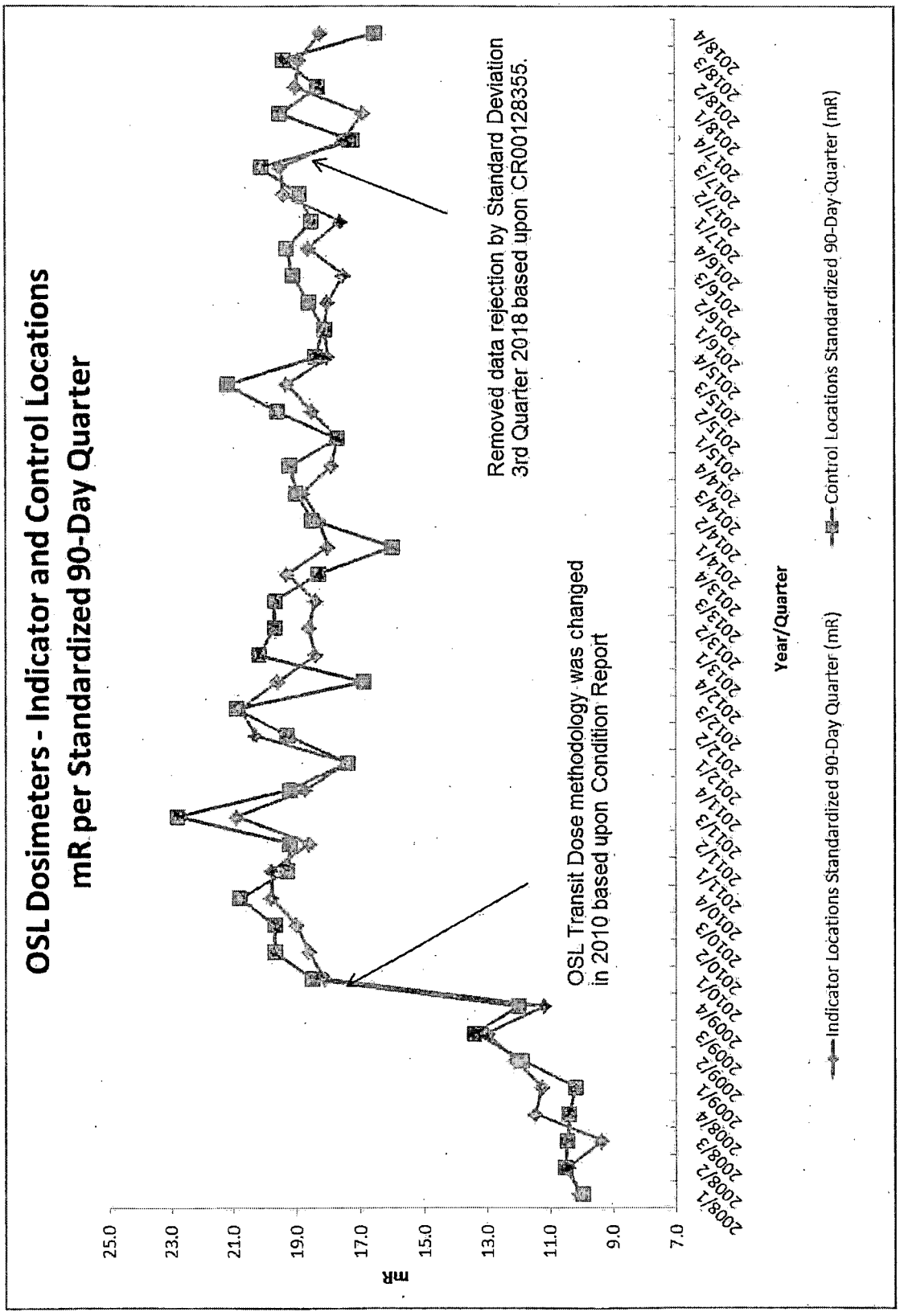


CHART 3


OSL Dosimeters - Indicator and Control Locations
mR per Standardized 90-Day Quarter
Removed data rejection by Standard Deviation
3rd Quarter 2018 based upon CR00128355.
OSL Transit Dose methodology was changed
in 2010 based upon Condition Report
mR
25.0
23.0
21.0
19.0
17.0
15.0
13.0
11.0
9.0
7.0
Year/Quarter
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
2017/1
2017/2
2017/3
2017/4
2018/1
2018/2
2018/3
2018/4
Indicator Locations Standardized 90-Day Quarter (mR)
Control Locations Standardized 90-Day Quarter (mR)

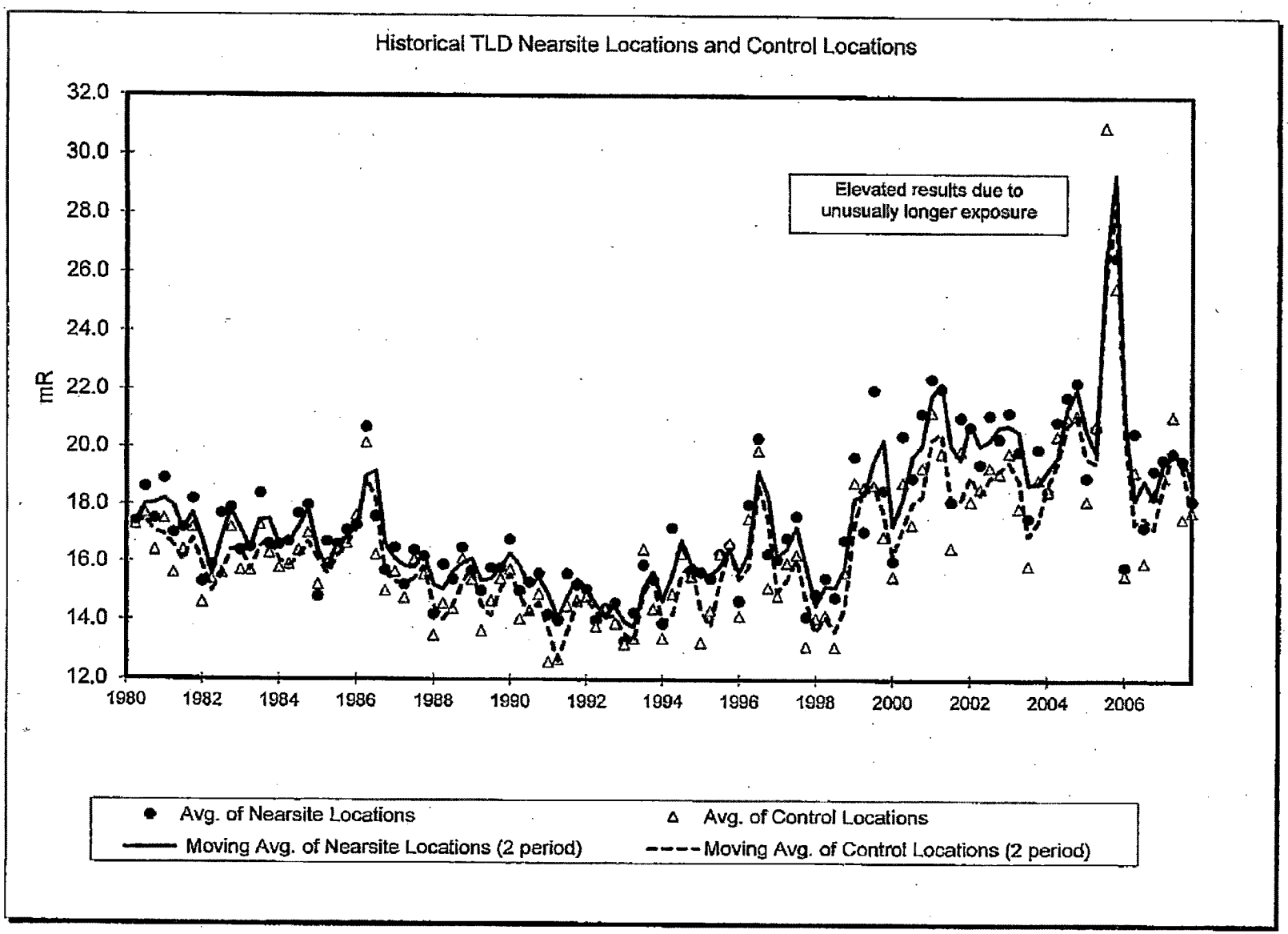

Historical TLD Nearsite Locations and Control Locations
mR
32.0
30.0
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Elevated results due to unusually longer exposure
Avg. of Nearsite Locations
Avg. of Control Locations
Moving Avg. of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

CHART 4

CHART 5

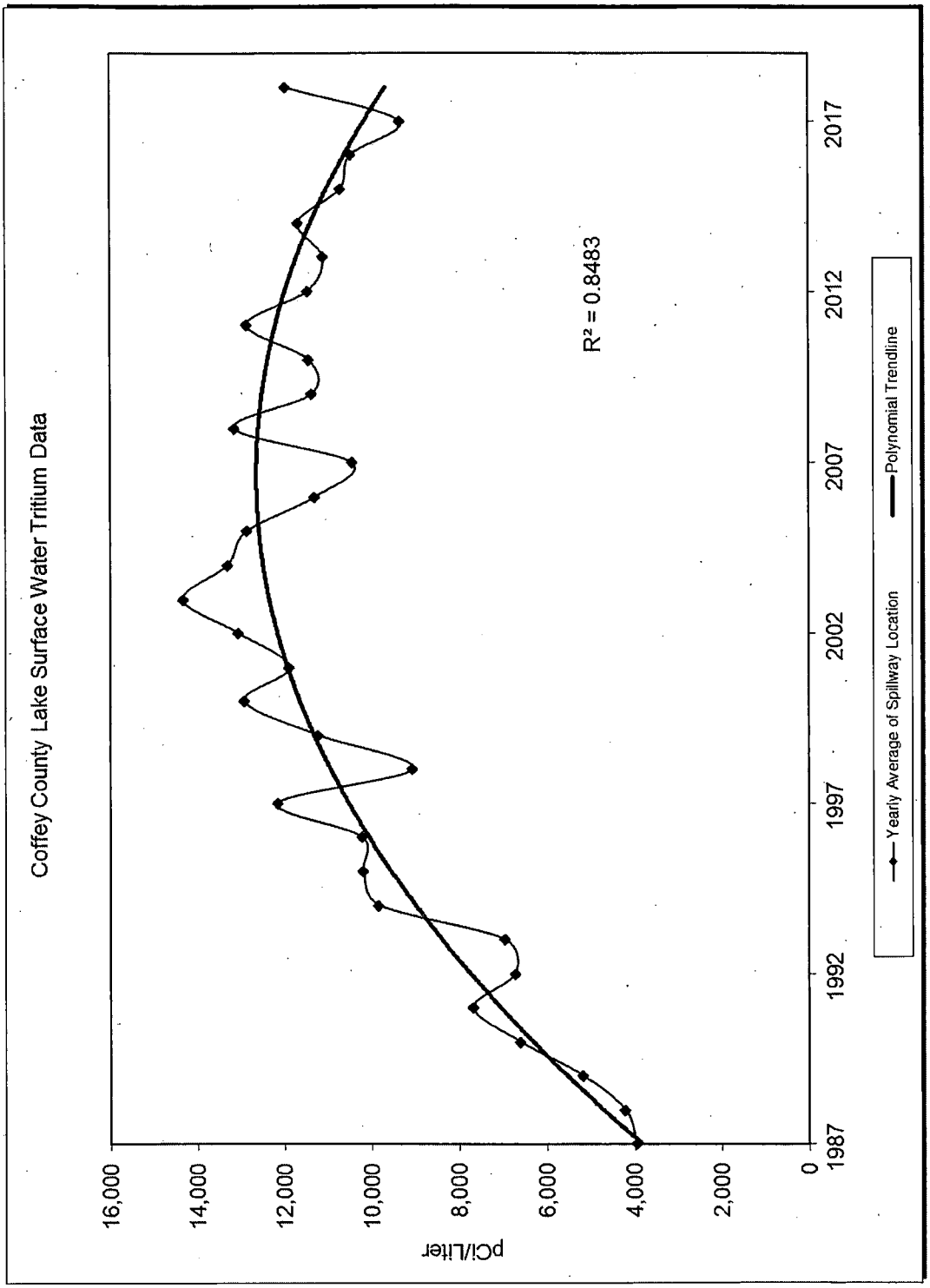

Coffey County Lake Surface Water Tritium Data
pCi/Liter
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1987
1992
1997
2002
2007
2012
2017
R² = 0.8483
Yearly Average of Spillway Location
Polynomial Trendline

CHART 6

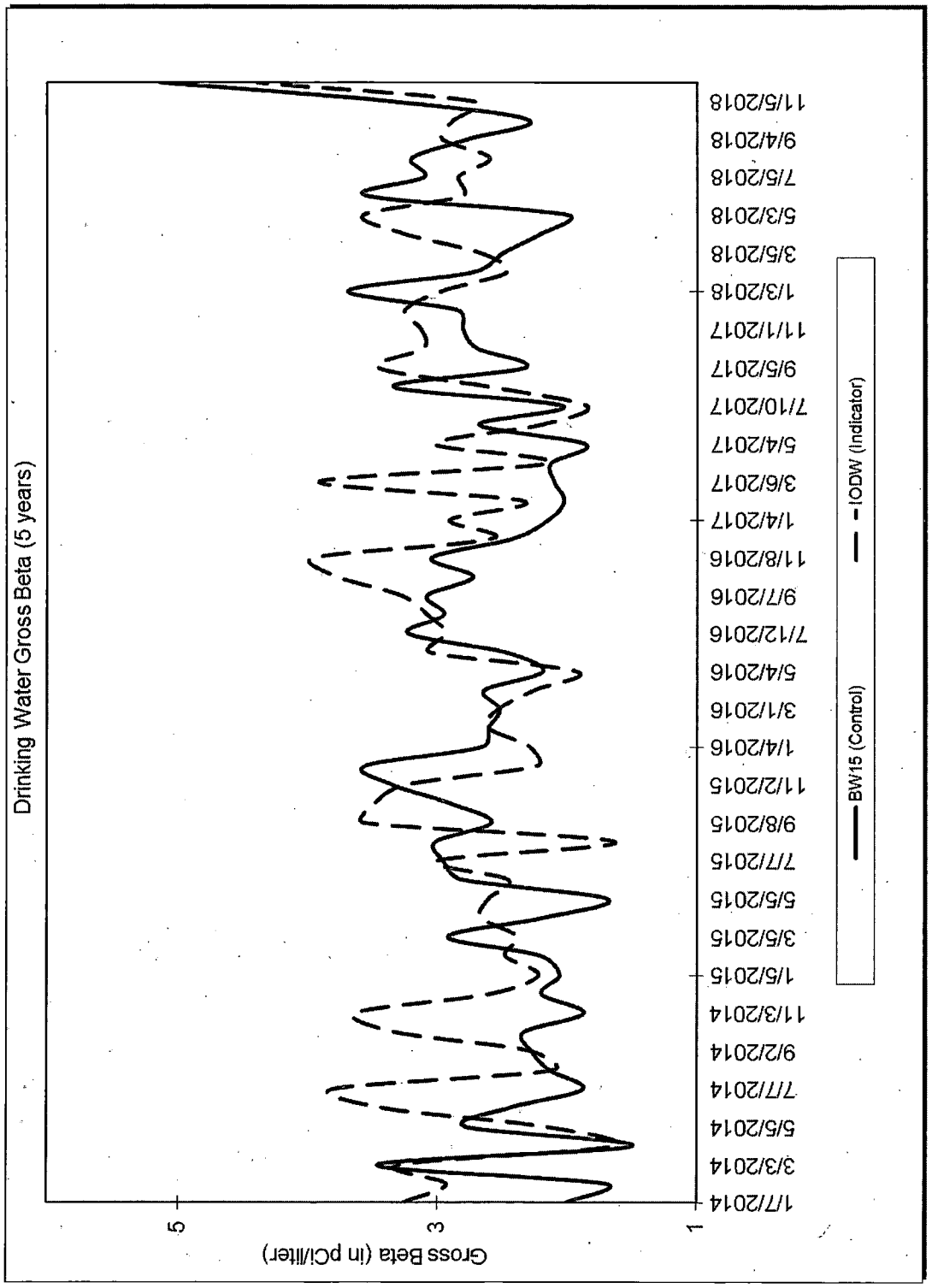
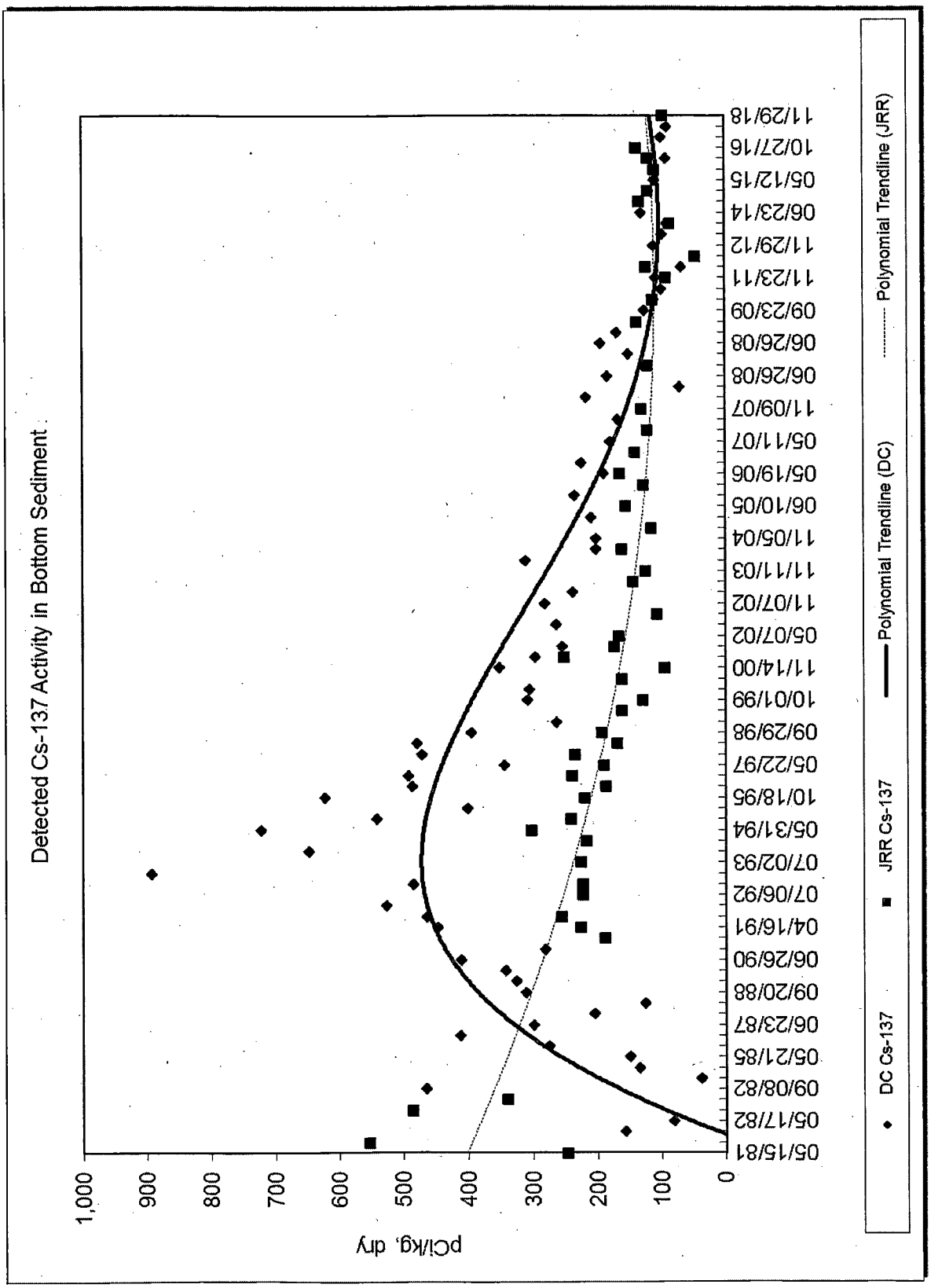

Drinking Water Gross Beta (5 years)
Gross Beta (in pCi/liter)
5
3
1
1/7/2014
3/3/2014
5/5/2014
7/7/2014
9/2/2014
11/3/2014
1/5/2015
3/5/2015
5/5/2015
7/7/2015
9/8/2015
11/2/2015
1/4/2016
3/1/2016
5/4/2016
7/12/2016
9/7/2016
11/8/2016
1/4/2017
3/6/2017
5/4/2017
7/10/2017
9/5/2017
11/1/2017
1/3/2018
3/5/2018
5/3/2018
7/5/2018
9/4/2018
11/5/2018
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
05/17/82
09/08/82
05/21/85
06/23/87
09/20/88
06/26/90
04/16/91
07/06/92
07/02/93
05/31/94
10/18/95
05/22/97
09/29/98
10/01/99
11/14/00
05/07/02
11/07/02
11/11/03
11/05/04
06/10/05
05/19/06
05/11/07
11/09/07
06/26/08
06/26/08
09/23/09
11/23/11
11/29/12
06/23/14
05/12/15
10/27/16
11/29/18
DC Cs-137
JRR Cs-137
Polynomial Trendline (DC)
Polynomial Trendline (JRR)

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APPENDIX A

INTERLABORATORY AND INTRALABORATORY COMPARISON PROGRAM RESULTS

NOTE: Appendix A is updated four times a year. The complete appendix is included in March, June, September and December monthly progress reports only.

January, 2018 through December, 2018

Appendix A

Interlaboratory/ Intralaboratory 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.

Table A-1 lists results that were obtained through participation in the RAD PT Study Proficiency Testing Program administered by Environmental Resource 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. Acceptance criteria is detailed on Attachment A page A2. 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 analytical results from the in-house "duplicate" program for the past twelve months. The Precision Acceptance limit is ±25% of the mean for Sr-89,90, Gross Alpha and Gross Beta or the 2-sigma uncertainty overlaps the mean value. For all other analytes the precision acceptance limit is ±20% of the mean or the 2-sigma uncertainty overlaps the mean value.
Complete analytical data for duplicate analyses is available upon request.

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

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

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

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

Analysis	Ratio of lab result to known value.
Gamma Emitters	0.8 to 1.2
Strontium-89, Strontium-90	0.8 to 1.2
Potassium-40	0.8 to 1.2
Gross alpha	0.5 to 1.5
Gross beta	0.8 to 1.2
Tritium	0.8 to 1.2
Radium-226, Radium-228	0.7 to 1.3
Plutonium	0.8 to 1.2
Iodine-129, Iodine-131	0.8 to 1.2
Nickel-63, Technetium-99, Uranium-238	0.7 to 1.3
Iron-55	0.8 to 1.2
Other Analyses	0.8 to 1.2

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

Lab Code	Reference Date	Analysis	Concentration (pCi/L) Laboratory Result	ERA Result	Control Limits	Acceptance
ERW-52	1/8/2018	Sr-89	61.6 ± 5.8	65.2	52.9 - 73.2	Pass
ERW-52	1/8/2018	Sr-90	39.7 ± 2.3	39.2	28.2 - 45.1	Pass
ERW-54	1/8/2018	Ba-133	89.7 ± 4.7	95.1	80.2 - 105	Pass
ERW-54	1/8/2018	Cs-134	62.1 ± 5.4	65.6	53.4 - 72.2	Pass
ERW-54	1/8/2018	Cs-137	111.2 ± 6.1	112	101 - 126	Pass
ERW-54	1/8/2018	Co-60	115.8 ± 4.7	114.0	103.0 - 128.0	Pass
ERW-54	1/8/2018	Zn-65	292.2 ± 14.0	277.0	249 - 324	Pass
ERW-52	1/8/2018	Gr. Alpha	70.1 ± 3.0	72.4	38.1 - 89.2	Pass
ERW-52	1/8/2018	Gr. Beta	47.4 ± 1.4	54.8	37.5 - 61.7	Pass
ERW-58	1/8/2018	I-131	25.3 ± 1.0	28.1	23.4 - 33.0	Pass
ERW-61	1/8/2018	Ra-226	12.4 ± 0.4	14.20	10.60 - 16.30	Pass
ERW-60	1/8/2018	Ra-228	4.9 ± 0.8	4.21	2.43 - 5.81	Pass
ERW-60	1/8/2018	Uranium	52.2 ± 0.9	58.6	47.8 - 64.5	Pass
ERW-62	1/8/2018	H-3	21,780 ± 437	21,200	18,600 - 23,300	Pass
ERW-2555	7/9/2018	Sr-89	62.8 ± 4.0	62.7	50.7 - 70.6	Pass
ERW-2555	7/9/2018	Sr-90	40.1 ± 1.3	40.1	29.5 - 46.1	Pass
ERW-2557	7/9/2018	Ba-133	23.1 ± 2.3	25.6	19.9 - 29	Pass
ERW-2557	7/9/2018	Cs-134	15.2 ± 1.7	15.7	11.4 - 18.2	Pass
ERW-2557	7/9/2018	Cs-137	22.3 ± 4.9	192	173 - 213	Fail[b]
ERW-2557	7/9/2018	Co-60	110.4 ± 3.7	119.0	107 - 133	Pass
ERW-2557	7/9/2018	Zn-65	189.5 ± 7.5	177.0	159 - 208	Pass
ERW-2559	7/9/2018	Gr. Alpha	13.5 ± 0.7	16.0	7.79 - 22.6	Pass
ERW-2559	7/9/2018	Gr. Beta	41.1 ± 0.9	49.0	33.2 - 56.1	Pass
ERW-2561	7/9/2018	I-131	24.9 ± 0.9	28.1	23.4 - 33.0	Pass
ERW-2563	7/9/2018	Ra-226	9.0 ± 0.3	9.08	6.81 - 10.6	Pass
ERW-2563	7/9/2018	Ra-228	3.2 ± 0.4	2.28	1.07 - 3.60	Pass
ERW-2563	7/9/2018	Uranium	38.2 ± 1.4	51.8	42.2 - 57.1	Fail[c]
ERW-2565	7/9/2018	H-3	21,039 ± 302	20,400	17,900 - 22,400	Pass
ERW-3832[b]	10/7/2016	Ba-133	57.0 ± 3.1	54.9	45 - 61	Pass
ERW-3832[b]	10/7/2016	Cs-134	79.2 ± 3.0	81.8	67 - 90	Pass
ERW-3832[b]	10/7/2016	Cs-137	222.4 ± 4.5	210	189 - 233	Pass
ERW-3832[b]	10/7/2016	Co-60	67.7 ± 3.5	64.5	58 - 73	Pass
ERW-3832[b]	10/7/2016	Zn-65	274.1 ± 3.0	245	220 - 287	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 Resource Associates (ERA).

b A transcription error caused the Cs-137 result submitted to be understated by a factor of 10.
The actual result obtained was slightly higher than the acceptance criteria for the study.
A "Quick Response" proficiency test was analyzed to help determine the cause of the high result. (See ERW-3832 above)
No definitive cause for the previous high Cs-137 result was determined.

c An investigation is underway to determine the reason for the unacceptable Uranium PT result.

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

				mrem		
Lab Code	Irradiation Date	Description	Delivered Dose	Reported [b] Dose	Performance [c] Quotient (P)	
Environmental, Inc.		Group 1				
2018-1	11/15/2018	Spike 1	97.0	81.6	-0.16	
2018-1	11/15/2018	Spike 2	97.0	88.5	-0.09	
2018-1	11/15/2018	Spike 3	97.0	87.9	-0.09	
2018-1	11/15/2018	Spike 4	97.0	85.6	-0.12	
2018-1	11/15/2018	Spike 5	97.0	86.5	-0.11	
2018-1	11/15/2018	Spike 6	97.0	89.0	-0.08	
2018-1	11/15/2018	Spike 7	97.0	85.1	-0.12	
2018-1	11/15/2018	Spike 8	97.0	90.6	-0.07	
2018-1	11/15/2018	Spike 9	97.0	91.3	-0.06	
2018-1	11/15/2018	Spike 10	97.0	84.5	-0.13	
2018-1	11/15/2018	Spike 11	97.0	90.8	-0.06	
2018-1	11/15/2018	Spike 12	97.0	93.8	-0.03	
2018-1	11/15/2018	Spike 13	97.0	85.3	-0.12	
2018-1	11/15/2018	Spike 14	97.0	85.5	-0.12	
2018-1	11/15/2018	Spike 15	97.0	86.9	-0.10	
2018-1	11/15/2018	Spike 16	97.0	88.6	-0.09	
2018-1	11/15/2018	Spike 17	97.0	83.1	-0.14	
2018-1	11/15/2018	Spike 18	97.0	85.4	-0.12	
2018-1	11/15/2018	Spike 19	97.0	83.3	-0.14	
2018-1	11/15/2018	Spike 20	97.0	85.5	-0.12	
Mean (Spike 1-20)				86.9	-0.10	Pass[d]
Standard Deviation (Spike 1-20)				3.1	0.03	Pass[d]

a 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.

b Reported dose was converted from exposure (R) to Air Kerma (cGy) using a conversion of 0.876. Conversion from air kerma to ambient dose equivalent for Cs-137 at the reference dose point $H^*(10)K_a = 1.20$. mrem/cGy = 1000.

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]

Lab Code	Irradiation Date	Description	Delivered Dose (mrem)	Reported Dose [b] (mrem)	Performance Quotient (P) [c]	
Environmental, Inc.		Group 2				
2018-2	11/15/2018	Spike 21	143.0	130.3	-0.09	
2018-2	11/15/2018	Spike 22	143.0	128.1	-0.10	
2018-2	11/15/2018	Spike 23	143.0	134.4	-0.06	
2018-2	11/15/2018	Spike 24	143.0	129.0	-0.10	
2018-2	11/15/2018	Spike 25	143.0	132.5	-0.07	
2018-2	11/15/2018	Spike 26	143.0	126.1	-0.12	
2018-2	11/15/2018	Spike 27	143.0	126.2	-0.12	
2018-2	11/15/2018	Spike 28	143.0	122.4	-0.14	
2018-2	11/15/2018	Spike 29	143.0	118.8	-0.17	
2018-2	11/15/2018	Spike 30	143.0	123.2	-0.14	
2018-2	11/15/2018	Spike 31	143.0	137.2	-0.04	
2018-2	11/15/2018	Spike 32	143.0	144.4	0.01	
2018-2	11/15/2018	Spike 33	143.0	137.8	-0.04	
2018-2	11/15/2018	Spike 34	143.0	140.2	-0.02	
2018-2	11/15/2018	Spike 35	143.0	143.8	0.01	
2018-2	11/15/2018	Spike 36	143.0	146.7	0.03	
2018-2	11/15/2018	Spike 37	143.0	150.0	0.05	
2018-2	11/15/2018	Spike 38	143.0	126.1	-0.12	
2018-2	11/15/2018	Spike 39	143.0	136.2	-0.05	
2018-2	11/15/2018	Spike 40	143.0	144.8	0.01	
Mean (Spike 21-40)				133.9	-0.06	Pass[d]
Standard Deviation (Spike 21-40)				9.0	0.06	Pass[d]

a 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.

b Reported dose was converted from exposure (R) to Air Kerma (cGy) using a conversion of 0.876. Conversion from air kerma to ambient dose equivalent for Cs-137 at the reference dose point $H^*(10)K_a = 1.20$. mrem/cGy = 1000.

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	Ratio Lab/Known
SPW-1749	4/21/2016	Fe-55	1,576 ± 81	1,482	1,186 - 1,778	Pass	1.06
SPW-95	1/11/2018	H-3	16,457 ± 381	16,507	13,206 - 19,808	Pass	1.00
SPW-109	1/12/2018	Sr-90	18.9 ± 1.7	17.9	14.3 - 21.5	Pass	1.06
SPW-175	1/19/2018	H-3	16,261 ± 382	16,507	13,206 - 19,808	Pass	0.99
SPW-210	1/23/2018	H-3	16,461 ± 382	16,507	13,206 - 19,808	Pass	1.00
SPW-212	1/10/2018	Ra-226	12.9 ± 0.4	12.3	8.6 - 16.0	Pass	1.05
SPW-272	1/30/2018	H-3	16,607 ± 384	16,507	13,206 - 19,808	Pass	1.01
W-013118	4/29/2016	Cs-134	33.9 ± 7.4	36.2	29.0 - 43.4	Pass	0.94
W-013118	4/29/2016	Cs-137	80.0 ± 7.9	71.9	57.5 - 86.3	Pass	1.11
SPW-330	2/1/2018	Ni-63	168 ± 2	198	139 - 258	Pass	0.85
SPW-338	2/2/2018	H-3	16,512 ± 381	16,507	13,206 - 19,808	Pass	1.00
SPW-384	2/6/2018	H-3	16,429 ± 380	16,507	13,206 - 19,808	Pass	1.00
W-020618	4/29/2016	Cs-134	39.0 ± 12.0	36.2	29.0 - 43.4	Pass	1.08
W-020618	4/29/2016	Cs-137	81.0 ± 15.7	71.9	57.5 - 86.3	Pass	1.13
SPW-461	2/13/2018	H-3	16,799 ± 385	16,507	13,206 - 19,808	Pass	1.02
SPW-516	2/19/2018	H-3	16,323 ± 382	16,507	13,206 - 19,808	Pass	0.99
SPW-556	2/8/2018	Ra-226	12.2 ± 0.3	12.3	8.6 - 16.0	Pass	0.99
SPW-582	2/22/2018	H-3	16,200 ± 380	16,507	13,206 - 19,808	Pass	0.98
SPW-609	2/23/2018	H-3	16,467 ± 383	16,507	13,206 - 19,808	Pass	1.00
SPW-650	2/21/2018	Ra-226	11.8 ± 0.5	12.3	8.6 - 16.0	Pass	0.96
SPW-666	2/28/2018	Gr. Alpha	67.1 ± 2.8	72.4	36.2 - 108.6	Pass	0.93
SPW-666	2/28/2018	Gr. Beta	48.1 ± 1.4	54.8	43.8 - 65.8	Pass	0.88
W-022818	4/29/2016	Cs-134	32.7 ± 8.5	36.2	29.0 - 43.4	Pass	0.90
W-022818	4/29/2016	Cs-137	73.8 ± 9.3	71.9	57.5 - 86.3	Pass	1.03
SPW-748	3/6/2018	H-3	16,209 ± 381	16,507	13,206 - 19,808	Pass	0.98
SPW-787	3/8/2018	H-3	16,934 ± 388	16,507	13,206 - 19,808	Pass	1.03
W-030718	4/29/2016	Cs-134	33.4 ± 7.9	36.2	29.0 - 43.4	Pass	0.92
W-030718	4/29/2016	Cs-137	78.9 ± 9.6	71.9	57.5 - 86.3	Pass	1.10
SPW-885	3/15/2018	H-3	16,475 ± 384	16,507	13,206 - 19,808	Pass	1.00
SPW-931	3/20/2018	H-3	16,467 ± 384	16,507	13,206 - 19,808	Pass	1.00
SPW-957	3/12/2018	Ra-226	11.4 ± 0.4	12.3	8.6 - 16.0	Pass	0.93
SPW-969	3/23/2018	Ni-63	260 ± 12	329	230 - 428	Pass	0.79
W-031418	4/29/2016	Cs-134	36.9 ± 11.2	36.2	29.0 - 43.4	Pass	1.02
W-031418	4/29/2016	Cs-137	82.3 ± 15.5	71.9	57.5 - 86.3	Pass	1.14
SPW-985	3/27/2018	H-3	16,544 ± 386	16,507	13,206 - 19,808	Pass	1.00
SPW-1037	4/4/2018	H-3	16,298 ± 384	16,507	13,206 - 19,808	Pass	0.99
SPW-1149	4/12/2018	H-3	16,361 ± 383	16,507	13,206 - 19,808	Pass	0.99
SPW-1200	4/13/2018	U-238	44.2 ± 2.3	41.7	29.2 - 54.2	Pass	1.06
SPW-1426	4/20/2018	H-3	16,573 ± 390	16,507	13,206 - 19,808	Pass	1.00
SPW-1454	4/24/2018	H-3	16,495 ± 384	16,507	13,206 - 19,808	Pass	1.00
SPW-1493	4/26/2018	Ra-228	4.59 ± 1.10	4.21	2.95 - 5.47	Pass	1.09
SPW-1518	4/27/2018	H-3	16,483 ± 382	16,507	13,206 - 19,808	Pass	1.00
SPW-1522	4/27/2018	Tc-99	105 ± 2	108	75 - 140	Pass	0.98
W-050118	4/29/2016	Cs-134	35.2 ± 9.9	36.2	29.0 - 43.4	Pass	0.97
W-050118	4/29/2016	Cs-137	82.4 ± 7.7	71.9	57.5 - 86.3	Pass	1.15

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	Ratio Lab/Known
SPW-1573	5/2/2018	Gr. Alpha	25.2 ± 0.5	20.1	10.1 - 30.2	Pass	1.25
SPW-1573	5/2/2018	Gr. Beta	28.2 ± 0.3	27.5	22.0 - 33.0	Pass	1.03
SPW-1618	5/3/2018	H-3	14,834 ± 366	16,507	13,206 - 19,808	Pass	0.90
W-050318	4/29/2016	Cs-134	32.9 ± 7.6	36.2	29.0 - 43.4	Pass	0.91
W-050318	4/29/2016	Cs-137	83.1 ± 8.5	71.9	57.5 - 86.3	Pass	1.16
SPW-1644	5/4/2018	Sr-90	20.0 ± 1.3	17.9	14.3 - 21.5	Pass	1.12
W-050718	4/29/2018	Cs-134	42.4 ± 8.5	36.2	29.0 - 43.4	Pass	1.17
W-050718	4/29/2018	Cs-137	80.6 ± 13.6	71.9	57.5 - 86.3	Pass	1.12
SPW-1695	5/8/2018	H-3	16,450 ± 384	16,507	13,206 - 19,808	Pass	1.00
W-050818	4/29/2016	Cs-134	32.3 ± 6.9	36.2	29.0 - 43.4	Pass	0.89
W-050818	4/29/2016	Cs-137	73.0 ± 8.2	71.9	57.5 - 86.3	Pass	1.02
SPW-1780	5/11/2018	H-3	16,784 ± 388	16,507	13,206 - 19,808	Pass	1.02
W-051518	4/29/2016	Cs-134	33.0 ± 6.7	36.2	29.0 - 43.4	Pass	0.91
W-051518	4/29/2016	Cs-137	76.0 ± 7.4	71.9	57.5 - 86.3	Pass	1.06
W-051718	4/29/2016	Cs-134	35.1 ± 5.7	36.2	29.0 - 43.4	Pass	0.97
W-051718	4/29/2016	Cs-137	73.7 ± 6.7	71.9	57.5 - 86.3	Pass	1.03
SPW-1897	5/18/2018	H-3	16,650 ± 387	16,507	13,206 - 19,808	Pass	1.01
SPW-1899	5/18/2018	H-3	16,754 ± 365	16,507	13,206 - 19,808	Pass	1.01
W-052418	4/29/2016	Cs-134	33.9 ± 6.2	36.2	29.0 - 43.4	Pass	0.94
W-052418	4/29/2016	Cs-137	78.8 ± 7.4	71.9	57.5 - 86.3	Pass	1.10
SPW-1994	5/24/2018	H-3	16,488 ± 384	16,507	13,206 - 19,808	Pass	1.00
W-053118	4/29/2016	Cs-134	38.9 ± 9.5	36.2	29.0 - 43.4	Pass	1.07
W-053118	4/29/2016	Cs-137	74.0 ± 7.5	71.9	57.5 - 86.3	Pass	1.03
SPW-2042	5/31/2018	H-3	16,901 ± 390	16,507	13,206 - 19,808	Pass	1.02
W-060518	4/29/2016	Cs-134	33.0 ± 10.1	36.2	29.0 - 43.4	Pass	0.91
W-060518	4/29/2016	Cs-137	83.3 ± 8.7	71.9	57.5 - 86.3	Pass	1.16
SPW-2186	6/6/2018	H-3	16,551 ± 385	16,507	13,206 - 19,808	Pass	1.00
SPW-2914	6/19/2018	Ra-226	12.7 ± 0.4	12.3	8.6 - 16.0	Pass	1.03
SPW-2437	6/27/2018	Sr-90	18.0 ± 1.1	17.9	14.3 - 21.5	Pass	1.00
SPW-2447	6/29/2018	H-3	16,595 ± 387	16,507	13,206 - 19,808	Pass	1.01
W-070518	4/29/2016	Cs-134	38.9 ± 8.1	36.2	29.0 - 43.4	Pass	1.08
W-070518	4/29/2016	Cs-137	73.4 ± 9.4	71.9	57.5 - 86.3	Pass	1.02
SPW-2546	7/10/2018	H-3	15,949 ± 373	16,507	13,206 - 19,808	Pass	0.97
W-071218	4/29/2016	Cs-134	33.1 ± 7.7	36.2	29.0 - 43.4	Pass	0.91
W-071218	4/29/2016	Cs-137	74.5 ± 7.7	71.9	57.5 - 86.3	Pass	1.04
SPW-2706	7/16/2018	H-3	15,474.7 ± 366.6	16,507	13,206 - 19,808	Pass	0.94
SPW-2772	7/19/2018	H-3	15,994.0 ± 374.0	16,507	13,206 - 19,808	Pass	0.97
SPW-2811	7/20/2018	Gr. Alpha	21.1 ± 0.4	20.1	10.1 - 30.2	Pass	1.05
SPW-2811	7/20/2018	Gr. Beta	26.9 ± 0.3	27.5	22.0 - 33.0	Pass	0.98
W-072118	4/29/2016	Cs-134	33.6 ± 7.3	36.2	29.0 - 43.4	Pass	0.93
W-072118	4/29/2016	Cs-137	80.3 ± 7.9	71.9	57.5 - 86.3	Pass	1.12
SPW-3689	7/23/2018	Ra-226	12.7 ± 0.3	12.3	8.6 - 16.0	Pass	1.03
W-072718	2/1/2017	U-234	26.8 ± 3.4	31.4	22.0 - 40.8	Pass	0.85
W-072718	2/1/2017	U-238	24.1 ± 3.2	32.4	22.7 - 42.1	Pass	0.74
SPW-3018	7/31/2018	H-3	16,166 ± 376	16,507	13,206 - 19,808	Pass	0.98
SPW-3154	8/6/2018	H-3	15,686 ± 370	16,507	13,206 - 19,808	Pass	0.95
W-081218	4/29/2016	Cs-134	38.6 ± 11.5	36.2	29.0 - 43.4	Pass	1.07
W-081218	4/29/2016	Cs-137	83.7 ± 13.4	71.9	57.5 - 86.3	Pass	1.16

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	Ratio Lab/Known
SPW-3278	8/16/2018	H-3	15,587 ± 370	16,507	13,206 - 19,808	Pass	0.94
SPW-3378	8/23/2018	Ni-63	378 ± 44	465	325 - 604	Pass	0.81
SPW-3420	8/23/2018	H-3	15,536 ± 368	16,507	13,206 - 19,808	Pass	0.94
SPW-3691	8/23/2018	Ra-226	15.5 ± 0.4	12.3	8.6 - 16.0	Pass	1.26
SPW-3477	8/27/2018	Ra-228	11.3 ± 1.6	15.1	10.6 - 19.7	Pass	0.75
W-082818	4/29/2016	Cs-134	33.0 ± 2.7	36.2	29.0 - 43.4	Pass	0.91
W-082818	4/29/2016	Cs-137	80.7 ± 3.0	71.9	57.5 - 86.3	Pass	1.12
SPW-3648	9/7/2018	H-3	15,876 ± 371	16,507	13,206 - 19,808	Pass	0.96
SPW-4755	9/7/2018	Ra-226	11.2 ± 0.3	12.3	8.6 - 16.0	Pass	0.91
W-091118	4/29/2016	Cs-134	35.3 ± 2.7	36.2	29.0 - 43.4	Pass	0.98
W-091118	4/29/2016	Cs-137	80.7 ± 3.2	71.9	57.5 - 86.3	Pass	1.12
SPW-3843	9/19/2018	H-3	15,759 ± 372	16,507	13,206 - 19,808	Pass	0.95
W-092818	4/29/2016	Cs-134	36.1 ± 10.0	36.2	29.0 - 43.4	Pass	1.00
W-092818	4/29/2016	Cs-137	73.6 ± 9.9	71.9	57.5 - 86.3	Pass	1.02
SPW-3991	10/1/2018	H-3	15,614 ± 369	16,507	13,206 - 19,808	Pass	0.95
SPW-4105	10/5/2018	H-3	15,669 ± 370	16,507	13,206 - 19,808	Pass	0.95
W-101118	4/29/2016	Cs-134	33.5 ± 3.1	36.2	29.0 - 43.4	Pass	0.92
W-101118	4/29/2016	Cs-137	79.7 ± 3.2	71.9	57.5 - 86.3	Pass	1.11
SPW-4205	10/12/2018	H-3	15,821 ± 372	16,507	13,206 - 19,808	Pass	0.96
SPW-4274	10/17/2018	H-3	15,575 ± 369	16,507	13,206 - 19,808	Pass	0.94
SPW-4596	10/31/2018	H-3	15,650 ± 369	16,507	13,206 - 19,808	Pass	0.95
SPW-4682	11/1/2018	H-3	15,742 ± 371	16,507	13,206 - 19,808	Pass	0.95
SPW-4684	11/1/2018	Sr-90	19.1 ± 1.2	17.9	14.3 - 21.5	Pass	1.07
SPW-4790	11/9/2018	H-3	15,887 ± 373	16,507	13,206 - 19,808	Pass	0.96
SPW-4839	11/13/2018	Ni-63	381 ± 43	465	326 - 605	Pass	0.82
SPW-4863	11/16/2018	H-3	15,610 ± 370	16,507	13,206 - 19,808	Pass	0.95
W-111618	4/29/2016	Cs-134	38.0 ± 12.4	36.2	29.0 - 43.4	Pass	1.05
W-111618	4/29/2016	Cs-137	83.8 ± 13.8	71.9	57.5 - 86.3	Pass	1.17
SPW-5049	11/30/2018	H-3	15,370 ± 366	16,507	13,206 - 19,808	Pass	0.93
SPW-5148	12/7/2018	H-3	15,522 ± 368	16,507	13,206 - 19,808	Pass	0.94
W-121118	4/29/2016	Cs-134	39.4 ± 7.9	36.2	29.0 - 43.4	Pass	1.09
W-121118	4/29/2016	Cs-137	78.5 ± 7.7	71.9	57.5 - 86.3	Pass	1.09
W-121218	4/29/2016	Cs-134	42.0 ± 13.8	36.2	29.0 - 43.4	Pass	1.16
W-121218	4/29/2016	Cs-137	79.2 ± 13.1	71.9	57.5 - 86.3	Pass	1.10
W-121318	4/29/2016	Cs-134	35.1 ± 7.8	36.2	29.0 - 43.4	Pass	0.97
W-121318	4/29/2016	Cs-137	77.5 ± 8.4	71.9	57.5 - 86.3	Pass	1.08
SPW-5279	12/14/2018	H-3	15,686 ± 370	16,507	13,206 - 19,808	Pass	0.95
W-121418	4/29/2016	Cs-134	34.5 ± 8.2	36.2	29.0 - 43.4	Pass	0.95
W-121418	4/29/2016	Cs-137	82.7 ± 8.0	71.9	57.5 - 86.3	Pass	1.15
W-121718	4/29/2016	Cs-134	34.9 ± 10.5	36.2	29.0 - 43.4	Pass	0.96
W-121718	4/29/2016	Cs-137	80.3 ± 8.1	71.9	57.5 - 86.3	Pass	1.12
SPW-5351	12/19/2018	H-3	15,855 ± 375	16,507	13,206 - 19,808	Pass	0.96
SPW-5404	12/31/2018	H-3	15,179 ± 365	16,507	13,206 - 19,808	Pass	0.92

[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 listed in Attachment A of this report.
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-94	Water	1/11/2018	H-3	154	1 ± 74	200
SPW-108	Water	1/12/2018	Sr-89	0.63	0.41 ± 0.53	5
SPW-108	Water	1/12/2018	Sr-90	0.55	0.05 ± 0.26	1
SPW-174	Water	1/19/2018	H-3	152	23 ± 73	200
SPW-209	Water	1/23/2018	H-3	154	78 ± 78	200
SPW-211	Water	1/10/2018	Ra-226	0.03	0.19 ± 0.03	2
SPW-213	Water	1/23/2018	I-131	0.23	-0.05 ± 0.13	1
SPW-271	Water	1/30/2018	H-3	156	- 36 ± 77	200
SPW-329	Water	2/1/2018	Ni-63	74	-13 ± 45	200
SPW-337	Water	2/2/2018	H-3	154	-16 ± 71	200
SPW-385	Water	2/6/2018	H-3	150	-19 ± 71	200
SPW-461	Water	2/13/2018	H-3	156	56 ± 80	200
SPW-515	Water	2/19/2018	H-3	153	-1 ± 80	200
SPW-555	Water	2/8/2018	Ra-226	0.04	0.14 ± 0.03	2
SPW-581	Water	2/22/2018	H-3	156	43 ± 77	200
SPW-608	Water	2/23/2018	H-3	151	58 ± 75	200
SPW-649	Water	2/21/2018	Ra-226	0.04	0.17 ± 0.03	2
SPW-665	Water	2/28/2018	Gr. Alpha	0.43	0.70 ± 0.36	2
SPW-665	Water	2/28/2018	Gr. Beta	0.68	0.86 ± 0.51	4
SPW-747	Water	3/6/2018	H-3	154	11 ± 82	200
SPW-786	Water	3/8/2018	H-3	156	62 ± 76	200
SPW-865	Water	3/14/2018	I-131	0.18	0.07 ± 0.10	1
SPW-930	Water	3/20/2018	H-3	155	44 ± 84	200
SPW-956	Water	3/12/2018	Ra-226	0.03	0.18 ± 0.03	2
SPW-984	Water	3/27/2018	H-3	153	32 ± 82	200
SPW-1036	Water	4/4/2018	H-3	162	14 ± 77	200
SPW-1148	Water	4/12/2018	H-3	159	-15 ± 73	200
SPW-1202	Water	4/13/2018	U-234	0.15	0.00 ± 0.09	1
SPW-1202	Water	4/13/2018	U-238	0.15	0.06 ± 0.13	1
SPW-1425	Water	4/20/2018	H-3	159	45 ± 98	200
SPW-1453	Water	4/24/2018	H-3	155	43 ± 77	200
SPW-1492	Water	4/26/2018	Ra-228	0.68	0.25 ± 0.35	2
SPW-1517	Water	4/27/2018	H-3	150	54 ± 75	200
SPW-1521	Water	4/27/2018	Tc-99	5.38	2.64 ± 3.31	10
SPW-1572	Water	5/2/2018	Gr. Alpha	0.41	-0.23 ± 0.26	2
SPW-1572	Water	5/2/2018	Gr. Beta	0.69	-0.28 ± 0.47	4
SPW-1617	Water	5/3/2018	H-3	155	-113 ± 68	200
SPW-1643	Water	5/4/2018	Sr-89	0.66	0.36 ± 0.50	5
SPW-1643	Water	5/4/2018	Sr-90	0.57	-0.07 ± 0.25	1

[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-1694	Water	5/8/2018	H-3	157	86 ± 80	200
SPW-1779	Water	5/11/2018	H-3	156	11 ± 74	200
SPW-1895	Water	5/17/2018	I-131	0.12	0.00 ± 0.08	1
SPW-1896	Water	5/18/2018	H-3	155	46 ± 75	200
SPW-1898	Water	5/18/2018	H-3	186	2 ± 92	200
SPW-1993	Water	5/24/2018	H-3	158	103 ± 79	200
SPW-2041	Water	5/31/2018	H-3	156	115 ± 81	200
SPW-2185	Water	6/6/2018	H-3	150	29 ± 74	200
SPW-2383	Water	6/6/2018	Ra-226	0.03	0.20 ± 0.02	2
SPW-2264	Water	6/11/2018	Gr. Alpha	0.39	-0.02 ± 0.27	2
SPW-2264	Water	6/11/2018	Gr. Beta	0.73	-0.35 ± 0.50	4
SPW-2913	Water	6/19/2018	Ra-226	0.02	0.18 ± 0.02	2
SPW-2436	Water	6/27/2018	Sr-89	0.66	0.00 ± 0.46	5
SPW-2436	Water	6/27/2018	Sr-90	0.61	-0.10 ± 0.27	1
SPW-2447	Water	6/29/2018	H-3	160	-6 ± 79	200
SPW-2545	Water	7/10/2018	H-3	154	20 ± 74	200
SPW-2705	Water	7/16/2018	H-3	153	15 ± 73	200
SPW-2771	Water	7/19/2018	H-3	156	-27 ± 71	200
SPW-2810	Water	7/20/2018	Gr. Alpha	0.42	-0.09 ± 0.29	2
SPW-2810	Water	7/20/2018	Gr. Beta	0.70	0.31 ± 0.50	4
SPW-3688	Water	7/23/2018	Ra-226	0.02	0.21 ± 0.02	2
SPW-3017	Water	7/31/2018	H-3	157	-5 ± 74	200
SPW-3153	Water	8/6/2018	H-3	152	13 ± 72	200
SPW-3377	Water	8/23/2018	Ni-63	66	18 ± 40	200
SPW-3446	Water	8/27/2018	H-3	151	-15 ± 69	200
SPW-3476	Water	8/27/2018	Ra-228	0.77	0.05 ± 0.36	2
SPW-3648	Water	9/7/2018	H-3	148	89 ± 75	200
SPW-4754	Water	9/7/2018	Ra-226	0.03	0.13 ± 0.08	2
SPW-3842	Water	9/19/2018	H-3	156	29 ± 74	200
SPW-3990	Water	10/1/2018	H-3	153	-6 ± 71	200
SPW-4105	Water	10/5/2018	H-3	150	7 ± 71	200
SPW-4565	Water	10/11/2018	Ra-228	0.86	-0.26 ± 0.36	2
SPW-4205	Water	10/12/2018	H-3	154	-9 ± 71	200
SPW-4273	Water	10/17/2018	H-3	153	67 ± 76	200
SPW-4595	Water	10/30/2018	H-3	150	75 ± 74	200
SPW-4681	Water	11/1/2018	H-3	152	19 ± 72	200
SPW-4789	Water	11/9/2018	H-3	148	27 ± 73	200
SPW-4862	Water	11/16/2018	H-3	154	15 ± 77	200
SPW-5048	Water	11/30/2018	H-3	151	-6 ± 69	200

[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-4681	Water	11/1/2018	H-3	152	19 ± 72	200
SPW-4683	Water	11/1/2018	Sr-89	0.64	0.25 ± 0.45	5
SPW-4683	Water	11/1/2018	Sr-90	0.51	-0.10 ± 0.22	1
SPW-4799	Water	11/9/2018	I-131	0.43	-0.01 ± 0.20	1
SPW-4838	Water	11/13/2018	Ni-63	62	34 ± 38	200
SPW-5028	Water	11/19/2018	Ra-226	0.04	-0.14 ± 0.03	2
SPW-5028	Water	11/19/2018	Ra-228	0.96	-0.11 ± 0.43	2
SPW-5147	Water	12/7/2018	H-3	151	14 ± 71	200
SPW-5278	Water	12/14/2018	H-3	153	83 ± 76	200
SPW-5350	Water	12/19/2018	H-3	153	71 ± 75	200
SPW-5403	Water	12/31/2018	H-3	156	51 ± 75	200

[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-010218	1/2/2018	Gr. Beta	0.048 ± 0.004	0.057 ± 0.004	0.052 ± 0.003	Pass
AP-010218	1/2/2018	Be-7	0.073 ± 0.008	0.073 ± 0.007	0.073 ± 0.005	Pass
AP-010318	1/3/2018	Gr. Beta	0.039 ± 0.005	0.034 ± 0.005	0.037 ± 0.003	Pass
AP-6846,6847	1/3/2018	Be-7	0.058 ± 0.010	0.062 ± 0.010	0.060 ± 0.007	Pass
AP-010318	1/3/2018	Be-7	0.059 ± 0.009	0.059 ± 0.007	0.059 ± 0.006	Pass
AP-010818	1/8/2018	Gr. Beta	0.053 ± 0.007	0.055 ± 0.007	0.054 ± 0.005	Pass
WW-164,165	1/11/2018	Gr. Beta	21.9 ± 2.2	20.4 ± 2.1	21.1 ± 1.5	Pass
WW-189,190	1/11/2018	H-3	501 ± 100	498 ± 100	499 ± 71	Pass
AP-011518	1/15/2018	Gr. Beta	0.032 ± 0.005	0.033 ± 0.005	0.032 ± 0.003	Pass
AP-012318	1/23/2018	Gr. Beta	0.031 ± 0.005	0.032 ± 0.005	0.031 ± 0.003	Pass
LW-280,281	1/25/2018	Gr. Beta	1.10 ± 0.52	1.19 ± 0.55	1.15 ± 0.38	Pass
AP-013018	1/30/2018	Gr. Beta	0.024 ± 0.005	0.023 ± 0.005	0.024 ± 0.003	Pass
SG-301,302	1/30/2018	Ac-228	3.01 ± 0.49	3.11 ± 0.71	3.06 ± 0.43	Pass
SG-301,302	1/30/2018	Pb-214	2.47 ± 0.31	2.22 ± 0.35	2.34 ± 0.23	Pass
SG-301,302	1/30/2018	K-40	7.44 ± 1.93	6.52 ± 2.25	6.98 ± 1.48	Pass
SWU-322,323	1/30/2018	Gr. Beta	1.48 ± 1.10	3.06 ± 1.31	2.27 ± 0.85	Pass
P-391,392	2/2/2018	H-3	428 ± 94	332 ± 89	380 ± 65	Pass
S-433,434	2/7/2018	Pb-214	0.16 ± 0.04	0.13 ± 0.05	0.15 ± 0.03	Pass
S-433,434	2/7/2018	Ac-228	0.24 ± 0.06	0.26 ± 0.07	0.25 ± 0.05	Pass
S-433,434	2/7/2018	K-40	6.45 ± 0.58	6.50 ± 0.59	6.48 ± 0.41	Pass
AP-454,455	2/8/2018	Be-7	0.233 ± 0.102	0.271 ± 0.111	0.252 ± 0.075	Pass
AP-021218	2/12/2018	Gr. Beta	0.037 ± 0.005	0.035 ± 0.005	0.036 ± 0.004	Pass
CF-477,478	2/12/2018	Be-7	0.31 ± 0.17	0.21 ± 0.08	0.26 ± 0.09	Pass
AP-021918	2/19/2018	Gr. Beta	0.036 ± 0.005	0.033 ± 0.008	0.035 ± 0.005	Pass
AP-022118	2/21/2018	Gr. Beta	0.030 ± 0.003	0.025 ± 0.003	0.028 ± 0.002	Pass
SWU-704,705	2/27/2018	Gr. Beta	2.50 ± 0.65	1.72 ± 0.58	2.11 ± 0.44	Pass
W-849,850	2/28/2018	H-3	567 ± 105	730 ± 112	649 ± 77	Pass
AP-030518	3/5/2018	Gr. Beta	0.024 ± 0.005	0.025 ± 0.005	0.024 ± 0.004	Pass
DW-90026,90027	3/7/2018	Gr. Alpha	55.4 ± 2.5	60.3 ± 2.6	57.8 ± 1.8	Pass
DW-90026,90027	3/7/2018	Gr. Beta	28.0 ± 1.2	27.4 ± 1.2	27.7 ± 0.8	Pass
S-800,801	3/8/2018	Ra-226	1.06 ± 0.15	1.17 ± 0.17	1.12 ± 0.11	Pass
S-800,801	3/8/2018	Ra-228	1.08 ± 0.19	1.05 ± 0.20	1.07 ± 0.14	Pass
S-800,801	3/8/2018	K-40	15.5 ± 1.3	15.7 ± 1.4	15.6 ± 0.9	Pass
SG-863,864	3/8/2018	Ra-226	5.56 ± 0.28	5.92 ± 0.27	5.74 ± 0.19	Pass
SG-863,864	3/8/2018	Ra-228	7.77 ± 0.44	8.19 ± 0.53	7.98 ± 0.34	Pass
SG-863,864	3/8/2018	K-40	10.75 ± 1.29	12.28 ± 1.39	11.52 ± 0.95	Pass
WW-842,843	3/9/2018	H-3	415 ± 99	423 ± 99	419 ± 70	Pass
AP-030918	3/9/2018	Gr. Beta	0.027 ± 0.004	0.021 ± 0.004	0.024 ± 0.003	Pass
AP-031318	3/13/2018	Gr. Beta	0.030 ± 0.004	0.031 ± 0.004	0.031 ± 0.003	Pass
AP-031318	3/13/2018	Gr. Beta	0.026 ± 0.005	0.024 ± 0.005	0.025 ± 0.003	Pass
WW-934,935	3/13/2018	H-3	266 ± 95	294 ± 96	280 ± 68	Pass
S-972,973	3/20/2018	K-40	23.1 ± 3.3	19.8 ± 2.5	21.4 ± 2.1	Pass

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

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
AP-032018	3/20/2018	Gr. Beta	0.021 ± 0.005	0.023 ± 0.005	0.022 ± 0.004	Pass
WW-1016,1017	3/22/2018	H-3	716 ± 110	790 ± 113	753 ± 79	Pass
SW-995,996	3/26/2018	H-3	14,538 ± 364	14,647 ± 365	14,593 ± 258	Pass
WW-1900,1901	3/30/2018	H-3	863 ± 123	865 ± 123	864 ± 87	Pass
AP-1299,1300	4/3/2018	Be-7	0.075 ± 0.017	0.073 ± 0.014	0.074 ± 0.011	Pass
SG-1470,1471	4/3/2018	Pb-214	1.45 ± 0.14	1.39 ± 0.12	1.42 ± 0.09	Pass
SG-1470,1471	4/3/2018	Ac-228	2.39 ± 0.31	2.55 ± 0.31	2.47 ± 0.22	Pass
WW-1123,1124	4/5/2018	H-3	11,266 ± 319	11,175 ± 320	11,220 ± 226	Pass
DW-90035,90036	4/6/2018	Ra-226	1.04 ± 0.13	0.88 ± 0.14	0.96 ± 0.10	Pass
DW-90035,90036	4/6/2018	Ra-228	0.84 ± 0.13	1.08 ± 0.42	0.96 ± 0.22	Pass
AP-041018	4/10/2018	Gr. Beta	0.023 ± 0.004	0.019 ± 0.004	0.021 ± 0.003	Pass
SS-1611,1612	4/18/2018	K-40	10.01 ± 0.54	8.93 ± 0.56	9.47 ± 0.39	Pass
SW-1427,1428	4/18/2018	H-3	180 ± 84	114 ± 81	147 ± 58	Pass
WW-1494,1495	4/20/2018	H-3	326 ± 84	270 ± 89	298 ± 61	Pass
AP-042518	4/25/2018	Gr. Beta	0.028 ± 0.004	0.023 ± 0.004	0.026 ± 0.003	Pass
SO-1634,1635	4/25/2018	K-40	5.72 ± 0.51	6.36 ± 0.56	6.04 ± 0.38	Pass
BS-1546,1547	4/26/2018	K-40	8.35 ± 0.53	8.54 ± 0.57	8.44 ± 0.39	Pass
AP-042618	4/26/2018	Gr. Beta	0.023 ± 0.004	0.021 ± 0.004	0.022 ± 0.003	Pass
DW-90043,90044	4/27/2018	Gr. Alpha	11.9 ± 1.1	11.3 ± 1.1	11.6 ± 0.8	Pass
AP-050118	5/1/2018	Gr. Beta	0.020 ± 0.006	0.022 ± 0.006	0.021 ± 0.004	Pass
AP-050218	5/2/2018	Gr. Beta	0.020 ± 0.002	0.019 ± 0.002	0.020 ± 0.002	Pass
F-2333,2334	5/2/2018	Cs-137	2.53 ± 0.34	2.51 ± 0.32	2.52 ± 0.24	Pass
DW-90048,90049	5/2/2018	Ra-226	0.18 ± 0.11	0.14 ± 0.08	0.16 ± 0.07	Pass
DW-90048,90049	5/2/2018	Ra-228	0.86 ± 0.60	0.78 ± 0.60	0.82 ± 0.42	Pass
WW-1833,1834	5/8/2018	H-3	182 ± 83	304 ± 98	243 ± 64	Pass
SG-1747,1748	5/8/2018	Pb-214	13.0 ± 0.6	13.0 ± 0.6	13.0 ± 0.4	Pass
SG-1747,1748	5/8/2018	Ac-228	21.0 ± 1.2	21.1 ± 1.4	21.0 ± 0.9	Pass
AP-050818	5/8/2018	Gr. Beta	0.027 ± 0.005	0.025 ± 0.004	0.026 ± 0.003	Pass
F-1812,1813	5/9/2018	K-40	4.30 ± 0.47	3.40 ± 0.47	3.85 ± 0.33	Pass
SG-1767,1768	5/9/2018	Pb-214	0.96 ± 0.24	0.72 ± 0.24	0.84 ± 0.17	Pass
SG-1767,1768	5/9/2018	Ac-228	1.28 ± 0.34	1.15 ± 0.37	1.22 ± 0.25	Pass
AP-051418	5/14/2018	Gr. Beta	0.038 ± 0.006	0.033 ± 0.005	0.036 ± 0.004	Pass
DW-90061,90062	5/17/2018	Ra-226	1.53 ± 0.13	1.78 ± 0.15	1.66 ± 0.10	Pass
DW-90061,90062	5/17/2018	Ra-228	0.82 ± 0.45	0.87 ± 0.44	0.85 ± 0.31	Pass
F-2201,2202	5/18/2018	K-40	2.73 ± 0.40	2.68 ± 0.45	2.71 ± 0.30	Pass
AP-051818	5/18/2018	Gr. Beta	0.020 ± 0.004	0.026 ± 0.004	0.023 ± 0.003	Pass
WW-2050,2051	5/22/2018	H-3	28,404 ± 502	28,666 ± 504	28,535 ± 356	Pass
AP-052218	5/22/2018	Gr. Beta	0.024 ± 0.004	0.021 ± 0.004	0.023 ± 0.003	Pass
AP-052918	5/29/2018	Gr. Beta	0.028 ± 0.004	0.024 ± 0.004	0.026 ± 0.003	Pass
AP-052918	5/29/2018	Gr. Beta	0.023 ± 0.005	0.025 ± 0.005	0.024 ± 0.003	Pass

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

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
G-2133,2134	6/4/2018	Be-7	0.55 ± 0.64	0.32 ± 0.16	0.43 ± 0.33	Pass
G-2133,2134	6/4/2018	K-40	7.12 ± 0.64	6.53 ± 0.58	6.82 ± 0.43	Pass
WW-2270,2271	6/8/2018	H-3	90 ± 84	71 ± 83	80 ± 59	Pass
VE-2312,2313	6/11/2018	K-40	6.06 ± 0.17	5.50 ± 0.46	5.78 ± 0.24	Pass
AP-2375,2376	6/14/2018	Be-7	0.310 ± 0.134	0.240 ± 0.100	0.275 ± 0.084	Pass
AP-2893,2894	6/27/2018	Be-7	0.111 ± 0.016	0.111 ± 0.016	0.111 ± 0.011	Pass
SG-24511,2512	7/2/2018	Gr. Alpha	19.60 ± 3.08	19.55 ± 3.06	19.58 ± 2.17	Pass
SG-2469,2470	7/2/2018	Pb-214	9.16 ± 0.48	9.46 ± 0.37	9.31 ± 0.30	Pass
SG-2469,2470	7/2/2018	Ac-228	9.94 ± 0.87	10.00 ± 0.64	9.97 ± 0.54	Pass
SG-2511,2512	7/2/2018	Pb-214	4.46 ± 0.31	4.57 ± 0.34	4.52 ± 0.23	Pass
SG-2511,2512	7/2/2018	Ac-228	6.15 ± 0.57	5.83 ± 0.66	5.99 ± 0.44	Pass
VE-2610,2611	7/9/2018	K-40	6.52 ± 0.75	5.92 ± 0.75	6.22 ± 0.53	Pass
F-2851,2852	7/11/2018	K-40	2.93 ± 0.38	2.83 ± 0.32	2.88 ± 0.25	Pass
AP-071218	7/12/2018	Gr. Beta	0.021 ± 0.003	0.024 ± 0.004	0.023 ± 0.002	Pass
AP-2721,2722	7/12/2018	Be-7	0.204 ± 0.100	0.275 ± 0.127	0.240 ± 0.081	Pass
WW-2742,2743	7/12/2018	H-3	253 ± 86	278 ± 97	265 ± 65	Pass
DW-90123,90124	7/24/2018	Ra-226	0.97 ± 0.18	1.06 ± 0.12	1.02 ± 0.11	Pass
DW-90123,90124	7/24/2018	Ra-228	3.61 ± 0.74	4.05 ± 0.80	3.83 ± 0.54	Pass
G-3000,3001	7/24/2018	Be-7	3.29 ± 0.25	3.24 ± 0.26	3.26 ± 0.18	Pass
G-3000,3001	7/24/2018	K-40	4.98 ± 0.40	5.06 ± 0.41	5.02 ± 0.29	Pass
S-2916,2917	7/24/2018	Pb-214	1.00 ± 0.51	0.94 ± 0.53	0.97 ± 0.37	Pass
S-2916,2917	7/24/2018	Ac-228	0.98 ± 0.11	0.98 ± 0.09	0.98 ± 0.07	Pass
AP-073018	7/30/2018	Gr. Beta	0.029 ± 0.004	0.022 ± 0.004	0.026 ± 0.003	Pass
DW-90133,90134	8/7/2018	Ra-228	2.34 ± 0.68	3.28 ± 0.73	2.81 ± 0.50	Pass
DW-90138,90139	8/10/2018	Gr. Alpha	4.02 ± 0.68	3.87 ± 0.66	3.95 ± 0.51	Pass
VE-3281,3282	8/14/2018	K-40	11.40 ± 0.831	11.39 ± 0.524	11.39 ± 0.491	Pass
VE-3323,3324	8/14/2018	K-40	3.41 ± 0.227	3.67 ± 0.262	3.54 ± 0.173	Pass
VE-3323,3324	8/14/2018	Be-7	0.25 ± 0.069	0.33 ± 0.092	0.29 ± 0.058	Pass
AP-081518	8/15/2018	Gr. Beta	0.022 ± 0.003	0.028 ± 0.003	0.025 ± 0.002	Pass
PM-3365,3366	8/16/2018	K-40	14.77 ± 0.76	14.19 ± 0.69	14.48 ± 0.51	Pass
S-3478,3479	8/27/2018	Pb-214	0.70 ± 0.05	0.70 ± 0.05	0.70 ± 0.04	Pass
S-3478,3479	8/27/2018	Ac-228	0.84 ± 0.11	0.89 ± 0.08	0.87 ± 0.07	Pass
SWT-3501,3502	8/27/2018	Gr. Beta	0.64 ± 0.48	1.42 ± 0.56	1.03 ± 0.37	Pass
VE-3522,3523	8/28/2018	K-40	2.51 ± 0.20	2.63 ± 0.20	2.57 ± 0.14	Pass
WW-3745,3746	8/31/2018	H-3	1035 ± 119	1056 ± 99	1045 ± 77	Pass
S-3542,3543	8/30/2018	K-40	6.10 ± 0.72	5.69 ± 0.63	5.90 ± 0.48	Pass
W-3703,3704	9/11/2018	Gr. Alpha	0.71 ± 0.80	1.03 ± 0.81	0.87 ± 0.57	Pass
W-3703,3704	9/11/2018	Gr. Beta	1.67 ± 1.08	0.53 ± 1.00	1.10 ± 0.74	Pass
SG-3796,3797	9/14/2018	Gr. Alpha	42.3 ± 3.6	50.9 ± 3.8	46.6 ± 2.6	Pass

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

			Concentration [a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
SG-3796,3797	9/14/2018	Gr. Beta	43.9 ± 1.9	44.1 ± 1.8	44.0 ± 1.3	Pass
SG-3796,3797	9/14/2018	Pb-214	10.4 ± 0.6	14.2 ± 0.5	12.3 ± 0.4	Pass
SG-3796,3797	9/14/2018	Ac-228	15.8 ± 1.2	15.7 ± 1.2	15.8 ± 0.8	Pass
DW-90173,90174	10/24/2018	Ra-226	1.13 ± 0.15	1.38 ± 0.17	1.26 ± 0.11	Pass
DW-90173,90174	10/24/2018	Ra-228	5.09 ± 0.84	6.59 ± 0.89	5.84 ± 0.61	Pass
SW-4782,4783	11/7/2018	H-3	192 ± 82	238 ± 84	215 ± 59	Pass
WW-4959,4960	11/13/2018	H-3	330 ± 88	286 ± 86	308 ± 61	Pass
SG-4850,4851	11/14/2018	Pb-214	15.0 ± 0.4	14.7 ± 0.4	14.9 ± 0.3	Pass
SG-4850,4851	11/14/2018	Ac-228	17.5 ± 0.7	16.7 ± 0.6	17.1 ± 0.5	Pass
VE-4917,4918	11/20/2018	K-40	4.54 ± 0.45	4.05 ± 0.46	4.30 ± 0.32	Pass
VE-4917,4918	11/20/2018	Be-7	9.42 ± 0.45	9.42 ± 0.46	9.42 ± 0.32	Pass
SG-5046,5047	11/21/2018	K-40	8.65 ± 1.18	9.12 ± 1.02	8.88 ± 0.32	Pass
SG-5046,5047	11/21/2018	Cs-137	0.18 ± 0.06	0.10 ± 0.05	0.14 ± 0.78	Pass
SG-5046,5047	11/21/2018	Gr. Alpha	22.8 ± 5.6	17.5 ± 4.8	20.2 ± 0.0	Pass
SG-5046,5047	11/21/2018	Gr. Beta	31.8 ± 3.5	26.8 ± 3.1	29.3 ± 3.7	Pass
SG-6286,6287	12/1/2018	Pb-214	11.3 ± 0.4	10.7 ± 0.5	11.0 ± 0.3	Pass
SG-6286,6287	12/1/2018	Ac-228	13.5 ± 0.9	13.2 ± 1.0	13.4 ± 0.7	Pass
SWU-5132,5133	12/4/2018	H-3	159 ± 82	204 ± 80	181 ± 57	Pass
SWU-5132,5133	12/4/2018	Gr. Beta	1.32 ± 0.56	1.33 ± 0.57	1.32 ± 0.40	Pass
XAP-5499,5500	1/2/2019	Fe-55	941 ± 220	1027 ± 226	984 ± 158	Pass
XAP-5499,5500	1/2/2019	Sr-89	20.2 ± 7.3	14.9 ± 5.7	17.5 ± 4.7	Pass
XAP-5499,5500	1/2/2019	Ni-63	12.1 ± 8.5	15.6 ± 8.5	13.8 ± 6.0	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-765	2/1/2018	Am-241	1.57 ± 4.46	0	NA [c]	Pass
MASO-765	2/1/2018	Cs-137	4.69 ± 2.59	4.6	NA [d]	Pass
MASO-765	2/1/2018	Co-57	886 ± 7	826	578 - 1074	Pass
MASO-765	2/1/2018	Co-60	579 ± 7	560	392 - 728	Pass
MASO-765	2/1/2018	Mn-54	1135 ± 15	1010	707 - 1313	Pass
MASO-765	2/1/2018	K-40	653 ± 47	577	404 - 750	Pass
MASO-765	2/1/2018	Zn-65	1096 ± 19	960	672 - 1248	Pass
MASO-765	2/1/2018	Pu-238	54.4 ± 5.6	45.2	31.6 - 58.8	Pass
MASO-765	2/1/2018	Pu-239/240	58.9 ± 5.6	50.8	35.6 - 66.0	Pass
MASO-765	2/1/2018	Sr-90	1.07 ± 1.15	0	NA [c]	Pass
MAAP-769	2/1/2018	Am-241	0.070 ± 0.021	0.067	0.047 - 0.087	Pass
MAAP-769	2/1/2018	Cs-134	0.55 ± 0.04	0.675	0.473 - 0.878	Pass
MAAP-769	2/1/2018	Cs-137	0.01 ± 0.01	0	NA [c]	Pass
MAAP-769	2/1/2018	Co-57	1.06 ± 0.04	1.18	0.83 - 1.53	Pass
MAAP-769	2/1/2018	Co-60	0.01 ± 0.01	0	NA [c]	Pass
MAAP-769	2/1/2018	Mn-54	1.01 ± 0.05	1.03	0.72 - 1.34	Pass
MAAP-769	2/1/2018	Zn-65	1.37 ± 0.11	1.33	0.93 - 1.73	Pass
MAAP-769	2/1/2018	Pu-238	0.042 ± 0.017	0.0445	0.0312 - 0.0579	Pass
MAAP-769	2/1/2018	Pu-239/240	-0.001 ± 0.006	0	NA [c]	Pass
MAAP-769	2/1/2018	Sr-90	1.12 ± 0.13	1.01	0.71 - 1.31	Pass
MAAP-769	2/1/2018	U-234/233	0.117 ± 0.023	0.124	0.087 - 0.161	Pass
MAAP-769	2/1/2018	U-238	0.126 ± 0.023	0.128	0.090 - 0.166	Pass
MAVE-767	2/1/2018	Cs-134	3.03 ± 0.10	3.23	2.26 - 4.20	Pass
MAVE-767	2/1/2018	Cs-137	3.86 ± 0.05	3.67	2.57 - 4.77	Pass
MAVE-767	2/1/2018	Co-57	4.86 ± 0.09	4.42	3.09 - 5.75	Pass
MAVE-767	2/1/2018	Co-60	2.24 ± 0.06	2.29	1.60 - 2.98	Pass
MAVE-767	2/1/2018	Mn-54	2.75 ± 0.08	2.66	1.86 - 3.46	Pass
MAVE-767	2/1/2018	Zn-65	0.02 ± 0.05	0	NA [c]	Pass
MAW-656	2/1/2018	I-129	1.66 ± 0.07	1.93	1.35 - 2.51	Pass
MAW-662	2/1/2018	Am-241	0.581 ± 0.050	0.709	0.496 - 0.922	Pass
MAW-662	2/1/2018	Cs-134	9.35 ± 0.38	10.2	7.1 - 13.3	Pass
MAW-662	2/1/2018	Cs-137	13.0 ± 0.2	12.2	8.5 - 15.9	Pass
MAW-662	2/1/2018	Co-57	0.003 ± 0.039	0	NA [c]	Pass
MAW-662	2/1/2018	Co-60	11.73 ± 0.19	11.5	8.1 - 15.0	Pass
MAW-662	2/1/2018	Mn-54	0.060 ± 0.019	0	NA [c]	Pass
MAW-662	2/1/2018	Zn-65	15.85 ± 0.27	14.3	10.0 - 18.6	Pass
MAW-662	2/1/2018	Fe-55	10.7 ± 11.7	11.1	7.80 - 14.40	Pass
MAW-662	2/1/2018	Ni-63 [e]	11.0 ± 1.4	14.0	9.8 - 18.2	Warning
MAW-662	2/1/2018	Ni-63 [e]	12.9 ± 1.7	14.0	9.8 - 18.2	Pass
MAW-662	2/1/2018	H-3	-0.3 ± 3.0	0	NA [c]	Pass
MAW-662	2/1/2018	Pu-238	0.02 ± 0.01	0.023	NA [d]	Pass
MAW-662	2/1/2018	Pu-239/240	0.585 ± 0.056	0.600	0.420 - 0.780	Pass
MAW-662	2/1/2018	Ra-226 [f]	0.340 ± 0.040	0.257	0.180 - 0.334	Fail
MAW-662	2/1/2018	Ra-226 [f]	0.297 ± 0.048	0.257	0.180 - 0.334	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
MAW-662	2/1/2018	Sr-90	9.92 ± 0.75	11.4	8.0 - 14.8	Pass
MAW-662	2/1/2018	Tc-99	4.9 ± 0.4	4.37	3.06 - 5.68	Pass
MAW-662	2/1/2018	U-233/234	0.404 ± 0.041	0.430	0.301 - 0.559	Pass
MAW-662	2/1/2018	U-238	0.396 ± 0.041	0.437	0.306 - 0.568	Pass
MASO-3638	8/1/2018	Cs-134	688.7 ± 26.2	781	547 - 1015	Pass
MASO-3638	8/1/2018	Cs-137	605.9 ± 22.7	572	400 - 744	Pass
MASO-3638	8/1/2018	Co-57	976.7 ± 37.6	958	671 - 1245	Pass
MASO-3638	8/1/2018	Co-60	604.5 ± 24.9	608	426 - 790	Pass
MASO-3638	8/1/2018	Mn-54	5.2 ± 5.2	0	NA [c]	Pass
MASO-3638	8/1/2018	K-40	630 ± 31	566	396 - 736	Pass
MASO-3638	8/1/2018	Zn-65	556.4 ± 26.8	500	350 - 650	Pass
MAAP-3636	8/1/2018	Cs-134	0.37 ± 0.04	0.444	0.311 - 0.577	Pass
MAAP-3636	8/1/2018	Cs-137	0.34 ± 0.05	0.345	0.242 - 0.449	Pass
MAAP-3636	8/1/2018	Co-57	0.56 ± 0.04	0.592	0.414 - 0.770	Pass
MAAP-3636	8/1/2018	Co-60	0.28 ± 0.03	0.294	0.206 - 0.382	Pass
MAAP-3636	8/1/2018	Mn-54	0.26 ± 0.05	0.266	0.186 - 0.346	Pass
MAAP-3636	8/1/2018	Zn-65	0.22 ± 0.07	0.201	NA [d]	Pass
MAVE-3640	8/1/2018	Cs-134	1.87 ± 0.10	1.94	1.36 - 2.52	Pass
MAVE-3640	8/1/2018	Cs-137	2.69 ± 0.15	2.36	1.65 - 3.07	Pass
MAVE-3640	8/1/2018	Co-57	3.90 ± 0.12	3.31	2.32 - 4.30	Pass
MAVE-3640	8/1/2018	Co-60	1.76 ± 0.09	1.68	1.18 - 2.18	Pass
MAVE-3640	8/1/2018	Mn-54	2.91 ± 0.16	2.53	1.77 - 3.29	Pass
MAVE-3640	8/1/2018	Zn-65	1.53 ± 0.21	1.37	0.96 - 1.78	Pass
MAW-3480	8/1/2018	H-3	336.0 ± 10.7	338	237 - 439	Pass
MAW-3480	8/1/2018	Cs-134	7.86 ± 0.31	8.7	6.1 - 11.3	Pass
MAW-3480	8/1/2018	Cs-137	7.55 ± 0.33	6.9	4.8 - 9.0	Pass
MAW-3480	8/1/2018	Co-57	15.67 ± 0.36	14.9	10.4 - 19.4	Pass
MAW-3480	8/1/2018	Co-60	0.12 ± 0.12	0	NA [c]	Pass
MAW-3480	8/1/2018	Mn-54	13.38 ± 0.44	12.5	8.8 - 16.3	Pass
MAW-3480	8/1/2018	Zn-65	7.80 ± 0.53	7.53	5.27 - 9.79	Pass
MAW-3634	8/1/2018	I-129	1.32 ± 0.08	1.62	1.13 - 2.11	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) and 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 lab was in the "warning zone" on this study(biased low). The sample was rerun applying an aggressive oxidation technique to remove a complexing agent that is utilized in the early steps of the procedure. Reanalysis was acceptable with this enhanced technique.

[f] An investigation was performed to determine reason for the failure of the Ra-226 result. A backup solution was reanalyzed with acceptable results. The current study as well as a past study were reanalyzed with acceptable results. No conclusion has been currently drawn from the results of this investigation.

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

MRAD-28 Study

Lab Code [b]	Date	Analysis	Concentration [a] Laboratory Result	ERA Result	Control Limits [c]	Acceptance
ERAP-942	3/19/2018	Am-241[d]	24.6	7.86	5.61 - 10.5	Fail
ERAP-942	3/19/2018	Am-241[d]	7.30	7.86	5.61 - 10.5	Pass
ERAP-942	3/19/2018	Cs-134	174	204	132 - 250	Pass
ERAP-942	3/19/2018	Cs-137	969	865	710 - 1130	Pass
ERAP-942	3/19/2018	Co-60	672	665	565 - 845	Pass
ERAP-942	3/19/2018	Fe-55	701	771	281 - 1230	Pass
ERAP-942	3/19/2018	Mn-54	< 50	< 50.0	0.00 - 50.0	Pass
ERAP-942	3/19/2018	Zn-65	594	668	548 - 1020	Pass
ERAP-942	3/19/2018	Pu-238	56.8	55.6	42.0 - 68.3	Pass
ERAP-942	3/19/2018	Pu-239	54.4	52.3	39.1 - 63.1	Pass
ERAP-942	3/19/2018	Sr-90	113	124	78.4 - 169	Pass
ERAP-942	3/19/2018	U-234	22.8	24.6	18.2 - 28.8	Pass
ERAP-942	3/19/2019	U-238	22.7	24.4	18.4 - 29.1	Pass
ERAP-944	3/19/2018	Gross Alpha	49.1	43.4	22.7 - 71.5	Pass
ERAP-944	3/19/2018	Gross Beta	44.8	52.0	31.5 - 78.6	Pass
ERSO-946	3/19/2018	Ac-228	1,480	1,240	818 - 1560	Pass
ERSO-946	3/19/2018	Am-241	48	74.7	40.3 - 106	Pass
ERSO-946	3/19/2018	Bi-212[e]	1,980	1,240	355 - 1,850	Fail
ERSO-946	3/19/2018	Bi-212[e]	11,220	1,240	355 - 1,850	Pass
ERSO-946	3/19/2018	Bi-214	2,180	1,760	845 - 2,620	Pass
ERSO-946	3/19/2018	Cs-134	5,230	5,330	3,640 - 6,370	Pass
ERSO-946	3/19/2018	Cs-137	4,820	4,210	3,180 - 5,320	Pass
ERSO-946	3/19/2018	Co-60	8,390	8,060	6,350 - 9,950	Pass
ERSO-946	3/19/2018	K-40[e]	14,100	10,600	7,300 - 12,700	Fail
ERSO-946	3/19/2018	K-40[e]	12160	10,600	7,300 - 12,700	Pass
ERSO-946	3/19/2018	Mn-54	< 1000	< 1000	0 - 1,000	Pass
ERSO-946	3/19/2018	Pb-212	1,140	1,240	865 - 1,570	Pass
ERSO-946	3/19/2018	Pb-214	2330	1850	777 - 2910	Pass
ERSO-946	3/19/2018	Pu-238	1,830	1,470	733 - 2230	Pass
ERSO-946	3/19/2018	Pu-239	1,520	1,330	725 - 1910	Pass
ERSO-946	3/19/2018	Sr-90	3,500	4,500	1,400 - 7,010	Pass
ERSO-946	3/19/2018	Th-234	1,800	1,800	680 - 3,080	Pass
ERSO-946	3/19/2018	U-234	1,610	1,820	853 - 2,380	Pass
ERSO-946	3/19/2018	U-238	1,800	1,800	988 - 2,420	Pass
ERSO-946	3/19/2018	Zn-65	2,440	1,990	1,590 - 2,710	Pass
ERW-952	3/19/2018	Gr. Alpha	25.3	29.0	10.6 - 40.0	Pass
ERW-952	3/19/2018	Gr. Beta	61.3	73.1	36.6 - 101	Pass
ERW-954	3/19/2018	H-3	22,300	21,700	16,400 - 26,400	Pass

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

MRAD-28 Study

Lab Code [b]	Concentration [a]					
	Date	Analysis	Laboratory Result	ERA Result	Control Limits[c]	Acceptance
ERVE-948	3/19/2018	Am-241	3,800	3,880	2,400 - 5,480	Pass
ERVE-948	3/19/2018	Cm-244	2,490	2,630	1,480 - 3,270	Pass
ERVE-948	3/19/2018	Co-60	579	491	385 - 642	Pass
ERVE-948	3/19/2018	Cs-134	2,090	1,950	1,290 - 2,600	Pass
ERVE-948	3/19/2018	Cs-137	2,640	2,160	1,660 - 2,910	Pass
ERVE-948	3/19/2018	K-40	34,000	30,900	23,200 - 39,100	Pass
ERVE-948	3/19/2018	Mn-54	< 300	< 300	0.00 - 300	Pass
ERVE-948	3/19/2018	Zn-65	3,080	2,400	1,790 - 3,560	Pass
ERVE-948	3/19/2018	Pu-238	2,400	2,020	1,400 - 2,600	Pass
ERVE-948	3/19/2018	Pu-239	5,140	4,160	2,880 - 5,270	Pass
ERVE-948	3/19/2018	Sr-90	3,570	3,330	1,880 - 4340	Pass
ERVE-948	3/19/2018	U-233/234	4,130	4,050	2,850 - 5,170	Pass
ERVE-948	3/19/2018	U-238	4,190	4,010	2,830 - 5,020	Pass
ERW-950	3/19/2018	Am-241	72.5	103	70.7 - 132	Pass
ERW-950	3/19/2018	Co-60	1,550	1,480	1,280 - 1,700	Pass
ERW-950	3/19/2018	Cs-134	1,280	1,330	1,000 - 1460	Pass
ERW-950	3/19/2018	Cs-137	343	328	281 - 373	Pass
ERW-950	3/19/2018	Mn-54	< 100	< 100	0.00 - 100	Pass
ERW-950	3/19/2018	Pu-238	59.8	66.1	39.7 - 85.6	Pass
ERW-950	3/19/2018	Pu-239	84.8	91.8	56.8 - 113	Pass
ERW-950	3/19/2018	U-234	111	132	100 - 151	Pass
ERW-950	3/19/2018	U-238	113	131	102 - 154	Pass
ERW-950	3/19/2018	Zn-65	1450	1300	1160 - 1640	Pass
ERW-950	3/19/2018	Fe-55	533	445	261 - 647	Pass
ERW-950	3/19/2018	Sr-90	754	781	562 - 965	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory (EIML) as a participant in the crosscheck program for proficiency testing administered by Environmental Resource 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 (2 sigma, 1 determination) and control limits as provided by ERA.

[d] Reported result was higher than ERA's upper acceptance limit. An investigation was initiated. The sample was run with a pre-treatment technique. Rerunning the analysis with this pre-treatment gave a result of 7.30 pCi/total. Going forward all samples for Am-241 will be analyzed utilizing this pre-treatment.

[e] The ERA results for K-40 and Bi-212 were outside the acceptable limits. The sample analysis was rerun utilizing a different library with acceptable results. The gamma software vendor will be consulted for the differences between the two libraries. In the meantime EIML will occasionally be counting a standard with known activity to ensure reported values are within the laboratory's acceptance criteria.

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 2018

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	0.026 (265/265) (0.006 - 0.059)	37 2.0 miles NNW	0.027 (53/53) (0.008 - 0.059)	Station 53 0.025 (53/53) (0.007 - 0.053)	0
	Gamma (24) Be-7	-	0.082 (20/20) (0.060 - 0.117)	37 2.0 miles NNW	0.087 (4/4) (0.066 - 0.110)	0.077 (4/4) (0.066 - 0.091)	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)	-	18.3 (160/160) (11.0 – 22.9)	50 3.6 miles ENE	21.2 (4/4) (18.5 – 22.9)	Stations 39 & 53 18.5 (8/8) (15.4 – 21.1)	0
Surface Water (pCi/l)	Gamma (24)		- (0/12)	N/A	N/A	JRR - (0/12)	0
	Tritium (24)	3,000	11,941 (12/12) (9,101–14,775)	SP 3.2 miles SSE	11,941 (12/12) (9,101–14,775)	- (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 2018

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	3.0 (12/12) (2.5 – 4.4)	IO-DW 26.1 miles SSE	3.0 (12/12) (2.5 – 4.4)	3.0 (12/12) (2.0 – 5.1)	0
	Gamma (24)		- (0/12)	N/A	N/A	- (0/12)	0
	Tritium (8)	2,000	252 (1/4)	IO-DW 26.1 miles SSE	252 (1 /4)	- (0/4)	0
Shoreline Sediment (pCi/kg dry)	Gamma (4)					JRR	
	K-40	-	6,828 (2/2) (6,814 –6,843)	DC 0.8 miles WNW	6,828 (2/2) (6,814 –6,843)	9,297 (2/2) (8,707 – 9,887)	0
	Cs-137	-	- (0/2)	N/A	N/A	- (0/2)	0
Fish – Flesh (pCi/kg wet)	Gamma (28)					JRR	
	K-40	-	3,220 (14/14) (2,648 – 3,841)	CCL 0.6 miles E to NNW	3,220 (14/14) (2,648 – 3,841)	3,278 (14/14) (2,600 – 3,963)	0
	Tritium (28)	-	7,474 (14/14) (5,045 – 9,791)	CCL 0.6 miles E to NNW	7,474 (14/14) (5,045 – 9,791)	- (0/14)	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 2018

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 (27)					D-2	
	Be-7	-	720 (20/20) (137 – 1,409)	A-3 2.6 miles N	829 (2/2) (301 – 1,357)	798 (7/7) (227 – 1,287)	0
	K-40	-	5,273 (20/20) (3,505 – 6,959)	Q-6 2.4 miles NW	5,776 (4/4) (5,087 – 6,901)	5,459 (7/7) (4,734 – 6,595)	0
Crops (pCi/kg wet)	Gamma (3)					NR-U1	
	K-40	-	8,426 (2/2) (2,766 – 14,086)	NR-D1 8.9 miles S	14,086 (1/1)	2,979 (1/1)	0
Bottom Sediment (pCi/kg dry)	Gamma (18)					JRR	
	K-40	-	11,226 (16/16) (9,106 – 15,249)	UHS 0.6 miles E	11,301 (10/10) (9,106 – 15,249)	13,837 (2/2) (12,186 – 15,488)	0
	Cs-137	-	74 (3/16) (47 – 90)	DC 0.9 miles WNW	90 (1/2)	96 (1/2)	0
	Fe-55 (14)	-	- (0/14)	N/A	N/A	N/A	0
	HTD Sr-90 (2)		- (1/2)	UHS 0.6 miles E	32.6 (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 2018

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	-	222 (2/3) (200 – 244)	DC 0.9 miles WNW	244 (1/1)		0
	K-40	-	2,309 (3/3) (2,175 – 2,506)	DC 0.9 miles WNW	2506 (1/1)		0
	Cs-137	-	- (0/4)	N/A	N/A		0
Terrestrial Vegetation (pCi/kg wet)	Gamma (2)					No Control	
	Be-7	-	2,274 (2/2) (2,011 – 2,538)	MUDS 1.5 miles WNW	2,538 (1/1)		0
	K-40	-	6,012 (2/2) (3,715 – 8,309)	EEA 3.0 miles NNW	8,309 (1/1)		0
Soil (pCi/kg dry)	Gamma (1)					No Control	
	K-40	-	11,760 (1/1)	EEA 3.0 miles NNW	11,760 (1/1)		0
	Cs-137	-	182 (1/1)	EEA 3.0 miles NNW	182 (1/1)		0
Turkey (pCi/kg wet)	Gamma (1)					No Control	
	K-40	-	2,940 (1/1)	A2.0 2.0 miles N	2,940 (1/1)		0
	Tritium (1)	-	612 (1/1)	A2.0 2.0 miles N	612 (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
27-Dec-17	03-Jan-18	291	0.035	+/-	0.005	<	0.012	
03-Jan-18	08-Jan-18	221	0.048	+/-	0.007	<	0.014	
08-Jan-18	15-Jan-18	302	0.034	+/-	0.005	<	0.010	
15-Jan-18	23-Jan-18	321	0.027	+/-	0.005	<	0.008	
23-Jan-18	30-Jan-18	302	0.021	+/-	0.004	<	0.013	
30-Jan-18	05-Feb-18	255	0.023	+/-	0.005	<	0.010	
05-Feb-18	12-Feb-18	308	0.032	+/-	0.005	<	0.011	
12-Feb-18	19-Feb-18	292	0.028	+/-	0.005	<	0.007	
19-Feb-18	27-Feb-18	359	0.018	+/-	0.004	<	0.005	
27-Feb-18	05-Mar-18	257	0.018	+/-	0.005	<	0.010	
05-Mar-18	13-Mar-18	353	0.033	+/-	0.004	<	0.016	
13-Mar-18	20-Mar-18	290	0.021	+/-	0.005	<	0.009	
20-Mar-18	26-Mar-18	255	0.021	+/-	0.005	<	0.027	
26-Mar-18	02-Apr-18	308	0.023	+/-	0.004	<	0.011	
02-Apr-18	10-Apr-18	340	0.022	+/-	0.004	<	0.008	
10-Apr-18	18-Apr-18	333	0.025	+/-	0.004	<	0.013	
18-Apr-18	26-Apr-18	341	0.020	+/-	0.004	<	0.010	
26-Apr-18	01-May-18	219	0.017	+/-	0.006	<	0.011	
01-May-18	08-May-18	305	0.029	+/-	0.005	<	0.016	
08-May-18	14-May-18	255	0.034	+/-	0.005	<	0.013	
14-May-18	22-May-18	341	0.021	+/-	0.004	<	0.008	
22-May-18	29-May-18	290	0.025	+/-	0.005	<	0.013	
29-May-18	04-Jun-18	251	0.021	+/-	0.005	<	0.016	
04-Jun-18	11-Jun-18	295	0.030	+/-	0.005	<	0.014	
11-Jun-18	18-Jun-18	298	0.021	+/-	0.004	<	0.007	
11-Jun-18	18-Jun-18	298	0.020	+/-	0.004			Duplicate
18-Jun-18	25-Jun-18	300	0.014	+/-	0.004	<	0.007	
25-Jun-18	03-Jul-18	340	0.017	+/-	0.004	<	0.010	
03-Jul-18	10-Jul-18	299	0.029	+/-	0.005	<	0.009	
10-Jul-18	17-Jul-18	298	0.026	+/-	0.005	<	0.013	
17-Jul-18	25-Jul-18	342	0.032	+/-	0.004	<	0.013	
25-Jul-18	30-Jul-18	215	0.025	+/-	0.006	<	0.014	
30-Jul-18	06-Aug-18	296	0.034	+/-	0.005	<	0.007	
06-Aug-18	13-Aug-18	298	0.029	+/-	0.005	<	0.013	
13-Aug-18	21-Aug-18	350	0.022	+/-	0.004	<	0.009	
21-Aug-18	27-Aug-18	258	0.039	+/-	0.005	<	0.024	
27-Aug-18	04-Sep-18	335	0.012	+/-	0.004	<	0.008	
04-Sep-18	10-Sep-18	261	0.006	+/-	0.004	<	0.009	
10-Sep-18	17-Sep-18	293	0.016	+/-	0.004	<	0.012	
17-Sep-18	24-Sep-18	298	0.017	+/-	0.004	<	0.010	
24-Sep-18	01-Oct-18	303	0.021	+/-	0.004	<	0.008	

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
01-Oct-18	08-Oct-18	298	0.014 +/- 0.004	< 0.013	
08-Oct-18	15-Oct-18	307	0.010 +/- 0.004	< 0.016	
15-Oct-18	22-Oct-18	293	0.020 +/- 0.004	< 0.021	
22-Oct-18	29-Oct-18	292	0.028 +/- 0.005	< 0.016	
22-Oct-18	29-Oct-18	292	0.030 +/- 0.005		Duplicate
29-Oct-18	05-Nov-18	298	0.020 +/- 0.004	< 0.017	
05-Nov-18	12-Nov-18	306	0.018 +/- 0.004	< 0.011	
12-Nov-18	19-Nov-18	298	0.029 +/- 0.005	< 0.012	
19-Nov-18	27-Nov-18	344	0.040 +/- 0.005	< 0.012	
19-Nov-18	27-Nov-18	344	0.036 +/- 0.004		Duplicate
27-Nov-18	03-Dec-18	245	0.026 +/- 0.005	< 0.010	
03-Dec-18	10-Dec-18	301	0.030 +/- 0.005	< 0.010	
10-Dec-18	17-Dec-18	292	0.035 +/- 0.005	< 0.016	
17-Dec-18	26-Dec-18	383	0.022 +/- 0.004	< 0.008	
26-Dec-18	31-Dec-18	221	0.028 +/- 0.006	< 0.014	

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
27-Dec-17	03-Jan-18	300	0.041 +/- 0.005	< 0.012	
03-Jan-18	08-Jan-18	219	0.050 +/- 0.007	< 0.014	
08-Jan-18	15-Jan-18	312	0.030 +/- 0.005	< 0.009	
15-Jan-18	23-Jan-18	335	0.031 +/- 0.005	< 0.008	
23-Jan-18	30-Jan-18	301	0.026 +/- 0.004	< 0.013	
30-Jan-18	05-Feb-18	258	0.022 +/- 0.005	< 0.010	
05-Feb-18	12-Feb-18	302	0.037 +/- 0.005	< 0.011	
05-Feb-18	12-Feb-18	302	0.035 +/- 0.005		Duplicate
12-Feb-18	19-Feb-18	296	0.031 +/- 0.005	< 0.007	
19-Feb-18	27-Feb-18	351	0.019 +/- 0.004	< 0.006	
27-Feb-18	05-Mar-18	258	0.024 +/- 0.005	< 0.010	
27-Feb-18	05-Mar-18	258	0.025 +/- 0.005		Duplicate
05-Mar-18	13-Mar-18	349	0.031 +/- 0.004	< 0.017	
13-Mar-18	20-Mar-18	292	0.026 +/- 0.005	< 0.009	
13-Mar-18	20-Mar-18	292	0.024 +/- 0.005		Duplicate
20-Mar-18	26-Mar-18	255	0.023 +/- 0.005	< 0.027	
26-Mar-18	02-Apr-18	310	0.025 +/- 0.004	< 0.011	
02-Apr-18	10-Apr-18	342	0.021 +/- 0.004	< 0.007	
10-Apr-18	18-Apr-18	336	0.023 +/- 0.004	< 0.013	
18-Apr-18	26-Apr-18	342	0.026 +/- 0.004	< 0.010	
26-Apr-18	01-May-18	225	0.026 +/- 0.006	< 0.011	
01-May-18	08-May-18	306	0.025 +/- 0.004	< 0.016	
01-May-18	08-May-18	306	0.027 +/- 0.005		Duplicate
08-May-18	14-May-18	254	0.036 +/- 0.005	< 0.013	
14-May-18	22-May-18	343	0.021 +/- 0.004	< 0.008	
22-May-18	29-May-18	295	0.024 +/- 0.005	< 0.012	
29-May-18	04-Jun-18	255	0.021 +/- 0.005	< 0.016	
04-Jun-18	11-Jun-18	296	0.029 +/- 0.005	< 0.013	
11-Jun-18	18-Jun-18	305	0.018 +/- 0.004	< 0.007	
18-Jun-18	25-Jun-18	299	0.012 +/- 0.004	< 0.007	
25-Jun-18	03-Jul-18	346	0.018 +/- 0.004	< 0.010	
03-Jul-18	10-Jul-18	301	0.029 +/- 0.005	< 0.009	
10-Jul-18	17-Jul-18	297	0.025 +/- 0.005	< 0.013	
17-Jul-18	25-Jul-18	343	0.032 +/- 0.004	< 0.013	
25-Jul-18	30-Jul-18	216	0.028 +/- 0.006	< 0.014	
30-Jul-18	06-Aug-18	297	0.039 +/- 0.005	< 0.007	
06-Aug-18	13-Aug-18	303	0.027 +/- 0.005	< 0.013	
13-Aug-18	21-Aug-18	352	0.021 +/- 0.004	< 0.009	
21-Aug-18	27-Aug-18	259	0.040 +/- 0.005	< 0.024	
27-Aug-18	04-Sep-18	331	0.016 +/- 0.004	< 0.008	
04-Sep-18	10-Sep-18	259	0.007 +/- 0.004	< 0.010	

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
10-Sep-18	17-Sep-18	298	0.018	+/-	0.004	<	0.012	
17-Sep-18	24-Sep-18	301	0.018	+/-	0.004	<	0.010	
24-Sep-18	01-Oct-18	305	0.023	+/-	0.004	<	0.008	
01-Oct-18	08-Oct-18	300	0.010	+/-	0.004	<	0.013	
08-Oct-18	15-Oct-18	308	0.007	+/-	0.004	<	0.016	
15-Oct-18	22-Oct-18	290	0.028	+/-	0.005	<	0.021	
15-Oct-18	22-Oct-18	290	0.027	+/-	0.005			Duplicate
22-Oct-18	29-Oct-18	300	0.028	+/-	0.005	<	0.016	
29-Oct-18	05-Nov-18	302	0.024	+/-	0.004	<	0.016	
05-Nov-18	12-Nov-18	308	0.021	+/-	0.004	<	0.011	
12-Nov-18	19-Nov-18	295	0.027	+/-	0.005	<	0.012	
19-Nov-18	27-Nov-18	346	0.032	+/-	0.004	<	0.012	
27-Nov-18	03-Dec-18	256	0.026	+/-	0.005	<	0.010	
03-Dec-18	10-Dec-18	305	0.029	+/-	0.005	<	0.010	
10-Dec-18	17-Dec-18	291	0.038	+/-	0.005	<	0.016	
17-Dec-18	26-Dec-18	390	0.018	+/-	0.003	<	0.008	
17-Dec-18	26-Dec-18	390	0.019	+/-	0.003			Duplicate
26-Dec-18	31-Dec-18	216	0.023	+/-	0.006	<	0.014	
26-Dec-18	31-Dec-18	216	0.027	+/-	0.006			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
27-Dec-17	03-Jan-18	292	0.043	+/-	0.005	<	0.012	
03-Jan-18	08-Jan-18	223	0.054	+/-	0.007	<	0.014	
08-Jan-18	15-Jan-18	309	0.031	+/-	0.005	<	0.009	
15-Jan-18	23-Jan-18	329	0.032	+/-	0.005	<	0.008	
23-Jan-18	30-Jan-18	302	0.025	+/-	0.004	<	0.013	
30-Jan-18	05-Feb-18	256	0.030	+/-	0.005	<	0.010	
30-Jan-18	05-Feb-18	256	0.031	+/-	0.005			Duplicate
05-Feb-18	12-Feb-18	300	0.033	+/-	0.005	<	0.011	
12-Feb-18	19-Feb-18	291	0.029	+/-	0.005	<	0.007	
19-Feb-18	27-Feb-18	360	0.019	+/-	0.004	<	0.005	
27-Feb-18	05-Mar-18	254	0.026	+/-	0.005	<	0.010	
05-Mar-18	13-Mar-18	345	0.038	+/-	0.005	<	0.017	
13-Mar-18	20-Mar-18	287	0.038	+/-	0.005	<	0.009	
20-Mar-18	26-Mar-18	258	0.021	+/-	0.005	<	0.027	
20-Mar-18	26-Mar-18	258	0.023	+/-	0.005			Duplicate
26-Mar-18	02-Apr-18	308	0.024	+/-	0.004	<	0.011	
02-Apr-18	10-Apr-18	342	0.019	+/-	0.004	<	0.007	
02-Apr-18	10-Apr-18	342	0.023	+/-	0.004			Duplicate
10-Apr-18	18-Apr-18	342	0.023	+/-	0.004	<	0.013	
18-Apr-18	26-Apr-18	348	0.021	+/-	0.004	<	0.010	
26-Apr-18	01-May-18	218	0.020	+/-	0.006	<	0.011	
01-May-18	08-May-18	292	0.028	+/-	0.005	<	0.016	
08-May-18	14-May-18	251	0.033	+/-	0.005	<	0.013	
14-May-18	22-May-18	336	0.021	+/-	0.004	<	0.008	
22-May-18	29-May-18	296	0.025	+/-	0.005	<	0.012	
22-May-18	29-May-18	296	0.023	+/-	0.005			Duplicate
29-May-18	04-Jun-18	254	0.020	+/-	0.005	<	0.016	
29-May-18	04-Jun-18	254	0.021	+/-	0.005			Duplicate
04-Jun-18	11-Jun-18	296	0.028	+/-	0.005	<	0.013	
11-Jun-18	18-Jun-18	299	0.022	+/-	0.004	<	0.007	
18-Jun-18	25-Jun-18	301	0.016	+/-	0.004	<	0.007	
25-Jun-18	03-Jul-18	341	0.019	+/-	0.004	<	0.010	
03-Jul-18	10-Jul-18	302	0.028	+/-	0.005	<	0.009	
03-Jul-18	10-Jul-18	302	0.026	+/-	0.005			Duplicate
10-Jul-18	17-Jul-18	300	0.030	+/-	0.005	<	0.013	
17-Jul-18	25-Jul-18	342	0.030	+/-	0.004	<	0.013	
25-Jul-18	30-Jul-18	213	0.022	+/-	0.006	<	0.014	
30-Jul-18	06-Aug-18	289	0.034	+/-	0.005	<	0.007	
06-Aug-18	13-Aug-18	293	0.029	+/-	0.005	<	0.014	
13-Aug-18	21-Aug-18	350	0.022	+/-	0.004	<	0.009	
21-Aug-18	27-Aug-18	259	0.038	+/-	0.005	<	0.024	

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
27-Aug-18	04-Sep-18	340	0.017	+/-	0.004	<	0.008	
27-Aug-18	04-Sep-18	340	0.013	+/-	0.003			Duplicate
04-Sep-18	10-Sep-18	258	0.006	+/-	0.004	<	0.010	
10-Sep-18	17-Sep-18	299	0.021	+/-	0.004	<	0.012	
10-Sep-18	17-Sep-18	299	0.020	+/-	0.004			Duplicate
17-Sep-18	24-Sep-18	302	0.018	+/-	0.004	<	0.010	
17-Sep-18	24-Sep-18	302	0.019	+/-	0.004			Duplicate
24-Sep-18	01-Oct-18	304	0.024	+/-	0.004	<	0.008	
24-Sep-18	01-Oct-18	304	0.020	+/-	0.004			Duplicate
01-Oct-18	08-Oct-18	300	0.013	+/-	0.004	<	0.013	
08-Oct-18	15-Oct-18	306	0.008	+/-	0.004	<	0.016	
15-Oct-18	22-Oct-18	296	0.023	+/-	0.004	<	0.020	
22-Oct-18	29-Oct-18	298	0.028	+/-	0.005	<	0.016	
29-Oct-18	05-Nov-18	301	0.023	+/-	0.004	<	0.016	
05-Nov-18	12-Nov-18	307	0.023	+/-	0.004	<	0.011	
12-Nov-18	19-Nov-18	296	0.031	+/-	0.005	<	0.012	
12-Nov-18	19-Nov-18	296	0.032	+/-	0.005			Duplicate
19-Nov-18	27-Nov-18	338	0.037	+/-	0.005	<	0.012	
27-Nov-18	03-Dec-18	255	0.027	+/-	0.005	<	0.010	
03-Dec-18	10-Dec-18	298	0.033	+/-	0.005	<	0.010	
10-Dec-18	17-Dec-18	300	0.036	+/-	0.005	<	0.015	
17-Dec-18	26-Dec-18	383	0.019	+/-	0.003	<	0.008	
26-Dec-18	31-Dec-18	218	0.029	+/-	0.006	<	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
27-Dec-17	03-Jan-18	296	0.039 +/- 0.005	< 0.012	
27-Dec-17	03-Jan-18	296	0.034 +/- 0.005		Duplicate
03-Jan-18	08-Jan-18	223	0.059 +/- 0.007	< 0.014	
08-Jan-18	15-Jan-18	311	0.034 +/- 0.005	< 0.009	
15-Jan-18	23-Jan-18	327	0.033 +/- 0.005	< 0.008	
23-Jan-18	30-Jan-18	299	0.026 +/- 0.005	< 0.013	
30-Jan-18	05-Feb-18	257	0.029 +/- 0.005	< 0.010	
05-Feb-18	12-Feb-18	306	0.034 +/- 0.005	< 0.011	
12-Feb-18	19-Feb-18	289	0.036 +/- 0.005	< 0.007	
12-Feb-18	19-Feb-18	289	0.033 +/- 0.005		Duplicate
19-Feb-18	27-Feb-18	355	0.020 +/- 0.004	< 0.006	
27-Feb-18	05-Mar-18	259	0.026 +/- 0.005	< 0.010	
05-Mar-18	13-Mar-18	354	0.033 +/- 0.004	< 0.016	
13-Mar-18	20-Mar-18	285	0.024 +/- 0.005	< 0.009	
20-Mar-18	26-Mar-18	258	0.025 +/- 0.005	< 0.027	
26-Mar-18	02-Apr-18	306	0.023 +/- 0.004	< 0.011	
02-Apr-18	10-Apr-18	343	0.020 +/- 0.004	< 0.007	
10-Apr-18	18-Apr-18	330	0.022 +/- 0.004	< 0.013	
18-Apr-18	26-Apr-18	352	0.021 +/- 0.004	< 0.010	
26-Apr-18	01-May-18	219	0.015 +/- 0.006	< 0.011	
01-May-18	08-May-18	302	0.027 +/- 0.005	< 0.016	
08-May-18	14-May-18	253	0.033 +/- 0.005	< 0.013	
08-May-18	14-May-18	253	0.038 +/- 0.006		Duplicate
14-May-18	22-May-18	340	0.022 +/- 0.004	< 0.008	
22-May-18	29-May-18	300	0.025 +/- 0.005	< 0.012	
29-May-18	04-Jun-18	256	0.027 +/- 0.005	< 0.016	
04-Jun-18	11-Jun-18	299	0.031 +/- 0.005	< 0.013	
11-Jun-18	18-Jun-18	307	0.025 +/- 0.004	< 0.007	
18-Jun-18	25-Jun-18	302	0.017 +/- 0.004	< 0.007	
25-Jun-18	03-Jul-18	347	0.021 +/- 0.004	< 0.010	
03-Jul-18	10-Jul-18	304	0.030 +/- 0.005	< 0.008	
10-Jul-18	17-Jul-18	299	0.027 +/- 0.005	< 0.013	
17-Jul-18	25-Jul-18	345	0.035 +/- 0.004	< 0.013	
25-Jul-18	30-Jul-18	215	0.028 +/- 0.006	< 0.014	
30-Jul-18	06-Aug-18	299	0.037 +/- 0.005	< 0.007	
06-Aug-18	13-Aug-18	303	0.030 +/- 0.005	< 0.013	
13-Aug-18	21-Aug-18	355	0.024 +/- 0.004	< 0.009	
13-Aug-18	21-Aug-18	355	0.026 +/- 0.004		Duplicate
21-Aug-18	27-Aug-18	258	0.036 +/- 0.005	< 0.024	
27-Aug-18	04-Sep-18	347	0.015 +/- 0.004	< 0.007	
04-Sep-18	10-Sep-18	263	0.008 +/- 0.004	< 0.009	

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
10-Sep-18	17-Sep-18	300	0.020	+/-	0.004	<	0.012	
17-Sep-18	24-Sep-18	307	0.020	+/-	0.004	<	0.010	
24-Sep-18	01-Oct-18	305	0.019	+/-	0.004	<	0.008	
01-Oct-18	08-Oct-18	299	0.012	+/-	0.004	<	0.013	
01-Oct-18	08-Oct-18	299	0.016	+/-	0.004			Duplicate
08-Oct-18	15-Oct-18	311	0.009	+/-	0.004	<	0.016	
15-Oct-18	22-Oct-18	291	0.022	+/-	0.004	<	0.021	
22-Oct-18	29-Oct-18	301	0.026	+/-	0.004	<	0.016	
29-Oct-18	05-Nov-18	303	0.028	+/-	0.004	<	0.016	
05-Nov-18	12-Nov-18	316	0.023	+/-	0.004	<	0.011	
12-Nov-18	19-Nov-18	306	0.032	+/-	0.005	<	0.012	
19-Nov-18	27-Nov-18	349	0.037	+/-	0.004	<	0.012	
27-Nov-18	03-Dec-18	259	0.026	+/-	0.005	<	0.010	
03-Dec-18	10-Dec-18	312	0.032	+/-	0.005	<	0.009	
10-Dec-18	17-Dec-18	298	0.041	+/-	0.005	<	0.016	
17-Dec-18	26-Dec-18	384	0.022	+/-	0.004	<	0.008	
26-Dec-18	31-Dec-18	219	0.026	+/-	0.006	<	0.014	

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
27-Dec-17	03-Jan-18	294	0.037 +/- 0.005	< 0.012	
03-Jan-18	08-Jan-18	222	0.053 +/- 0.007	< 0.014	
03-Jan-18	08-Jan-18	222	0.055 +/- 0.007		Duplicate
08-Jan-18	15-Jan-18	309	0.037 +/- 0.005	< 0.009	
15-Jan-18	23-Jan-18	332	0.031 +/- 0.005	< 0.008	
23-Jan-18	30-Jan-18	299	0.024 +/- 0.004	< 0.013	
30-Jan-18	05-Feb-18	258	0.030 +/- 0.005	< 0.010	
05-Feb-18	12-Feb-18	299	0.035 +/- 0.005	< 0.011	
12-Feb-18	19-Feb-18	287	0.029 +/- 0.005	< 0.007	
19-Feb-18	27-Feb-18	356	0.020 +/- 0.004	< 0.005	
27-Feb-18	05-Mar-18	256	0.027 +/- 0.005	< 0.010	
05-Mar-18	13-Mar-18	352	0.036 +/- 0.004	< 0.016	
13-Mar-18	20-Mar-18	289	0.023 +/- 0.005	< 0.009	
20-Mar-18	26-Mar-18	256	0.027 +/- 0.005	< 0.027	
26-Mar-18	02-Apr-18	311	0.025 +/- 0.004	< 0.010	
02-Apr-18	10-Apr-18	352	0.020 +/- 0.004	< 0.007	
10-Apr-18	18-Apr-18	340	0.022 +/- 0.004	< 0.013	
18-Apr-18	26-Apr-18	338	0.021 +/- 0.004	< 0.010	
18-Apr-18	26-Apr-18	338	0.023 +/- 0.004		Duplicate
26-Apr-18	01-May-18	215	0.023 +/- 0.006	< 0.011	
01-May-18	08-May-18	307	0.025 +/- 0.004	< 0.016	
08-May-18	14-May-18	260	0.036 +/- 0.005	< 0.013	
14-May-18	22-May-18	341	0.027 +/- 0.004	< 0.008	
22-May-18	29-May-18	294	0.027 +/- 0.005	< 0.012	
29-May-18	04-Jun-18	253	0.025 +/- 0.005	< 0.016	
04-Jun-18	11-Jun-18	283	0.029 +/- 0.005	< 0.014	
11-Jun-18	18-Jun-18	308	0.020 +/- 0.004	< 0.007	
18-Jun-18	25-Jun-18	310	0.014 +/- 0.004	< 0.007	
25-Jun-18	03-Jul-18	338	0.020 +/- 0.004	< 0.010	
03-Jul-18	10-Jul-18	308	0.029 +/- 0.005	< 0.008	
10-Jul-18	17-Jul-18	303	0.029 +/- 0.005	< 0.013	
17-Jul-18	25-Jul-18	344	0.036 +/- 0.004	< 0.013	
25-Jul-18	30-Jul-18	213	0.026 +/- 0.006	< 0.014	
30-Jul-18	06-Aug-18	299	0.039 +/- 0.005	< 0.007	
30-Jul-18	06-Aug-18	299	0.037 +/- 0.005		Duplicate
06-Aug-18	13-Aug-18	298	0.029 +/- 0.005	< 0.013	
13-Aug-18	21-Aug-18	349	0.022 +/- 0.004	< 0.009	
21-Aug-18	27-Aug-18	261	0.036 +/- 0.005	< 0.024	
21-Aug-18	27-Aug-18	261	0.039 +/- 0.005		Duplicate
27-Aug-18	04-Sep-18	347	0.014 +/- 0.003	< 0.007	
04-Sep-18	10-Sep-18	260	0.009 +/- 0.004	< 0.009	

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
10-Sep-18	17-Sep-18	300	0.022 +/- 0.004	< 0.012	
17-Sep-18	24-Sep-18	312	0.017 +/- 0.004	< 0.010	
24-Sep-18	01-Oct-18	303	0.027 +/- 0.004	< 0.008	
01-Oct-18	08-Oct-18	296	0.012 +/- 0.004	< 0.013	
08-Oct-18	15-Oct-18	308	0.010 +/- 0.004	< 0.016	
15-Oct-18	22-Oct-18	290	0.023 +/- 0.004	< 0.021	
22-Oct-18	29-Oct-18	291	0.028 +/- 0.005	< 0.017	
29-Oct-18	05-Nov-18	305	0.026 +/- 0.004	< 0.016	
05-Nov-18	12-Nov-18	311	0.027 +/- 0.004	< 0.011	
12-Nov-18	19-Nov-18	311	0.031 +/- 0.005	< 0.011	
19-Nov-18	27-Nov-18	341	0.036 +/- 0.005	< 0.012	
27-Nov-18	03-Dec-18	260	0.025 +/- 0.005	< 0.010	
03-Dec-18	10-Dec-18	309	0.030 +/- 0.005	< 0.010	
10-Dec-18	17-Dec-18	295	0.039 +/- 0.005	< 0.016	
17-Dec-18	26-Dec-18	386	0.020 +/- 0.003	< 0.008	
26-Dec-18	31-Dec-18	223	0.028 +/- 0.006	< 0.014	

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
27-Dec-17	03-Jan-18	303	0.037	+/-	0.005	<	0.011	
03-Jan-18	08-Jan-18	210	0.053	+/-	0.007	<	0.014	
08-Jan-18	15-Jan-18	312	0.032	+/-	0.005	<	0.009	
08-Jan-18	15-Jan-18	312	0.033	+/-	0.005			Duplicate
15-Jan-18	23-Jan-18	330	0.031	+/-	0.005	<	0.008	
15-Jan-18	23-Jan-18	330	0.032	+/-	0.005			Duplicate
23-Jan-18	30-Jan-18	275	0.024	+/-	0.005	<	0.015	
23-Jan-18	30-Jan-18	275	0.023	+/-	0.005			Duplicate
30-Jan-18	05-Feb-18	255	0.029	+/-	0.005	<	0.010	
05-Feb-18	12-Feb-18	296	0.034	+/-	0.005	<	0.011	
12-Feb-18	19-Feb-18	354	0.034	+/-	0.004	<	0.006	
19-Feb-18	27-Feb-18	353	0.019	+/-	0.004	<	0.006	
27-Feb-18	05-Mar-18	257	0.025	+/-	0.005	<	0.010	
05-Mar-18	13-Mar-18	348	0.030	+/-	0.004	<	0.017	
05-Mar-18	13-Mar-18	348	0.031	+/-	0.004			Duplicate
13-Mar-18	20-Mar-18	289	0.020	+/-	0.005	<	0.009	
20-Mar-18	26-Mar-18	255	0.024	+/-	0.005	<	0.027	
26-Mar-18	02-Apr-18	307	0.021	+/-	0.004	<	0.011	
26-Mar-18	02-Apr-18	307	0.023	+/-	0.004			Duplicate
02-Apr-18	10-Apr-18	351	0.018	+/-	0.004	<	0.007	
10-Apr-18	18-Apr-18	337	0.026	+/-	0.004	<	0.013	
18-Apr-18	26-Apr-18	341	0.023	+/-	0.004	<	0.010	
26-Apr-18	01-May-18	218	0.022	+/-	0.006	<	0.011	
26-Apr-18	01-May-18	218	0.020	+/-	0.006			Duplicate
01-May-18	08-May-18	304	0.029	+/-	0.005	<	0.016	
08-May-18	14-May-18	252	0.033	+/-	0.005	<	0.013	
14-May-18	22-May-18	339	0.021	+/-	0.004	<	0.008	
14-May-18	22-May-18	339	0.024	+/-	0.004			Duplicate
22-May-18	29-May-18	293	0.026	+/-	0.005	<	0.012	
29-May-18	04-Jun-18	257	0.019	+/-	0.005	<	0.016	
04-Jun-18	11-Jun-18	296	0.025	+/-	0.005	<	0.013	
11-Jun-18	18-Jun-18	301	0.022	+/-	0.004	<	0.007	
18-Jun-18	25-Jun-18	296	0.016	+/-	0.004	<	0.007	
25-Jun-18	03-Jul-18	341	0.020	+/-	0.004	<	0.010	
03-Jul-18	10-Jul-18	302	0.030	+/-	0.005	<	0.009	
10-Jul-18	17-Jul-18	296	0.031	+/-	0.005	<	0.013	
17-Jul-18	25-Jul-18	342	0.030	+/-	0.004	<	0.013	
17-Jul-18	25-Jul-18	342	0.032	+/-	0.004			Duplicate
25-Jul-18	30-Jul-18	215	0.024	+/-	0.006	<	0.014	
30-Jul-18	06-Aug-18	293	0.037	+/-	0.005	<	0.007	
06-Aug-18	13-Aug-18	297	0.028	+/-	0.005	<	0.013	

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
13-Aug-18	21-Aug-18	352	0.026	+/-	0.004	<	0.009	
21-Aug-18	27-Aug-18	256	0.036	+/-	0.005	<	0.024	
27-Aug-18	04-Sep-18	339	0.012	+/-	0.003	<	0.008	
04-Sep-18	10-Sep-18	258	0.007	+/-	0.004	<	0.010	
10-Sep-18	17-Sep-18	298	0.017	+/-	0.004	<	0.012	
17-Sep-18	24-Sep-18	301	0.014	+/-	0.004	<	0.010	
24-Sep-18	01-Oct-18	307	0.021	+/-	0.004	<	0.008	
01-Oct-18	08-Oct-18	297	0.011	+/-	0.004	<	0.013	
08-Oct-18	15-Oct-18	308	0.007	+/-	0.004	<	0.016	
15-Oct-18	22-Oct-18	290	0.017	+/-	0.004	<	0.021	
22-Oct-18	29-Oct-18	298	0.026	+/-	0.005	<	0.016	
29-Oct-18	05-Nov-18	303	0.022	+/-	0.004	<	0.016	
05-Nov-18	12-Nov-18	309	0.024	+/-	0.004	<	0.011	
12-Nov-18	19-Nov-18	300	0.028	+/-	0.005	<	0.012	
19-Nov-18	27-Nov-18	342	0.036	+/-	0.004	<	0.012	
27-Nov-18	03-Dec-18	260	0.023	+/-	0.005	<	0.010	
03-Dec-18	10-Dec-18	300	0.030	+/-	0.005	<	0.010	
10-Dec-18	17-Dec-18	306	0.038	+/-	0.005	<	0.015	
10-Dec-18	17-Dec-18	306	0.040	+/-	0.005			Duplicate
17-Dec-18	26-Dec-18	402	0.017	+/-	0.003	<	0.007	
26-Dec-18	31-Dec-18	215	0.021	+/-	0.006	<	0.014	

Quarterly Air Particulates - Gamma

Location: 002

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.072	+/-	0.012
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-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.106	+/-	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

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.071	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.069	+/-	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: 018

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.075	+/-	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

03-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.107	+/-	0.019
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

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.061	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.060	+/-	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

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 032

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.070	+/-	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-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.117	+/-	0.019
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.002
CO-60		<	0.001
ZN-65		<	0.003
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.083	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.071	+/-	0.016
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: 037

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.087	+/-	0.015
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-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.110	+/-	0.017
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

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.085	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.066	+/-	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: 049

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.081	+/-	0.013
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-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.093	+/-	0.017
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

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.090	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.065	+/-	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

***Duplicate Analysis**

Quarterly Air Particulates - Gamma

Location: 053

02-Apr-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.072	+/-	0.013
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-Jul-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.091	+/-	0.017
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.003
CO-60		<	0.001
ZN-65		<	0.001
ZR-NB-95		<	0.001
CS-134		<	0.001
CS-137		<	0.001

01-Oct-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.078	+/-	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

31-Dec-18

Nuclide	Concentration (pCi/m3)		
BE-7	0.066	+/-	0.018
MN-54		<	0.001
CO-58		<	0.001
FE-59		<	0.003
CO-60		<	0.001
ZN-65		<	0.004
ZR-NB-95		<	0.003
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
08-Jan-18	SURFACE WATER	MN-54	<	3.9	
08-Jan-18	SURFACE WATER	CO-58	<	4.0	
08-Jan-18	SURFACE WATER	FE-59	<	7.0	
08-Jan-18	SURFACE WATER	CO-60	<	2.5	
08-Jan-18	SURFACE WATER	ZN-65	<	2.8	
08-Jan-18	SURFACE WATER	ZR-NB-95	<	4.0	
08-Jan-18	SURFACE WATER	I-131	<	8.5	
08-Jan-18	SURFACE WATER	CS-134	<	4.1	
08-Jan-18	SURFACE WATER	CS-137	<	4.2	
08-Jan-18	SURFACE WATER	BA-LA-140	<	3.3	
08-Jan-18	SURFACE WATER	H-3	<	154.0	
05-Feb-18	SURFACE WATER	MN-54	<	5.0	
05-Feb-18	SURFACE WATER	CO-58	<	2.1	
05-Feb-18	SURFACE WATER	FE-59	<	7.4	
05-Feb-18	SURFACE WATER	CO-60	<	2.8	
05-Feb-18	SURFACE WATER	ZN-65	<	4.4	
05-Feb-18	SURFACE WATER	ZR-NB-95	<	4.3	
05-Feb-18	SURFACE WATER	I-131	<	5.8	
05-Feb-18	SURFACE WATER	CS-134	<	5.9	
05-Feb-18	SURFACE WATER	CS-137	<	5.1	
05-Feb-18	SURFACE WATER	BA-LA-140	<	3.1	
05-Feb-18	SURFACE WATER	H-3	<	156.0	
05-Feb-18	SURFACE WATER	FE-55	<	166.0	
26-Mar-18	SURFACE WATER	MN-54	<	2.3	
26-Mar-18	SURFACE WATER	CO-58	<	1.8	
26-Mar-18	SURFACE WATER	FE-59	<	3.4	
26-Mar-18	SURFACE WATER	CO-60	<	2.2	
26-Mar-18	SURFACE WATER	ZN-65	<	3.4	
26-Mar-18	SURFACE WATER	ZR-NB-95	<	3.2	
26-Mar-18	SURFACE WATER	I-131	<	4.9	
26-Mar-18	SURFACE WATER	CS-134	<	4.1	
26-Mar-18	SURFACE WATER	CS-137	<	2.4	
26-Mar-18	SURFACE WATER	BA-LA-140	<	2.8	
26-Mar-18	SURFACE WATER	H-3	<	163.0	
10-Apr-18	SURFACE WATER	MN-54	<	2.0	
10-Apr-18	SURFACE WATER	CO-58	<	2.3	
10-Apr-18	SURFACE WATER	FE-59	<	4.4	
10-Apr-18	SURFACE WATER	CO-60	<	1.9	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
10-Apr-18	SURFACE WATER	ZN-65	<	4.0	
10-Apr-18	SURFACE WATER	ZR-NB-95	<	3.3	
10-Apr-18	SURFACE WATER	I-131	<	4.2	
10-Apr-18	SURFACE WATER	CS-134	<	3.0	
10-Apr-18	SURFACE WATER	CS-137	<	2.5	
10-Apr-18	SURFACE WATER	BA-LA-140	<	2.0	
10-Apr-18	SURFACE WATER	H-3	<	154.0	
01-May-18	SURFACE WATER	MN-54	<	2.5	
01-May-18	SURFACE WATER	CO-58	<	2.7	
01-May-18	SURFACE WATER	FE-59	<	6.7	
01-May-18	SURFACE WATER	CO-60	<	3.0	
01-May-18	SURFACE WATER	ZN-65	<	2.4	
01-May-18	SURFACE WATER	ZR-NB-95	<	3.4	
01-May-18	SURFACE WATER	I-131	<	5.4	
01-May-18	SURFACE WATER	CS-134	<	3.7	
01-May-18	SURFACE WATER	CS-137	<	4.2	
01-May-18	SURFACE WATER	BA-LA-140	<	2.4	
01-May-18	SURFACE WATER	H-3	<	155.0	
01-May-18	SURFACE WATER	FE-55	<	107.0	
13-Jun-18	SURFACE WATER	MN-54	<	3.8	
13-Jun-18	SURFACE WATER	CO-58	<	1.8	
13-Jun-18	SURFACE WATER	FE-59	<	7.0	
13-Jun-18	SURFACE WATER	CO-60	<	3.6	
13-Jun-18	SURFACE WATER	ZN-65	<	2.8	
13-Jun-18	SURFACE WATER	ZR-NB-95	<	4.9	
13-Jun-18	SURFACE WATER	I-131	<	6.5	
13-Jun-18	SURFACE WATER	CS-134	<	4.8	
13-Jun-18	SURFACE WATER	CS-137	<	4.4	
13-Jun-18	SURFACE WATER	BA-LA-140	<	3.8	
13-Jun-18	SURFACE WATER	H-3	<	158.0	
16-Jul-18	SURFACE WATER	MN-54	<	2.5	
16-Jul-18	SURFACE WATER	CO-58	<	2.2	
16-Jul-18	SURFACE WATER	FE-59	<	5.5	
16-Jul-18	SURFACE WATER	CO-60	<	3.3	
16-Jul-18	SURFACE WATER	ZN-65	<	6.4	
16-Jul-18	SURFACE WATER	ZR-NB-95	<	2.1	
16-Jul-18	SURFACE WATER	I-131	<	3.2	
16-Jul-18	SURFACE WATER	CS-134	<	3.2	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
16-Jul-18	SURFACE WATER	CS-137	<	2.6	
16-Jul-18	SURFACE WATER	BA-LA-140	<	2.5	
16-Jul-18	SURFACE WATER	H-3	<	158.0	
13-Aug-18	SURFACE WATER	MN-54	<	2.1	
13-Aug-18	SURFACE WATER	CO-58	<	2.3	
13-Aug-18	SURFACE WATER	FE-59	<	6.0	
13-Aug-18	SURFACE WATER	CO-60	<	2.4	
13-Aug-18	SURFACE WATER	ZN-65	<	2.9	
13-Aug-18	SURFACE WATER	ZR-NB-95	<	2.4	
13-Aug-18	SURFACE WATER	I-131	<	5.0	
13-Aug-18	SURFACE WATER	CS-134	<	2.8	
13-Aug-18	SURFACE WATER	CS-137	<	3.5	
13-Aug-18	SURFACE WATER	BA-LA-140	<	3.3	
13-Aug-18	SURFACE WATER	H-3	<	151.0	
13-Aug-18	SURFACE WATER	FE-55	<	170.0	
11-Sep-18	SURFACE WATER	MN-54	<	4.2	Duplicate
11-Sep-18	SURFACE WATER	MN-54	<	5.8	
11-Sep-18	SURFACE WATER	CO-58	<	2.7	Duplicate
11-Sep-18	SURFACE WATER	CO-58	<	4.9	
11-Sep-18	SURFACE WATER	FE-59	<	6.1	Duplicate
11-Sep-18	SURFACE WATER	FE-59	<	6.4	
11-Sep-18	SURFACE WATER	CO-60	<	4.3	Duplicate
11-Sep-18	SURFACE WATER	CO-60	<	2.5	
11-Sep-18	SURFACE WATER	ZN-65	<	11.9	
11-Sep-18	SURFACE WATER	ZN-65	<	4.3	Duplicate
11-Sep-18	SURFACE WATER	ZR-NB-95	<	4.7	Duplicate
11-Sep-18	SURFACE WATER	ZR-NB-95	<	6.4	
11-Sep-18	SURFACE WATER	I-131	<	7.1	
11-Sep-18	SURFACE WATER	I-131	<	7.9	Duplicate
11-Sep-18	SURFACE WATER	CS-134	<	5.1	
11-Sep-18	SURFACE WATER	CS-134	<	6.4	Duplicate
11-Sep-18	SURFACE WATER	CS-137	<	2.7	
11-Sep-18	SURFACE WATER	CS-137	<	3.2	Duplicate
11-Sep-18	SURFACE WATER	BA-LA-140	<	4.9	Duplicate
11-Sep-18	SURFACE WATER	BA-LA-140	<	3.8	
11-Sep-18	SURFACE WATER	H-3	<	152.0	Duplicate
11-Sep-18	SURFACE WATER	H-3	<	152.0	
10-Oct-18	SURFACE WATER	MN-54	<	2.7	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
10-Oct-18	SURFACE WATER	CO-58	<	2.6	
10-Oct-18	SURFACE WATER	FE-59	<	2.2	
10-Oct-18	SURFACE WATER	CO-60	<	1.9	
10-Oct-18	SURFACE WATER	ZN-65	<	5.5	
10-Oct-18	SURFACE WATER	ZR-NB-95	<	2.4	
10-Oct-18	SURFACE WATER	I-131	<	8.4	
10-Oct-18	SURFACE WATER	CS-134	<	4.3	
10-Oct-18	SURFACE WATER	CS-137	<	3.1	
10-Oct-18	SURFACE WATER	BA-LA-140	<	1.8	
10-Oct-18	SURFACE WATER	H-3	<	154.0	
10-Oct-18	SURFACE WATER	FE-55	<	158.0	
13-Nov-18	SURFACE WATER	MN-54	<	1.3	
13-Nov-18	SURFACE WATER	MN-54	<	2.8	Duplicate
13-Nov-18	SURFACE WATER	CO-58	<	2.5	
13-Nov-18	SURFACE WATER	CO-58	<	1.2	Duplicate
13-Nov-18	SURFACE WATER	FE-59	<	5.7	Duplicate
13-Nov-18	SURFACE WATER	FE-59	<	5.0	
13-Nov-18	SURFACE WATER	CO-60	<	1.0	
13-Nov-18	SURFACE WATER	CO-60	<	1.8	Duplicate
13-Nov-18	SURFACE WATER	ZN-65	<	3.1	
13-Nov-18	SURFACE WATER	ZN-65	<	2.9	Duplicate
13-Nov-18	SURFACE WATER	ZR-NB-95	<	3.0	Duplicate
13-Nov-18	SURFACE WATER	ZR-NB-95	<	3.3	
13-Nov-18	SURFACE WATER	I-131	<	5.4	Duplicate
13-Nov-18	SURFACE WATER	I-131	<	4.7	
13-Nov-18	SURFACE WATER	CS-134	<	2.9	
13-Nov-18	SURFACE WATER	CS-134	<	3.1	Duplicate
13-Nov-18	SURFACE WATER	CS-137	<	3.1	
13-Nov-18	SURFACE WATER	CS-137	<	3.6	Duplicate
13-Nov-18	SURFACE WATER	BA-LA-140	<	3.7	Duplicate
13-Nov-18	SURFACE WATER	BA-LA-140	<	3.2	
13-Nov-18	SURFACE WATER	H-3	<	151.0	
13-Nov-18	SURFACE WATER	H-3	<	151.0	Duplicate
10-Dec-18	SURFACE WATER	MN-54	<	3.1	
10-Dec-18	SURFACE WATER	CO-58	<	3.3	
10-Dec-18	SURFACE WATER	FE-59	<	5.8	
10-Dec-18	SURFACE WATER	CO-60	<	2.2	
10-Dec-18	SURFACE WATER	ZN-65	<	6.9	

Exposure Pathway - Waterborne
Surface Water
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
10-Dec-18	SURFACE WATER	ZR-NB-95	<	4.2	
10-Dec-18	SURFACE WATER	I-131	<	4.4	
10-Dec-18	SURFACE WATER	CS-134	<	4.7	
10-Dec-18	SURFACE WATER	CS-137	<	3.9	
10-Dec-18	SURFACE WATER	BA-LA-140	<	2.9	
10-Dec-18	SURFACE WATER	H-3	<	153.0	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
08-Jan-18	SURFACE WATER	MN-54	<	4.6	
08-Jan-18	SURFACE WATER	CO-58	<	5.0	
08-Jan-18	SURFACE WATER	FE-59	<	8.3	
08-Jan-18	SURFACE WATER	CO-60	<	3.6	
08-Jan-18	SURFACE WATER	ZN-65	<	12.6	
08-Jan-18	SURFACE WATER	ZR-NB-95	<	6.9	
08-Jan-18	SURFACE WATER	I-131	<	9.0	
08-Jan-18	SURFACE WATER	CS-134	<	5.5	
08-Jan-18	SURFACE WATER	CS-137	<	4.6	
08-Jan-18	SURFACE WATER	BA-LA-140	<	6.7	
08-Jan-18	SURFACE WATER	H-3	11,785 +/-	325.0	
05-Feb-18	SURFACE WATER	MN-54	<	3.1	
05-Feb-18	SURFACE WATER	CO-58	<	1.2	
05-Feb-18	SURFACE WATER	FE-59	<	2.8	
05-Feb-18	SURFACE WATER	CO-60	<	2.1	
05-Feb-18	SURFACE WATER	ZN-65	<	3.4	
05-Feb-18	SURFACE WATER	ZR-NB-95	<	3.6	
05-Feb-18	SURFACE WATER	I-131	<	5.8	
05-Feb-18	SURFACE WATER	CS-134	<	3.5	
05-Feb-18	SURFACE WATER	CS-137	<	2.2	
05-Feb-18	SURFACE WATER	BA-LA-140	<	1.2	
05-Feb-18	SURFACE WATER	H-3	14,527 +/-	360.0	
05-Feb-18	SURFACE WATER	FE-55	<	167.0	
26-Mar-18	SURFACE WATER	MN-54	<	3.5	
26-Mar-18	SURFACE WATER	MN-54	<	2.4	Duplicate
26-Mar-18	SURFACE WATER	CO-58	<	2.3	Duplicate
26-Mar-18	SURFACE WATER	CO-58	<	2.7	
26-Mar-18	SURFACE WATER	FE-59	<	3.7	Duplicate
26-Mar-18	SURFACE WATER	FE-59	<	4.6	
26-Mar-18	SURFACE WATER	CO-60	<	1.8	
26-Mar-18	SURFACE WATER	CO-60	<	1.6	Duplicate
26-Mar-18	SURFACE WATER	ZN-65	<	3.5	
26-Mar-18	SURFACE WATER	ZN-65	<	4.3	Duplicate
26-Mar-18	SURFACE WATER	ZR-NB-95	<	2.0	
26-Mar-18	SURFACE WATER	ZR-NB-95	<	3.0	Duplicate
26-Mar-18	SURFACE WATER	I-131	<	4.0	
26-Mar-18	SURFACE WATER	I-131	<	6.5	Duplicate
26-Mar-18	SURFACE WATER	CS-134	<	2.6	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
26-Mar-18	SURFACE WATER	CS-134	<	3.2	Duplicate
26-Mar-18	SURFACE WATER	CS-137	<	3.5	Duplicate
26-Mar-18	SURFACE WATER	CS-137	<	1.7	
26-Mar-18	SURFACE WATER	BA-LA-140	<	2.3	Duplicate
26-Mar-18	SURFACE WATER	BA-LA-140	<	1.4	
26-Mar-18	SURFACE WATER	H-3	14,538 +/-	364.0	
26-Mar-18	SURFACE WATER	H-3	14,647 +/-	365.0	Duplicate
10-Apr-18	SURFACE WATER	MN-54	<	2.8	
10-Apr-18	SURFACE WATER	CO-58	<	3.3	
10-Apr-18	SURFACE WATER	FE-59	<	8.3	
10-Apr-18	SURFACE WATER	CO-60	<	2.9	
10-Apr-18	SURFACE WATER	ZN-65	<	7.8	
10-Apr-18	SURFACE WATER	ZR-NB-95	<	4.3	
10-Apr-18	SURFACE WATER	I-131	<	7.2	
10-Apr-18	SURFACE WATER	CS-134	<	3.9	
10-Apr-18	SURFACE WATER	CS-137	<	2.5	
10-Apr-18	SURFACE WATER	BA-LA-140	<	5.0	
10-Apr-18	SURFACE WATER	H-3	14,775 +/-	367.0	
01-May-18	SURFACE WATER	MN-54	<	2.6	
01-May-18	SURFACE WATER	CO-58	<	2.1	
01-May-18	SURFACE WATER	FE-59	<	4.1	
01-May-18	SURFACE WATER	CO-60	<	1.6	
01-May-18	SURFACE WATER	ZN-65	<	2.9	
01-May-18	SURFACE WATER	ZR-NB-95	<	3.0	
01-May-18	SURFACE WATER	I-131	<	5.0	
01-May-18	SURFACE WATER	CS-134	<	3.3	
01-May-18	SURFACE WATER	CS-137	<	3.0	
01-May-18	SURFACE WATER	BA-LA-140	<	2.2	
01-May-18	SURFACE WATER	H-3	13,485 +/-	349.0	
01-May-18	SURFACE WATER	FE-55	<	109.0	
13-Jun-18	SURFACE WATER	MN-54	<	5.4	
13-Jun-18	SURFACE WATER	CO-58	<	3.6	
13-Jun-18	SURFACE WATER	FE-59	<	8.1	
13-Jun-18	SURFACE WATER	CO-60	<	4.2	
13-Jun-18	SURFACE WATER	ZN-65	<	7.5	
13-Jun-18	SURFACE WATER	ZR-NB-95	<	3.8	
13-Jun-18	SURFACE WATER	I-131	<	12.6	
13-Jun-18	SURFACE WATER	CS-134	<	5.0	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Jun-18	SURFACE WATER	CS-137	<	3.2	
13-Jun-18	SURFACE WATER	BA-LA-140	<	8.9	
13-Jun-18	SURFACE WATER	H-3	13,892 +/-	356.0	
16-Jul-18	SURFACE WATER	MN-54	<	2.5	
16-Jul-18	SURFACE WATER	CO-58	<	2.1	
16-Jul-18	SURFACE WATER	FE-59	<	3.1	
16-Jul-18	SURFACE WATER	CO-60	<	1.9	
16-Jul-18	SURFACE WATER	ZN-65	<	3.2	
16-Jul-18	SURFACE WATER	ZR-NB-95	<	2.5	
16-Jul-18	SURFACE WATER	I-131	<	5.0	
16-Jul-18	SURFACE WATER	CS-134	<	3.1	
16-Jul-18	SURFACE WATER	CS-137	<	2.4	
16-Jul-18	SURFACE WATER	BA-LA-140	<	2.2	
16-Jul-18	SURFACE WATER	H-3	11,918 +/-	325.0	
13-Aug-18	SURFACE WATER	MN-54	<	3.1	
13-Aug-18	SURFACE WATER	CO-58	<	2.4	
13-Aug-18	SURFACE WATER	FE-59	<	2.9	
13-Aug-18	SURFACE WATER	CO-60	<	1.7	
13-Aug-18	SURFACE WATER	ZN-65	<	4.8	
13-Aug-18	SURFACE WATER	ZR-NB-95	<	3.6	
13-Aug-18	SURFACE WATER	I-131	<	3.3	
13-Aug-18	SURFACE WATER	CS-134	<	3.2	
13-Aug-18	SURFACE WATER	CS-137	<	3.4	
13-Aug-18	SURFACE WATER	BA-LA-140	<	1.6	
13-Aug-18	SURFACE WATER	H-3	11,115 +/-	313.0	
13-Aug-18	SURFACE WATER	FE-55	<	167.0	
11-Sep-18	SURFACE WATER	MN-54	<	5.6	
11-Sep-18	SURFACE WATER	CO-58	<	6.0	
11-Sep-18	SURFACE WATER	FE-59	<	10.0	
11-Sep-18	SURFACE WATER	CO-60	<	4.4	
11-Sep-18	SURFACE WATER	ZN-65	<	10.6	
11-Sep-18	SURFACE WATER	ZR-NB-95	<	7.2	
11-Sep-18	SURFACE WATER	I-131	<	6.6	
11-Sep-18	SURFACE WATER	CS-134	<	7.4	
11-Sep-18	SURFACE WATER	CS-137	<	4.0	
11-Sep-18	SURFACE WATER	BA-LA-140	<	7.7	
11-Sep-18	SURFACE WATER	H-3	9,392 +/-	291.0	
10-Oct-18	SURFACE WATER	MN-54	<	2.6	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
10-Oct-18	SURFACE WATER	CO-58	<	2.7	
10-Oct-18	SURFACE WATER	FE-59	<	6.3	
10-Oct-18	SURFACE WATER	CO-60	<	3.1	
10-Oct-18	SURFACE WATER	ZN-65	<	3.0	
10-Oct-18	SURFACE WATER	ZR-NB-95	<	3.3	
10-Oct-18	SURFACE WATER	I-131	<	7.4	
10-Oct-18	SURFACE WATER	CS-134	<	3.5	
10-Oct-18	SURFACE WATER	CS-137	<	3.1	
10-Oct-18	SURFACE WATER	BA-LA-140	<	1.6	
10-Oct-18	SURFACE WATER	H-3	9,518 +/-	292.0	
10-Oct-18	SURFACE WATER	FE-55	<	154.0	
13-Nov-18	SURFACE WATER	MN-54	<	2.3	
13-Nov-18	SURFACE WATER	CO-58	<	3.3	
13-Nov-18	SURFACE WATER	FE-59	<	5.0	
13-Nov-18	SURFACE WATER	CO-60	<	2.5	
13-Nov-18	SURFACE WATER	ZN-65	<	6.0	
13-Nov-18	SURFACE WATER	ZR-NB-95	<	3.1	
13-Nov-18	SURFACE WATER	I-131	<	6.0	
13-Nov-18	SURFACE WATER	CS-134	<	3.7	
13-Nov-18	SURFACE WATER	CS-137	<	3.0	
13-Nov-18	SURFACE WATER	BA-LA-140	<	4.5	
13-Nov-18	SURFACE WATER	H-3	9,101 +/-	286.0	
10-Dec-18	SURFACE WATER	MN-54	<	2.7	Duplicate
10-Dec-18	SURFACE WATER	MN-54	<	3.2	
10-Dec-18	SURFACE WATER	CO-58	<	2.3	Duplicate
10-Dec-18	SURFACE WATER	CO-58	<	1.6	
10-Dec-18	SURFACE WATER	FE-59	<	5.7	Duplicate
10-Dec-18	SURFACE WATER	FE-59	<	3.2	
10-Dec-18	SURFACE WATER	CO-60	<	1.7	Duplicate
10-Dec-18	SURFACE WATER	CO-60	<	2.6	
10-Dec-18	SURFACE WATER	ZN-65	<	2.3	Duplicate
10-Dec-18	SURFACE WATER	ZN-65	<	3.8	
10-Dec-18	SURFACE WATER	ZR-NB-95	<	2.6	Duplicate
10-Dec-18	SURFACE WATER	ZR-NB-95	<	2.4	
10-Dec-18	SURFACE WATER	I-131	<	3.3	Duplicate
10-Dec-18	SURFACE WATER	I-131	<	4.4	
10-Dec-18	SURFACE WATER	CS-134	<	3.3	Duplicate
10-Dec-18	SURFACE WATER	CS-134	<	3.2	

Exposure Pathway - Waterborne
Surface Water
Location: SP

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
10-Dec-18	SURFACE WATER	CS-137	<	2.2	Duplicate
10-Dec-18	SURFACE WATER	CS-137	<	2.1	
10-Dec-18	SURFACE WATER	BA-LA-140	<	3.3	Duplicate
10-Dec-18	SURFACE WATER	BA-LA-140	<	2.3	
10-Dec-18	SURFACE WATER	H-3	9,105 +/-	288.0	Duplicate
10-Dec-18	SURFACE WATER	H-3	9,251 +/-	290.0	

Exposure Pathway - Waterborne
Ground Water
Location: B-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	3.4	
05-Feb-18	GROUND WATER	CO-58	<	2.5	
05-Feb-18	GROUND WATER	FE-59	<	6.6	
05-Feb-18	GROUND WATER	CO-60	<	2.7	
05-Feb-18	GROUND WATER	ZN-65	<	4.4	
05-Feb-18	GROUND WATER	ZR-NB-95	<	1.4	
05-Feb-18	GROUND WATER	I-131	<	0.365	
05-Feb-18	GROUND WATER	CS-134	<	3.6	
05-Feb-18	GROUND WATER	CS-137	<	3.2	
05-Feb-18	GROUND WATER	BA-LA-140	<	2.2	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	3.1	
22-May-18	GROUND WATER	CO-58	<	2.9	
22-May-18	GROUND WATER	FE-59	<	5.4	
22-May-18	GROUND WATER	CO-60	<	3.0	
22-May-18	GROUND WATER	ZN-65	<	6.7	
22-May-18	GROUND WATER	ZR-NB-95	<	3.1	
22-May-18	GROUND WATER	I-131	<	0.476	
22-May-18	GROUND WATER	CS-134	<	3.3	
22-May-18	GROUND WATER	CS-137	<	3.9	
22-May-18	GROUND WATER	BA-LA-140	<	2.8	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	3.4	
13-Aug-18	GROUND WATER	CO-58	<	3.3	
13-Aug-18	GROUND WATER	FE-59	<	3.6	
13-Aug-18	GROUND WATER	CO-60	<	2.8	
13-Aug-18	GROUND WATER	ZN-65	<	3.4	
13-Aug-18	GROUND WATER	ZR-NB-95	<	2.5	
13-Aug-18	GROUND WATER	I-131	<	0.443	
13-Aug-18	GROUND WATER	CS-134	<	4.5	
13-Aug-18	GROUND WATER	CS-137	<	2.1	
13-Aug-18	GROUND WATER	BA-LA-140	<	1.9	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	3.4	
13-Nov-18	GROUND WATER	CO-58	<	2.9	
13-Nov-18	GROUND WATER	FE-59	<	4.2	
13-Nov-18	GROUND WATER	CO-60	<	1.5	
13-Nov-18	GROUND WATER	ZN-65	<	4.4	

Exposure Pathway - Waterborne
Ground Water
Location: B-12

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	3.0	
13-Nov-18	GROUND WATER	I-131	<	0.27	
13-Nov-18	GROUND WATER	CS-134	<	3.6	
13-Nov-18	GROUND WATER	CS-137	<	4.5	
13-Nov-18	GROUND WATER	BA-LA-140	<	1.4	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: C-10

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	2.2	
05-Feb-18	GROUND WATER	CO-58	<	2.6	
05-Feb-18	GROUND WATER	FE-59	<	4.0	
05-Feb-18	GROUND WATER	CO-60	<	1.7	
05-Feb-18	GROUND WATER	ZN-65	<	2.4	
05-Feb-18	GROUND WATER	ZR-NB-95	<	2.9	
05-Feb-18	GROUND WATER	I-131	<	0.376	
05-Feb-18	GROUND WATER	CS-134	<	2.8	
05-Feb-18	GROUND WATER	CS-137	<	2.3	
05-Feb-18	GROUND WATER	BA-LA-140	<	2.1	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	2.3	
22-May-18	GROUND WATER	CO-58	<	1.4	
22-May-18	GROUND WATER	FE-59	<	3.3	
22-May-18	GROUND WATER	CO-60	<	1.5	
22-May-18	GROUND WATER	ZN-65	<	2.6	
22-May-18	GROUND WATER	ZR-NB-95	<	3.4	
22-May-18	GROUND WATER	I-131	<	0.457	
22-May-18	GROUND WATER	CS-134	<	2.7	
22-May-18	GROUND WATER	CS-137	<	2.7	
22-May-18	GROUND WATER	BA-LA-140	<	2.2	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	2.1	
13-Aug-18	GROUND WATER	CO-58	<	2.3	
13-Aug-18	GROUND WATER	FE-59	<	2.8	
13-Aug-18	GROUND WATER	CO-60	<	2.3	
13-Aug-18	GROUND WATER	ZN-65	<	5.9	
13-Aug-18	GROUND WATER	ZR-NB-95	<	3.5	
13-Aug-18	GROUND WATER	I-131	<	0.429	
13-Aug-18	GROUND WATER	CS-134	<	4.1	
13-Aug-18	GROUND WATER	CS-137	<	3.5	
13-Aug-18	GROUND WATER	BA-LA-140	<	3.9	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	3.1	
13-Nov-18	GROUND WATER	CO-58	<	2.0	
13-Nov-18	GROUND WATER	FE-59	<	3.6	
13-Nov-18	GROUND WATER	CO-60	<	2.9	
13-Nov-18	GROUND WATER	ZN-65	<	2.4	

Exposure Pathway - Waterborne
Ground Water
Location: C-10

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	3.2	
13-Nov-18	GROUND WATER	I-131	<	0.369	
13-Nov-18	GROUND WATER	CS-134	<	3.7	
13-Nov-18	GROUND WATER	CS-137	<	2.7	
13-Nov-18	GROUND WATER	BA-LA-140	<	3.1	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: C-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	2.8	
05-Feb-18	GROUND WATER	CO-58	<	3.0	
05-Feb-18	GROUND WATER	FE-59	<	4.1	
05-Feb-18	GROUND WATER	CO-60	<	2.2	
05-Feb-18	GROUND WATER	ZN-65	<	6.3	
05-Feb-18	GROUND WATER	ZR-NB-95	<	3.0	
05-Feb-18	GROUND WATER	I-131	<	0.401	
05-Feb-18	GROUND WATER	CS-134	<	3.2	
05-Feb-18	GROUND WATER	CS-137	<	1.9	
05-Feb-18	GROUND WATER	BA-LA-140	<	2.9	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	3.3	
22-May-18	GROUND WATER	CO-58	<	2.9	
22-May-18	GROUND WATER	FE-59	<	6.4	
22-May-18	GROUND WATER	CO-60	<	3.2	
22-May-18	GROUND WATER	ZN-65	<	3.1	
22-May-18	GROUND WATER	ZR-NB-95	<	3.4	
22-May-18	GROUND WATER	I-131	<	0.469	
22-May-18	GROUND WATER	CS-134	<	4.8	
22-May-18	GROUND WATER	CS-137	<	3.7	
22-May-18	GROUND WATER	BA-LA-140	<	4.4	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	3.7	
13-Aug-18	GROUND WATER	CO-58	<	1.9	
13-Aug-18	GROUND WATER	FE-59	<	4.5	
13-Aug-18	GROUND WATER	CO-60	<	1.8	
13-Aug-18	GROUND WATER	ZN-65	<	6.9	
13-Aug-18	GROUND WATER	ZR-NB-95	<	3.7	
13-Aug-18	GROUND WATER	I-131	<	0.409	
13-Aug-18	GROUND WATER	CS-134	<	2.9	
13-Aug-18	GROUND WATER	CS-137	<	3.7	
13-Aug-18	GROUND WATER	BA-LA-140	<	1.3	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	2.4	
13-Nov-18	GROUND WATER	CO-58	<	2.1	
13-Nov-18	GROUND WATER	FE-59	<	4.5	
13-Nov-18	GROUND WATER	CO-60	<	1.4	
13-Nov-18	GROUND WATER	ZN-65	<	6.0	

Exposure Pathway - Waterborne
Ground Water
Location: C-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	1.8	
13-Nov-18	GROUND WATER	I-131	<	0.25	
13-Nov-18	GROUND WATER	CS-134	<	2.8	
13-Nov-18	GROUND WATER	CS-137	<	2.6	
13-Nov-18	GROUND WATER	BA-LA-140	<	2.3	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: F-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	5.5	
05-Feb-18	GROUND WATER	CO-58	<	2.4	
05-Feb-18	GROUND WATER	FE-59	<	6.7	
05-Feb-18	GROUND WATER	CO-60	<	3.2	
05-Feb-18	GROUND WATER	ZN-65	<	3.1	
05-Feb-18	GROUND WATER	ZR-NB-95	<	4.6	
05-Feb-18	GROUND WATER	I-131	<	0.335	
05-Feb-18	GROUND WATER	CS-134	<	5.4	
05-Feb-18	GROUND WATER	CS-137	<	5.1	
05-Feb-18	GROUND WATER	BA-LA-140	<	3.6	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	1.8	
22-May-18	GROUND WATER	CO-58	<	2.4	
22-May-18	GROUND WATER	FE-59	<	5.4	
22-May-18	GROUND WATER	CO-60	<	2.8	
22-May-18	GROUND WATER	ZN-65	<	2.0	
22-May-18	GROUND WATER	ZR-NB-95	<	3.2	
22-May-18	GROUND WATER	I-131	<	0.432	
22-May-18	GROUND WATER	CS-134	<	3.0	
22-May-18	GROUND WATER	CS-137	<	2.7	
22-May-18	GROUND WATER	BA-LA-140	<	2.8	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	2.2	
13-Aug-18	GROUND WATER	CO-58	<	3.5	
13-Aug-18	GROUND WATER	FE-59	<	5.4	
13-Aug-18	GROUND WATER	CO-60	<	1.7	
13-Aug-18	GROUND WATER	ZN-65	<	6.0	
13-Aug-18	GROUND WATER	ZR-NB-95	<	1.8	
13-Aug-18	GROUND WATER	I-131	<	0.243	
13-Aug-18	GROUND WATER	CS-134	<	3.3	
13-Aug-18	GROUND WATER	CS-137	<	2.0	
13-Aug-18	GROUND WATER	BA-LA-140	<	1.6	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	2.3	
13-Nov-18	GROUND WATER	CO-58	<	1.7	
13-Nov-18	GROUND WATER	FE-59	<	4.4	
13-Nov-18	GROUND WATER	CO-60	<	2.1	
13-Nov-18	GROUND WATER	ZN-65	<	1.3	

Exposure Pathway - Waterborne
Ground Water
Location: F-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	2.5	
13-Nov-18	GROUND WATER	I-131	<	0.251	
13-Nov-18	GROUND WATER	CS-134	<	2.7	
13-Nov-18	GROUND WATER	CS-137	<	2.1	
13-Nov-18	GROUND WATER	BA-LA-140	<	3.0	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: G-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	1.4	
05-Feb-18	GROUND WATER	CO-58	<	1.5	
05-Feb-18	GROUND WATER	FE-59	<	2.6	
05-Feb-18	GROUND WATER	CO-60	<	1.5	
05-Feb-18	GROUND WATER	ZN-65	<	3.0	
05-Feb-18	GROUND WATER	ZR-NB-95	<	1.7	
05-Feb-18	GROUND WATER	I-131	<	0.294	
05-Feb-18	GROUND WATER	CS-134	<	1.6	
05-Feb-18	GROUND WATER	CS-137	<	1.6	
05-Feb-18	GROUND WATER	BA-LA-140	<	1.9	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	2.3	
22-May-18	GROUND WATER	CO-58	<	3.0	
22-May-18	GROUND WATER	FE-59	<	5.6	
22-May-18	GROUND WATER	CO-60	<	3.2	
22-May-18	GROUND WATER	ZN-65	<	3.0	
22-May-18	GROUND WATER	ZR-NB-95	<	2.3	
22-May-18	GROUND WATER	I-131	<	0.468	
22-May-18	GROUND WATER	CS-134	<	3.1	
22-May-18	GROUND WATER	CS-137	<	3.2	
22-May-18	GROUND WATER	BA-LA-140	<	3.7	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	3.2	
13-Aug-18	GROUND WATER	CO-58	<	1.9	
13-Aug-18	GROUND WATER	FE-59	<	3.7	
13-Aug-18	GROUND WATER	CO-60	<	1.6	
13-Aug-18	GROUND WATER	ZN-65	<	5.2	
13-Aug-18	GROUND WATER	ZR-NB-95	<	3.3	
13-Aug-18	GROUND WATER	I-131	<	0.397	
13-Aug-18	GROUND WATER	CS-134	<	3.5	
13-Aug-18	GROUND WATER	CS-137	<	3.4	
13-Aug-18	GROUND WATER	BA-LA-140	<	3.1	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	2.2	
13-Nov-18	GROUND WATER	CO-58	<	2.5	
13-Nov-18	GROUND WATER	FE-59	<	6.0	
13-Nov-18	GROUND WATER	CO-60	<	2.5	
13-Nov-18	GROUND WATER	ZN-65	<	8.3	

Exposure Pathway - Waterborne
Ground Water
Location: G-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	2.8	
13-Nov-18	GROUND WATER	I-131	<	0.368	
13-Nov-18	GROUND WATER	CS-134	<	4.0	
13-Nov-18	GROUND WATER	CS-137	<	2.6	
13-Nov-18	GROUND WATER	BA-LA-140	<	2.8	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: J-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	2.9	
05-Feb-18	GROUND WATER	CO-58	<	3.1	
05-Feb-18	GROUND WATER	FE-59	<	6.2	
05-Feb-18	GROUND WATER	CO-60	<	2.3	
05-Feb-18	GROUND WATER	ZN-65	<	4.8	
05-Feb-18	GROUND WATER	ZR-NB-95	<	3.0	
05-Feb-18	GROUND WATER	I-131	<	0.196	
05-Feb-18	GROUND WATER	CS-134	<	3.4	
05-Feb-18	GROUND WATER	CS-137	<	2.8	
05-Feb-18	GROUND WATER	BA-LA-140	<	4.3	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	3.0	
22-May-18	GROUND WATER	CO-58	<	3.0	
22-May-18	GROUND WATER	FE-59	<	5.3	
22-May-18	GROUND WATER	CO-60	<	3.0	
22-May-18	GROUND WATER	ZN-65	<	7.1	
22-May-18	GROUND WATER	ZR-NB-95	<	2.8	
22-May-18	GROUND WATER	I-131	<	0.319	
22-May-18	GROUND WATER	CS-134	<	4.3	
22-May-18	GROUND WATER	CS-137	<	3.6	
22-May-18	GROUND WATER	BA-LA-140	<	3.1	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	3.7	
13-Aug-18	GROUND WATER	CO-58	<	3.3	
13-Aug-18	GROUND WATER	FE-59	<	6.2	
13-Aug-18	GROUND WATER	CO-60	<	2.1	
13-Aug-18	GROUND WATER	ZN-65	<	5.8	
13-Aug-18	GROUND WATER	ZR-NB-95	<	2.7	
13-Aug-18	GROUND WATER	I-131	<	0.257	
13-Aug-18	GROUND WATER	CS-134	<	3.2	
13-Aug-18	GROUND WATER	CS-137	<	3.3	
13-Aug-18	GROUND WATER	BA-LA-140	<	3.7	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	2.1	
13-Nov-18	GROUND WATER	CO-58	<	3.1	
13-Nov-18	GROUND WATER	FE-59	<	5.0	
13-Nov-18	GROUND WATER	CO-60	<	2.7	
13-Nov-18	GROUND WATER	ZN-65	<	5.1	

Exposure Pathway - Waterborne
Ground Water
Location: J-1

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	3.8	
13-Nov-18	GROUND WATER	I-131	<	0.316	
13-Nov-18	GROUND WATER	CS-134	<	3.1	
13-Nov-18	GROUND WATER	CS-137	<	3.2	
13-Nov-18	GROUND WATER	BA-LA-140	<	2.0	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: J-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	2.9	
05-Feb-18	GROUND WATER	CO-58	<	2.6	
05-Feb-18	GROUND WATER	FE-59	<	5.4	
05-Feb-18	GROUND WATER	CO-60	<	3.6	
05-Feb-18	GROUND WATER	ZN-65	<	5.1	
05-Feb-18	GROUND WATER	ZR-NB-95	<	2.6	
05-Feb-18	GROUND WATER	I-131	<	0.385	
05-Feb-18	GROUND WATER	CS-134	<	3.1	
05-Feb-18	GROUND WATER	CS-137	<	2.8	
05-Feb-18	GROUND WATER	BA-LA-140	<	2.4	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	2.9	
22-May-18	GROUND WATER	CO-58	<	3.4	
22-May-18	GROUND WATER	FE-59	<	3.4	
22-May-18	GROUND WATER	CO-60	<	2.8	
22-May-18	GROUND WATER	ZN-65	<	5.5	
22-May-18	GROUND WATER	ZR-NB-95	<	4.0	
22-May-18	GROUND WATER	I-131	<	0.354	
22-May-18	GROUND WATER	CS-134	<	3.3	
22-May-18	GROUND WATER	CS-137	<	2.4	
22-May-18	GROUND WATER	BA-LA-140	<	3.1	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	4.6	
13-Aug-18	GROUND WATER	CO-58	<	3.5	
13-Aug-18	GROUND WATER	FE-59	<	7.5	
13-Aug-18	GROUND WATER	CO-60	<	3.0	
13-Aug-18	GROUND WATER	ZN-65	<	9.7	
13-Aug-18	GROUND WATER	ZR-NB-95	<	3.1	
13-Aug-18	GROUND WATER	I-131	<	0.408	
13-Aug-18	GROUND WATER	CS-134	<	5.3	
13-Aug-18	GROUND WATER	CS-137	<	5.5	
13-Aug-18	GROUND WATER	BA-LA-140	<	3.9	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	1.8	
13-Nov-18	GROUND WATER	CO-58	<	1.8	
13-Nov-18	GROUND WATER	FE-59	<	5.0	
13-Nov-18	GROUND WATER	CO-60	<	1.7	
13-Nov-18	GROUND WATER	ZN-65	<	6.0	

Exposure Pathway - Waterborne
Ground Water
Location: J-2

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	2.9	
13-Nov-18	GROUND WATER	I-131	<	0.369	
13-Nov-18	GROUND WATER	CS-134	<	3.0	
13-Nov-18	GROUND WATER	CS-137	<	3.6	
13-Nov-18	GROUND WATER	BA-LA-140	<	3.0	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Ground Water
Location: L-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
05-Feb-18	GROUND WATER	MN-54	<	2.2	
05-Feb-18	GROUND WATER	CO-58	<	2.7	
05-Feb-18	GROUND WATER	FE-59	<	3.7	
05-Feb-18	GROUND WATER	CO-60	<	1.7	
05-Feb-18	GROUND WATER	ZN-65	<	4.2	
05-Feb-18	GROUND WATER	ZR-NB-95	<	2.2	
05-Feb-18	GROUND WATER	I-131	<	0.396	
05-Feb-18	GROUND WATER	CS-134	<	3.2	
05-Feb-18	GROUND WATER	CS-137	<	2.3	
05-Feb-18	GROUND WATER	BA-LA-140	<	2.8	
05-Feb-18	GROUND WATER	H-3	<	156.0	
22-May-18	GROUND WATER	MN-54	<	3.2	
22-May-18	GROUND WATER	CO-58	<	4.7	
22-May-18	GROUND WATER	FE-59	<	8.3	
22-May-18	GROUND WATER	CO-60	<	3.2	
22-May-18	GROUND WATER	ZN-65	<	5.7	
22-May-18	GROUND WATER	ZR-NB-95	<	3.0	
22-May-18	GROUND WATER	I-131	<	0.428	
22-May-18	GROUND WATER	CS-134	<	4.8	
22-May-18	GROUND WATER	CS-137	<	4.1	
22-May-18	GROUND WATER	BA-LA-140	<	2.9	
22-May-18	GROUND WATER	H-3	<	156.0	
13-Aug-18	GROUND WATER	MN-54	<	2.7	
13-Aug-18	GROUND WATER	CO-58	<	3.8	
13-Aug-18	GROUND WATER	FE-59	<	2.2	
13-Aug-18	GROUND WATER	CO-60	<	2.0	
13-Aug-18	GROUND WATER	ZN-65	<	5.0	
13-Aug-18	GROUND WATER	ZR-NB-95	<	2.9	
13-Aug-18	GROUND WATER	I-131	<	0.282	
13-Aug-18	GROUND WATER	CS-134	<	4.3	
13-Aug-18	GROUND WATER	CS-137	<	3.2	
13-Aug-18	GROUND WATER	BA-LA-140	<	1.5	
13-Aug-18	GROUND WATER	H-3	<	151.0	
13-Nov-18	GROUND WATER	MN-54	<	1.9	
13-Nov-18	GROUND WATER	CO-58	<	1.4	
13-Nov-18	GROUND WATER	FE-59	<	6.5	
13-Nov-18	GROUND WATER	CO-60	<	1.7	
13-Nov-18	GROUND WATER	ZN-65	<	4.7	

Exposure Pathway - Waterborne
Ground Water
Location: L-49

Collection Date	Sample Description	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
13-Nov-18	GROUND WATER	ZR-NB-95	<	2.4	
13-Nov-18	GROUND WATER	I-131	<	0.347	
13-Nov-18	GROUND WATER	CS-134	<	3.4	
13-Nov-18	GROUND WATER	CS-137	<	4.1	
13-Nov-18	GROUND WATER	BA-LA-140	<	3.5	
13-Nov-18	GROUND WATER	H-3	<	151.0	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
05-Feb-18	MN-54	< 2.8	
05-Feb-18	CO-58	< 2.4	
05-Feb-18	FE-59	< 4.9	
05-Feb-18	CO-60	< 2.2	
05-Feb-18	ZN-65	< 3.1	
05-Feb-18	ZR-NB-95	< 2.6	
05-Feb-18	I-131	< 0.367	
05-Feb-18	CS-134	< 3.2	
05-Feb-18	CS-137	< 3.8	
05-Feb-18	BA-LA-140	< 1.6	
05-Feb-18	GROSS BETA	3.694 +/- 0.733	
05-Mar-18	MN-54	< 2.0	
05-Mar-18	CO-58	< 2.0	
05-Mar-18	FE-59	< 6.1	
05-Mar-18	CO-60	< 2.0	
05-Mar-18	ZN-65	< 5.8	
05-Mar-18	ZR-NB-95	< 2.1	
05-Mar-18	I-131	< 0.211	
05-Mar-18	CS-134	< 3.2	
05-Mar-18	CS-137	< 2.4	
05-Mar-18	BA-LA-140	< 1.8	
05-Mar-18	GROSS BETA	2.721 +/- 0.664	
03-Apr-18	MN-54	< 2.1	
03-Apr-18	CO-58	< 4.0	
03-Apr-18	FE-59	< 1.6	
03-Apr-18	CO-60	< 1.5	
03-Apr-18	ZN-65	< 3.1	
03-Apr-18	ZR-NB-95	< 2.6	
03-Apr-18	I-131	< 0.283	
03-Apr-18	CS-134	< 3.5	
03-Apr-18	CS-137	< 2.9	
03-Apr-18	BA-LA-140	< 2.9	
03-Apr-18	GROSS BETA	2.501 +/- 0.611	
03-May-18	MN-54	< 3.0	
03-May-18	CO-58	< 2.5	
03-May-18	FE-59	< 4.1	
03-May-18	CO-60	< 2.0	
03-May-18	ZN-65	< 3.2	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
03-May-18	ZR-NB-95	< 2.5	
03-May-18	I-131	< 0.419	
03-May-18	CS-134	< 3.4	
03-May-18	CS-137	< 2.5	
03-May-18	BA-LA-140	< 3.0	
03-May-18	GROSS BETA	2.206 +/- 0.623	
05-Jun-18	MN-54	< 3.4	
05-Jun-18	CO-58	< 2.8	
05-Jun-18	FE-59	< 8.7	
05-Jun-18	CO-60	< 2.9	
05-Jun-18	ZN-65	< 2.9	
05-Jun-18	ZR-NB-95	< 4.0	
05-Jun-18	I-131	< 0.472	
05-Jun-18	CS-134	< 4.9	
05-Jun-18	CS-137	< 3.7	
05-Jun-18	BA-LA-140	< 4.7	
05-Jun-18	GROSS BETA	1.998 +/- 0.615	
05-Jul-18	MN-54	< 2.6	
05-Jul-18	CO-58	< 1.9	
05-Jul-18	FE-59	< 4.1	
05-Jul-18	CO-60	< 2.4	
05-Jul-18	ZN-65	< 5.9	
05-Jul-18	ZR-NB-95	< 3.0	
05-Jul-18	I-131	< 0.403	
05-Jul-18	CS-134	< 2.8	
05-Jul-18	CS-137	< 3.4	
05-Jul-18	BA-LA-140	< 2.8	
05-Jul-18	GROSS BETA	3.547 +/- 0.722	
09-Aug-18	MN-54	< 3.4	
09-Aug-18	CO-58	< 2.4	
09-Aug-18	FE-59	< 6.0	
09-Aug-18	CO-60	< 1.8	
09-Aug-18	ZN-65	< 3.1	
09-Aug-18	ZR-NB-95	< 3.2	
09-Aug-18	I-131	< 0.415	
09-Aug-18	CS-134	< 4.0	
09-Aug-18	CS-137	< 3.4	
09-Aug-18	BA-LA-140	< 1.7	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
09-Aug-18	GROSS BETA	3.110 +/- 0.705	
04-Sep-18	MN-54	< 2.8	
04-Sep-18	CO-58	< 2.2	
04-Sep-18	FE-59	< 3.9	
04-Sep-18	CO-60	< 1.9	
04-Sep-18	ZN-65	< 4.2	
04-Sep-18	ZR-NB-95	< 2.8	
04-Sep-18	I-131	< 0.394	
04-Sep-18	CS-134	< 3.2	
04-Sep-18	CS-137	< 3.8	
04-Sep-18	BA-LA-140	< 1.8	
04-Sep-18	GROSS BETA	3.202 +/- 0.704	
04-Oct-18	MN-54	< 2.0	
04-Oct-18	CO-58	< 2.6	
04-Oct-18	FE-59	< 4.8	
04-Oct-18	CO-60	< 1.8	
04-Oct-18	ZN-65	< 2.6	
04-Oct-18	ZR-NB-95	< 2.9	
04-Oct-18	I-131	< 0.443	
04-Oct-18	CS-134	< 3.0	
04-Oct-18	CS-137	< 3.1	
04-Oct-18	BA-LA-140	< 1.9	
04-Oct-18	GROSS BETA	2.767 +/- 0.659	
05-Nov-18	MN-54	< 2.2	
05-Nov-18	CO-58	< 2.6	
05-Nov-18	FE-59	< 4.0	
05-Nov-18	CO-60	< 2.8	
05-Nov-18	ZN-65	< 2.9	
05-Nov-18	ZR-NB-95	< 3.0	
05-Nov-18	I-131	< 0.476	
05-Nov-18	CS-134	< 3.2	
05-Nov-18	CS-137	< 2.7	
05-Nov-18	BA-LA-140	< 3.3	
05-Nov-18	GROSS BETA	2.298 +/- 0.647	
06-Dec-18	MN-54	< 3.0	
06-Dec-18	CO-58	< 2.3	
06-Dec-18	FE-59	< 7.3	
06-Dec-18	CO-60	< 3.2	

Exposure Pathway - Waterborne
Drinking Water
Location: BW-15

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
06-Dec-18	ZN-65	< 6.9	
06-Dec-18	ZR-NB-95	< 2.8	
06-Dec-18	I-131	< 0.387	
06-Dec-18	CS-134	< 4.5	
06-Dec-18	CS-137	< 2.9	
06-Dec-18	BA-LA-140	< 1.9	
06-Dec-18	GROSS BETA	3.347 +/- 0.712	
07-Jan-19	MN-54	< 1.7	
07-Jan-19	CO-58	< 1.7	
07-Jan-19	FE-59	< 3.9	
07-Jan-19	CO-60	< 1.9	
07-Jan-19	ZN-65	< 4.3	
07-Jan-19	ZR-NB-95	< 2.8	
07-Jan-19	I-131	< 0.29	
07-Jan-19	CS-134	< 2.9	
07-Jan-19	CS-137	< 2.2	
07-Jan-19	BA-LA-140	< 2.8	
07-Jan-19	GROSS BETA	5.143 +/- 0.824	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
05-Feb-18	MN-54	< 1.9	
05-Feb-18	CO-58	< 1.9	
05-Feb-18	FE-59	< 4.8	
05-Feb-18	CO-60	< 1.8	
05-Feb-18	ZN-65	< 4.4	
05-Feb-18	ZR-NB-95	< 2.1	
05-Feb-18	I-131	< 0.355	
05-Feb-18	CS-134	< 2.6	
05-Feb-18	CS-137	< 1.5	
05-Feb-18	BA-LA-140	< 2.3	
05-Feb-18	GROSS BETA	2.973 +/- 0.523	
05-Mar-18	MN-54	< 3.0	
05-Mar-18	CO-58	< 1.5	
05-Mar-18	FE-59	< 5.0	
05-Mar-18	CO-60	< 2.3	
05-Mar-18	ZN-65	< 1.6	
05-Mar-18	ZR-NB-95	< 2.3	
05-Mar-18	I-131	< 0.219	
05-Mar-18	CS-134	< 2.6	
05-Mar-18	CS-137	< 3.2	
05-Mar-18	BA-LA-140	< 1.7	
05-Mar-18	GROSS BETA	2.472 +/- 0.68	
03-Apr-18	MN-54	< 2.2	
03-Apr-18	CO-58	< 1.8	
03-Apr-18	FE-59	< 6.3	
03-Apr-18	CO-60	< 2.3	
03-Apr-18	ZN-65	< 4.4	
03-Apr-18	ZR-NB-95	< 3.8	
03-Apr-18	I-131	< 0.277	
03-Apr-18	CS-134	< 3.5	
03-Apr-18	CS-137	< 2.7	
03-Apr-18	BA-LA-140	< 2.7	
03-Apr-18	GROSS BETA	2.678 +/- 0.6	
03-May-18	MN-54	< 2.4	
03-May-18	CO-58	< 2.9	
03-May-18	FE-59	< 4.7	
03-May-18	CO-60	< 1.9	
03-May-18	ZN-65	< 4.7	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
03-May-18	ZR-NB-95	< 2.8	
03-May-18	I-131	< 0.452	
03-May-18	CS-134	< 3.1	
03-May-18	CS-137	< 2.7	
03-May-18	BA-LA-140	< 4.2	
03-May-18	GROSS BETA	3.260 +/- 0.71	
05-Jun-18	MN-54	< 3.8	
05-Jun-18	CO-58	< 3.0	
05-Jun-18	FE-59	< 7.3	
05-Jun-18	CO-60	< 4.1	
05-Jun-18	ZN-65	< 4.2	
05-Jun-18	ZR-NB-95	< 2.1	
05-Jun-18	I-131	< 0.452	
05-Jun-18	CS-134	< 4.4	
05-Jun-18	CS-137	< 4.9	
05-Jun-18	BA-LA-140	< 4.1	
05-Jun-18	GROSS BETA	3.570 +/- 0.739	
05-Jul-18	MN-54	< 2.9	
05-Jul-18	CO-58	< 3.6	
05-Jul-18	FE-59	< 4.3	
05-Jul-18	CO-60	< 2.1	
05-Jul-18	ZN-65	< 3.0	
05-Jul-18	ZR-NB-95	< 3.1	
05-Jul-18	I-131	< 0.329	
05-Jul-18	CS-134	< 3.6	
05-Jul-18	CS-137	< 2.1	
05-Jul-18	BA-LA-140	< 1.7	
05-Jul-18	GROSS BETA	2.811 +/- 0.695	
09-Aug-18	MN-54	< 2.8	
09-Aug-18	CO-58	< 2.5	
09-Aug-18	FE-59	< 3.5	
09-Aug-18	CO-60	< 1.8	
09-Aug-18	ZN-65	< 2.0	
09-Aug-18	ZR-NB-95	< 3.5	
09-Aug-18	I-131	< 0.453	
09-Aug-18	CS-134	< 3.8	
09-Aug-18	CS-137	< 2.5	
09-Aug-18	BA-LA-140	< 1.9	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
09-Aug-18	GROSS BETA	2.844 +/- 0.699	
04-Sep-18	MN-54	< 2.1	
04-Sep-18	CO-58	< 1.9	
04-Sep-18	FE-59	< 6.2	
04-Sep-18	CO-60	< 2.1	
04-Sep-18	ZN-65	< 1.9	
04-Sep-18	ZR-NB-95	< 2.2	
04-Sep-18	I-131	< 0.388	
04-Sep-18	CS-134	< 4.0	
04-Sep-18	CS-137	< 3.0	
04-Sep-18	BA-LA-140	< 1.6	
04-Sep-18	GROSS BETA	2.604 +/- 0.677	
04-Oct-18	MN-54	< 2.3	
04-Oct-18	CO-58	< 1.5	
04-Oct-18	FE-59	< 2.9	
04-Oct-18	CO-60	< 1.7	
04-Oct-18	ZN-65	< 4.0	
04-Oct-18	ZR-NB-95	< 2.0	
04-Oct-18	I-131	< 0.432	
04-Oct-18	CS-134	< 3.4	
04-Oct-18	CS-137	< 3.0	
04-Oct-18	BA-LA-140	< 3.1	
04-Oct-18	GROSS BETA	2.967 +/- 0.68	
05-Nov-18	MN-54	< 3.0	
05-Nov-18	CO-58	< 2.3	
05-Nov-18	FE-59	< 3.7	
05-Nov-18	CO-60	< 1.2	
05-Nov-18	ZN-65	< 5.2	
05-Nov-18	ZR-NB-95	< 3.3	
05-Nov-18	I-131	< 0.44	
05-Nov-18	CS-134	< 2.8	
05-Nov-18	CS-137	< 2.8	
05-Nov-18	BA-LA-140	< 1.7	
05-Nov-18	GROSS BETA	2.883 +/- 0.69	
06-Dec-18	MN-54	< 2.2	
06-Dec-18	CO-58	< 2.9	
06-Dec-18	FE-59	< 3.8	
06-Dec-18	CO-60	< 1.6	

Exposure Pathway - Waterborne
Drinking Water
Location: IO-DW

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
06-Dec-18	ZN-65	< 2.9	
06-Dec-18	ZR-NB-95	< 2.8	
06-Dec-18	I-131	< 0.463	
06-Dec-18	CS-134	< 3.3	
06-Dec-18	CS-137	< 2.6	
06-Dec-18	BA-LA-140	< 1.6	
06-Dec-18	GROSS BETA	2.714 +/- 0.71	
07-Jan-19	MN-54	< 5.3	
07-Jan-19	CO-58	< 3.2	
07-Jan-19	FE-59	< 7.1	
07-Jan-19	CO-60	< 3.9	
07-Jan-19	ZN-65	< 8.0	
07-Jan-19	ZR-NB-95	< 4.0	
07-Jan-19	I-131	< 0.294	
07-Jan-19	CS-134	< 4.9	
07-Jan-19	CS-137	< 4.3	
07-Jan-19	BA-LA-140	< 2.4	
07-Jan-19	GROSS BETA	4.398 +/- 0.797	

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

Collection Date	Nuclide	Concentration (pCi/Liter)		Duplicate Analysis
03-Apr-18	H-3	<	159	
05-Jul-18	H-3	<	154	
04-Oct-18	H-3	<	154	
07-Jan-19	H-3	<	147	

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

Collection Date	Nuclide	Concentration (pCi/Liter)	Duplicate Analysis
03-Apr-18	H-3	< 159	
03-Apr-18	H-3	< 159	Duplicate
05-Jul-18	H-3	< 154	
04-Oct-18	H-3	252 +/- 86	
04-Oct-18	H-3	343 +/- 90	
07-Jan-19	H-3	< 147	

Exposure Pathway - Waterborne
Shoreline Sediment
Location: DC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
08-May-18	SHORELINE SEDIMENT	K-40	6,813.5 +/-	592.8	
08-May-18	SHORELINE SEDIMENT	MN-54	<	14.5	
08-May-18	SHORELINE SEDIMENT	CO-58	<	25.5	
08-May-18	SHORELINE SEDIMENT	FE-59	<	54.4	
08-May-18	SHORELINE SEDIMENT	CO-60	<	22.2	
08-May-18	SHORELINE SEDIMENT	ZN-65	<	44.4	
08-May-18	SHORELINE SEDIMENT	CS-134	<	17.1	
08-May-18	SHORELINE SEDIMENT	CS-137	<	25.1	
17-Oct-18	SHORELINE SEDIMENT	K-40	6,842.7 +/-	591.8	
17-Oct-18	SHORELINE SEDIMENT	MN-54	<	21.7	
17-Oct-18	SHORELINE SEDIMENT	CO-58	<	33.3	
17-Oct-18	SHORELINE SEDIMENT	FE-59	<	116.6	
17-Oct-18	SHORELINE SEDIMENT	CO-60	<	24.4	
17-Oct-18	SHORELINE SEDIMENT	ZN-65	<	87.2	
17-Oct-18	SHORELINE SEDIMENT	CS-134	<	24.8	
17-Oct-18	SHORELINE SEDIMENT	CS-137	<	29.6	

Exposure Pathway - Waterborne
Shoreline Sediment
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	SHORELINE SEDIMENT	K-40	9,887.1 +/-	646.3	
09-May-18	SHORELINE SEDIMENT	MN-54	<	35.5	
09-May-18	SHORELINE SEDIMENT	CO-58	<	24.2	
09-May-18	SHORELINE SEDIMENT	FE-59	<	75.6	
09-May-18	SHORELINE SEDIMENT	CO-60	<	20.9	
09-May-18	SHORELINE SEDIMENT	ZN-65	<	60.4	
09-May-18	SHORELINE SEDIMENT	CS-134	<	23.0	
09-May-18	SHORELINE SEDIMENT	CS-137	<	18.3	
29-Nov-18	SHORELINE SEDIMENT	K-40	8,706.9 +/-	537.3	
29-Nov-18	SHORELINE SEDIMENT	MN-54	<	25.2	
29-Nov-18	SHORELINE SEDIMENT	CO-58	<	30.8	
29-Nov-18	SHORELINE SEDIMENT	FE-59	<	38.2	
29-Nov-18	SHORELINE SEDIMENT	CO-60	<	13.9	
29-Nov-18	SHORELINE SEDIMENT	ZN-65	<	46.8	
29-Nov-18	SHORELINE SEDIMENT	CS-134	<	16.1	
29-Nov-18	SHORELINE SEDIMENT	CS-137	<	16.7	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
14-May-18	CHANNEL CATFISH	K-40	3,076.4 +/-	139.2	
14-May-18	CHANNEL CATFISH	MN-54	<	4.8	
14-May-18	CHANNEL CATFISH	CO-58	<	7.6	
14-May-18	CHANNEL CATFISH	FE-59	<	8.8	
14-May-18	CHANNEL CATFISH	CO-60	<	5.9	
14-May-18	CHANNEL CATFISH	ZN-65	<	12.9	
14-May-18	CHANNEL CATFISH	I-131	<	50.0	
14-May-18	CHANNEL CATFISH	CS-134	<	4.9	
14-May-18	CHANNEL CATFISH	CS-137	<	4.9	
14-May-18	CHANNEL CATFISH	H-3	9,505.0 +/-	263.0	
14-May-18	COMMON CARP	K-40	3,138.5 +/-	312.7	
14-May-18	COMMON CARP	MN-54	<	9.7	
14-May-18	COMMON CARP	CO-58	<	12.7	
14-May-18	COMMON CARP	FE-59	<	22.9	
14-May-18	COMMON CARP	CO-60	<	7.1	
14-May-18	COMMON CARP	ZN-65	<	27.9	
14-May-18	COMMON CARP	I-131	<	85.0	
14-May-18	COMMON CARP	CS-134	<	11.4	
14-May-18	COMMON CARP	CS-137	<	13.4	
14-May-18	COMMON CARP	H-3	9,512.0 +/-	258.0	
14-May-18	FRESHWATER DRUM	K-40	2,714.2 +/-	335.4	Duplicate
14-May-18	FRESHWATER DRUM	K-40	3,250.5 +/-	325.1	
14-May-18	FRESHWATER DRUM	MN-54	<	14.8	
14-May-18	FRESHWATER DRUM	MN-54	<	12.0	Duplicate
14-May-18	FRESHWATER DRUM	CO-58	<	11.6	Duplicate
14-May-18	FRESHWATER DRUM	CO-58	<	14.4	
14-May-18	FRESHWATER DRUM	FE-59	<	25.6	Duplicate
14-May-18	FRESHWATER DRUM	FE-59	<	31.9	
14-May-18	FRESHWATER DRUM	CO-60	<	4.3	
14-May-18	FRESHWATER DRUM	CO-60	<	10.4	Duplicate
14-May-18	FRESHWATER DRUM	ZN-65	<	16.7	Duplicate
14-May-18	FRESHWATER DRUM	ZN-65	<	27.3	
14-May-18	FRESHWATER DRUM	I-131	<	94.5	
14-May-18	FRESHWATER DRUM	I-131	<	73.4	Duplicate
14-May-18	FRESHWATER DRUM	CS-134	<	11.2	
14-May-18	FRESHWATER DRUM	CS-134	<	13.1	Duplicate
14-May-18	FRESHWATER DRUM	CS-137	<	12.6	Duplicate
14-May-18	FRESHWATER DRUM	CS-137	<	15.6	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
14-May-18	FRESHWATER DRUM	H-3	9,808.0 +/-	263.0	Duplicate
14-May-18	FRESHWATER DRUM	H-3	9,791.0 +/-	263.0	
14-May-18	SMALLMOUTH BASS	K-40	3,571.0 +/-	369.3	
14-May-18	SMALLMOUTH BASS	MN-54	<	15.4	
14-May-18	SMALLMOUTH BASS	CO-58	<	17.1	
14-May-18	SMALLMOUTH BASS	FE-59	<	24.2	
14-May-18	SMALLMOUTH BASS	CO-60	<	12.4	
14-May-18	SMALLMOUTH BASS	ZN-65	<	23.7	
14-May-18	SMALLMOUTH BASS	I-131	<	99.3	
14-May-18	SMALLMOUTH BASS	CS-134	<	11.9	
14-May-18	SMALLMOUTH BASS	CS-137	<	16.5	
14-May-18	SMALLMOUTH BASS	H-3	9,409.0 +/-	263.0	
14-May-18	SMALLMOUTH BUFFALO	K-40	2,937.5 +/-	161.9	
14-May-18	SMALLMOUTH BUFFALO	MN-54	<	7.0	
14-May-18	SMALLMOUTH BUFFALO	CO-58	<	5.1	
14-May-18	SMALLMOUTH BUFFALO	FE-59	<	18.8	
14-May-18	SMALLMOUTH BUFFALO	CO-60	<	5.6	
14-May-18	SMALLMOUTH BUFFALO	ZN-65	<	10.3	
14-May-18	SMALLMOUTH BUFFALO	I-131	<	48.6	
14-May-18	SMALLMOUTH BUFFALO	CS-134	<	6.4	
14-May-18	SMALLMOUTH BUFFALO	CS-137	<	4.9	
14-May-18	SMALLMOUTH BUFFALO	H-3	7,145.0 +/-	195.0	
14-May-18	WHITE BASS	K-40	3,429.3 +/-	189.0	
14-May-18	WHITE BASS	MN-54	<	6.3	
14-May-18	WHITE BASS	CO-58	<	8.0	
14-May-18	WHITE BASS	FE-59	<	20.0	
14-May-18	WHITE BASS	CO-60	<	3.7	
14-May-18	WHITE BASS	ZN-65	<	17.0	
14-May-18	WHITE BASS	I-131	<	50.0	
14-May-18	WHITE BASS	CS-134	<	6.0	
14-May-18	WHITE BASS	CS-137	<	7.8	
14-May-18	WHITE BASS	H-3	8,473.0 +/-	253.0	
14-May-18	WIPER HYBRID	K-40	3,543.3 +/-	186.9	
14-May-18	WIPER HYBRID	MN-54	<	5.4	
14-May-18	WIPER HYBRID	CO-58	<	8.3	
14-May-18	WIPER HYBRID	FE-59	<	17.4	
14-May-18	WIPER HYBRID	CO-60	<	6.6	
14-May-18	WIPER HYBRID	ZN-65	<	15.6	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
14-May-18	WIPER HYBRID	I-131	<	49.2	
14-May-18	WIPER HYBRID	CS-134	<	6.0	
14-May-18	WIPER HYBRID	CS-137	<	5.9	
14-May-18	WIPER HYBRID	H-3	9,021.0 +/-	253.0	
25-Oct-18	BLUE CATFISH	K-40	2,902.2 +/-	322.3	
25-Oct-18	BLUE CATFISH	MN-54	<	13.0	
25-Oct-18	BLUE CATFISH	CO-58	<	9.0	
25-Oct-18	BLUE CATFISH	FE-59	<	27.6	
25-Oct-18	BLUE CATFISH	CO-60	<	7.0	
25-Oct-18	BLUE CATFISH	ZN-65	<	20.3	
25-Oct-18	BLUE CATFISH	I-131	<	52.0	
25-Oct-18	BLUE CATFISH	CS-134	<	15.0	
25-Oct-18	BLUE CATFISH	CS-137	<	15.7	
25-Oct-18	BLUE CATFISH	H-3	6,858.0 +/-	226.0	
25-Oct-18	CHANNEL CATFISH	K-40	3,240.0 +/-	329.2	
25-Oct-18	CHANNEL CATFISH	MN-54	<	12.8	
25-Oct-18	CHANNEL CATFISH	CO-58	<	10.4	
25-Oct-18	CHANNEL CATFISH	FE-59	<	20.8	
25-Oct-18	CHANNEL CATFISH	CO-60	<	8.5	
25-Oct-18	CHANNEL CATFISH	ZN-65	<	9.9	
25-Oct-18	CHANNEL CATFISH	I-131	<	58.8	
25-Oct-18	CHANNEL CATFISH	CS-134	<	10.3	
25-Oct-18	CHANNEL CATFISH	CS-137	<	13.2	
25-Oct-18	CHANNEL CATFISH	H-3	6,292.0 +/-	211.0	
25-Oct-18	COMMON CARP	K-40	2,647.5 +/-	316.8	
25-Oct-18	COMMON CARP	K-40	3,029.0 +/-	338.8	Duplicate
25-Oct-18	COMMON CARP	MN-54	<	13.6	
25-Oct-18	COMMON CARP	MN-54	<	12.5	Duplicate
25-Oct-18	COMMON CARP	CO-58	<	11.8	
25-Oct-18	COMMON CARP	CO-58	<	10.5	Duplicate
25-Oct-18	COMMON CARP	FE-59	<	25.8	
25-Oct-18	COMMON CARP	FE-59	<	34.5	Duplicate
25-Oct-18	COMMON CARP	CO-60	<	13.7	Duplicate
25-Oct-18	COMMON CARP	CO-60	<	6.4	
25-Oct-18	COMMON CARP	ZN-65	<	29.1	Duplicate
25-Oct-18	COMMON CARP	ZN-65	<	27.6	
25-Oct-18	COMMON CARP	I-131	<	54.3	Duplicate
25-Oct-18	COMMON CARP	I-131	<	61.4	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
25-Oct-18	COMMON CARP	CS-134	<	11.8	
25-Oct-18	COMMON CARP	CS-134	<	13.5	Duplicate
25-Oct-18	COMMON CARP	CS-137	<	10.6	
25-Oct-18	COMMON CARP	CS-137	<	11.3	Duplicate
25-Oct-18	COMMON CARP	H-3	6,332.0 +/-	212.0	Duplicate
25-Oct-18	COMMON CARP	H-3	6,116.0 +/-	209.0	
25-Oct-18	CRAPPIE	K-40	3,841.0 +/-	398.2	
25-Oct-18	CRAPPIE	MN-54	<	10.1	
25-Oct-18	CRAPPIE	CO-58	<	15.0	
25-Oct-18	CRAPPIE	FE-59	<	41.7	
25-Oct-18	CRAPPIE	CO-60	<	10.4	
25-Oct-18	CRAPPIE	ZN-65	<	23.2	
25-Oct-18	CRAPPIE	I-131	<	53.5	
25-Oct-18	CRAPPIE	CS-134	<	14.2	
25-Oct-18	CRAPPIE	CS-137	<	19.9	
25-Oct-18	CRAPPIE	H-3	6,236.0 +/-	211.0	
25-Oct-18	SMALLMOUTH BUFFALO	K-40	3,019.7 +/-	363.9	
25-Oct-18	SMALLMOUTH BUFFALO	MN-54	<	9.7	
25-Oct-18	SMALLMOUTH BUFFALO	CO-58	<	10.6	
25-Oct-18	SMALLMOUTH BUFFALO	FE-59	<	16.3	
25-Oct-18	SMALLMOUTH BUFFALO	CO-60	<	10.7	
25-Oct-18	SMALLMOUTH BUFFALO	ZN-65	<	18.2	
25-Oct-18	SMALLMOUTH BUFFALO	I-131	<	52.5	
25-Oct-18	SMALLMOUTH BUFFALO	CS-134	<	11.5	
25-Oct-18	SMALLMOUTH BUFFALO	CS-137	<	13.1	
25-Oct-18	SMALLMOUTH BUFFALO	H-3	5,702.0 +/-	196.0	
25-Oct-18	WALLEYE	K-40	3,483.2 +/-	347.9	
25-Oct-18	WALLEYE	MN-54	<	11.2	
25-Oct-18	WALLEYE	CO-58	<	9.6	
25-Oct-18	WALLEYE	FE-59	<	19.9	
25-Oct-18	WALLEYE	CO-60	<	8.4	
25-Oct-18	WALLEYE	ZN-65	<	29.7	
25-Oct-18	WALLEYE	I-131	<	65.3	
25-Oct-18	WALLEYE	CS-134	<	14.4	
25-Oct-18	WALLEYE	CS-137	<	15.9	
25-Oct-18	WALLEYE	H-3	5,533.0 +/-	204.0	
25-Oct-18	WHITE BASS	K-40	3,003.2 +/-	356.4	
25-Oct-18	WHITE BASS	MN-54	<	13.5	

Exposure Pathway - Ingestion
Fish
Location: CCL

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
25-Oct-18	WHITE BASS	CO-58	<	16.3	
25-Oct-18	WHITE BASS	FE-59	<	18.6	
25-Oct-18	WHITE BASS	CO-60	<	10.9	
25-Oct-18	WHITE BASS	ZN-65	<	26.0	
25-Oct-18	WHITE BASS	I-131	<	60.2	
25-Oct-18	WHITE BASS	CS-134	<	13.7	
25-Oct-18	WHITE BASS	CS-137	<	11.4	
25-Oct-18	WHITE BASS	H-3	5,045.0 +/-	189.0	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
11-Apr-18	BASS	K-40	3,963.3 +/-	430.2	
11-Apr-18	BASS	MN-54	<	18.2	
11-Apr-18	BASS	CO-58	<	13.6	
11-Apr-18	BASS	FE-59	<	19.7	
11-Apr-18	BASS	CO-60	<	11.7	
11-Apr-18	BASS	ZN-65	<	18.6	
11-Apr-18	BASS	I-131	<	44.8	
11-Apr-18	BASS	CS-134	<	14.5	
11-Apr-18	BASS	CS-137	<	10.3	
11-Apr-18	BASS	H-3	<	119.0	
11-Apr-18	BIGMOUTH BUFFALO	K-40	2,944.8 +/-	376.5	
11-Apr-18	BIGMOUTH BUFFALO	MN-54	<	13.4	
11-Apr-18	BIGMOUTH BUFFALO	CO-58	<	9.4	
11-Apr-18	BIGMOUTH BUFFALO	FE-59	<	25.9	
11-Apr-18	BIGMOUTH BUFFALO	CO-60	<	10.9	
11-Apr-18	BIGMOUTH BUFFALO	ZN-65	<	30.9	
11-Apr-18	BIGMOUTH BUFFALO	I-131	<	36.0	
11-Apr-18	BIGMOUTH BUFFALO	CS-134	<	15.7	
11-Apr-18	BIGMOUTH BUFFALO	CS-137	<	13.8	
11-Apr-18	BIGMOUTH BUFFALO	H-3	<	110.0	
11-Apr-18	COMMON CARP	K-40	3,609.7 +/-	410.3	
11-Apr-18	COMMON CARP	MN-54	<	10.8	
11-Apr-18	COMMON CARP	CO-58	<	8.7	
11-Apr-18	COMMON CARP	FE-59	<	27.6	
11-Apr-18	COMMON CARP	CO-60	<	12.2	
11-Apr-18	COMMON CARP	ZN-65	<	34.1	
11-Apr-18	COMMON CARP	I-131	<	41.8	
11-Apr-18	COMMON CARP	CS-134	<	15.8	
11-Apr-18	COMMON CARP	CS-137	<	16.1	
11-Apr-18	COMMON CARP	H-3	<	115.0	
11-Apr-18	RIVER CARPSUCKER	K-40	3,394.7 +/-	423.6	
11-Apr-18	RIVER CARPSUCKER	MN-54	<	13.3	
11-Apr-18	RIVER CARPSUCKER	CO-58	<	10.2	
11-Apr-18	RIVER CARPSUCKER	FE-59	<	31.0	
11-Apr-18	RIVER CARPSUCKER	CO-60	<	10.0	
11-Apr-18	RIVER CARPSUCKER	ZN-65	<	17.3	
11-Apr-18	RIVER CARPSUCKER	I-131	<	47.4	
11-Apr-18	RIVER CARPSUCKER	CS-134	<	15.2	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
11-Apr-18	RIVER CARPSUCKER	CS-137	<	12.5	
11-Apr-18	RIVER CARPSUCKER	H-3	<	116.0	
11-Apr-18	SMALLMOUTH BUFFALO	K-40	3,191.5 +/-	414.2	
11-Apr-18	SMALLMOUTH BUFFALO	MN-54	<	12.6	
11-Apr-18	SMALLMOUTH BUFFALO	CO-58	<	10.5	
11-Apr-18	SMALLMOUTH BUFFALO	FE-59	<	39.3	
11-Apr-18	SMALLMOUTH BUFFALO	CO-60	<	14.5	
11-Apr-18	SMALLMOUTH BUFFALO	ZN-65	<	19.3	
11-Apr-18	SMALLMOUTH BUFFALO	I-131	<	41.4	
11-Apr-18	SMALLMOUTH BUFFALO	CS-134	<	14.2	
11-Apr-18	SMALLMOUTH BUFFALO	CS-137	<	20.4	
11-Apr-18	SMALLMOUTH BUFFALO	H-3	<	113.0	
18-Oct-18	BIGMOUTH BUFFALO	K-40	2,903.2 +/-	232.2	
18-Oct-18	BIGMOUTH BUFFALO	MN-54	<	10.7	
18-Oct-18	BIGMOUTH BUFFALO	CO-58	<	8.7	
18-Oct-18	BIGMOUTH BUFFALO	FE-59	<	21.0	
18-Oct-18	BIGMOUTH BUFFALO	CO-60	<	5.3	
18-Oct-18	BIGMOUTH BUFFALO	ZN-65	<	10.8	
18-Oct-18	BIGMOUTH BUFFALO	I-131	<	48.5	
18-Oct-18	BIGMOUTH BUFFALO	CS-134	<	7.9	
18-Oct-18	BIGMOUTH BUFFALO	CS-137	<	5.5	
18-Oct-18	BIGMOUTH BUFFALO	H-3	<	120.0	
18-Oct-18	CHANNEL CATFISH	K-40	3,378.8 +/-	253.2	
18-Oct-18	CHANNEL CATFISH	MN-54	<	8.3	
18-Oct-18	CHANNEL CATFISH	CO-58	<	11.0	
18-Oct-18	CHANNEL CATFISH	FE-59	<	23.3	
18-Oct-18	CHANNEL CATFISH	CO-60	<	5.7	
18-Oct-18	CHANNEL CATFISH	ZN-65	<	21.1	
18-Oct-18	CHANNEL CATFISH	I-131	<	58.9	
18-Oct-18	CHANNEL CATFISH	CS-134	<	9.7	
18-Oct-18	CHANNEL CATFISH	CS-137	<	8.2	
18-Oct-18	CHANNEL CATFISH	H-3	<	123.0	
18-Oct-18	COMMON CARP	K-40	3,089.2 +/-	280.9	
18-Oct-18	COMMON CARP	MN-54	<	7.4	
18-Oct-18	COMMON CARP	CO-58	<	7.5	
18-Oct-18	COMMON CARP	FE-59	<	14.5	
18-Oct-18	COMMON CARP	CO-60	<	4.0	
18-Oct-18	COMMON CARP	ZN-65	<	9.5	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
18-Oct-18	COMMON CARP	I-131	<	75.4	
18-Oct-18	COMMON CARP	CS-134	<	9.4	
18-Oct-18	COMMON CARP	CS-137	<	11.1	
18-Oct-18	COMMON CARP	H-3	<	120.0	
18-Oct-18	CRAPPIE	K-40	3,555.4 +/-	305.3	
18-Oct-18	CRAPPIE	MN-54	<	13.5	
18-Oct-18	CRAPPIE	CO-58	<	10.2	
18-Oct-18	CRAPPIE	FE-59	<	31.8	
18-Oct-18	CRAPPIE	CO-60	<	9.7	
18-Oct-18	CRAPPIE	ZN-65	<	17.0	
18-Oct-18	CRAPPIE	I-131	<	72.1	
18-Oct-18	CRAPPIE	CS-134	<	12.1	
18-Oct-18	CRAPPIE	CS-137	<	9.3	
18-Oct-18	CRAPPIE	H-3	<	122.0	
18-Oct-18	FLATHEAD CATFISH	K-40	3,321.7 +/-	325.8	
18-Oct-18	FLATHEAD CATFISH	MN-54	<	12.4	
18-Oct-18	FLATHEAD CATFISH	CO-58	<	13.1	
18-Oct-18	FLATHEAD CATFISH	FE-59	<	36.8	
18-Oct-18	FLATHEAD CATFISH	CO-60	<	7.9	
18-Oct-18	FLATHEAD CATFISH	ZN-65	<	17.4	
18-Oct-18	FLATHEAD CATFISH	I-131	<	82.3	
18-Oct-18	FLATHEAD CATFISH	CS-134	<	14.5	
18-Oct-18	FLATHEAD CATFISH	CS-137	<	13.9	
18-Oct-18	FLATHEAD CATFISH	H-3	<	123.0	
18-Oct-18	GRASS CARP	K-40	3,123.3 +/-	251.3	
18-Oct-18	GRASS CARP	MN-54	<	11.8	
18-Oct-18	GRASS CARP	CO-58	<	11.8	
18-Oct-18	GRASS CARP	FE-59	<	20.3	
18-Oct-18	GRASS CARP	CO-60	<	6.3	
18-Oct-18	GRASS CARP	ZN-65	<	22.4	
18-Oct-18	GRASS CARP	I-131	<	64.8	
18-Oct-18	GRASS CARP	CS-134	<	12.2	
18-Oct-18	GRASS CARP	CS-137	<	7.1	
18-Oct-18	GRASS CARP	H-3	<	118.0	
18-Oct-18	LARGEMOUTH BASS	K-40	3,545.2 +/-	323.1	
18-Oct-18	LARGEMOUTH BASS	MN-54	<	9.0	
18-Oct-18	LARGEMOUTH BASS	CO-58	<	10.9	
18-Oct-18	LARGEMOUTH BASS	FE-59	<	17.6	

Exposure Pathway - Ingestion
Fish
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
18-Oct-18	LARGEMOUTH BASS	CO-60	<	10.2	
18-Oct-18	LARGEMOUTH BASS	ZN-65	<	20.0	
18-Oct-18	LARGEMOUTH BASS	I-131	<	51.5	
18-Oct-18	LARGEMOUTH BASS	CS-134	<	11.6	
18-Oct-18	LARGEMOUTH BASS	CS-137	<	10.5	
18-Oct-18	LARGEMOUTH BASS	H-3	<	122.0	
18-Oct-18	SMALLMOUTH BUFFALO	K-40	2,599.9 +/-	293.2	
18-Oct-18	SMALLMOUTH BUFFALO	MN-54	<	10.4	
18-Oct-18	SMALLMOUTH BUFFALO	CO-58	<	8.8	
18-Oct-18	SMALLMOUTH BUFFALO	FE-59	<	21.1	
18-Oct-18	SMALLMOUTH BUFFALO	CO-60	<	9.1	
18-Oct-18	SMALLMOUTH BUFFALO	ZN-65	<	10.5	
18-Oct-18	SMALLMOUTH BUFFALO	I-131	<	59.1	
18-Oct-18	SMALLMOUTH BUFFALO	CS-134	<	10.0	
18-Oct-18	SMALLMOUTH BUFFALO	CS-137	<	10.6	
18-Oct-18	SMALLMOUTH BUFFALO	H-3	<	131.0	
18-Oct-18	WHITE BASS	K-40	3,275.9 +/-	246.5	
18-Oct-18	WHITE BASS	MN-54	<	9.7	
18-Oct-18	WHITE BASS	CO-58	<	10.0	
18-Oct-18	WHITE BASS	FE-59	<	28.1	
18-Oct-18	WHITE BASS	CO-60	<	7.1	
18-Oct-18	WHITE BASS	ZN-65	<	18.2	
18-Oct-18	WHITE BASS	I-131	<	58.4	
18-Oct-18	WHITE BASS	CS-134	<	8.7	
18-Oct-18	WHITE BASS	CS-137	<	6.2	
18-Oct-18	WHITE BASS	H-3	<	120.0	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-May-18	HORSERADISH LEAVES	BE-7	1,357.3 +/-	287.4	
17-May-18	HORSERADISH LEAVES	BE-7	1,271.6 +/-	220.5	Duplicate
17-May-18	HORSERADISH LEAVES	K-40	6,145.1 +/-	597.6	Duplicate
17-May-18	HORSERADISH LEAVES	K-40	6,562.1 +/-	564.7	
17-May-18	HORSERADISH LEAVES	MN-54	<	15.6	
17-May-18	HORSERADISH LEAVES	MN-54	<	19.8	Duplicate
17-May-18	HORSERADISH LEAVES	CO-58	<	15.7	Duplicate
17-May-18	HORSERADISH LEAVES	CO-58	<	17.2	
17-May-18	HORSERADISH LEAVES	FE-59	<	34.1	Duplicate
17-May-18	HORSERADISH LEAVES	FE-59	<	35.0	
17-May-18	HORSERADISH LEAVES	CO-60	<	10.7	Duplicate
17-May-18	HORSERADISH LEAVES	CO-60	<	15.9	
17-May-18	HORSERADISH LEAVES	ZN-65	<	48.0	
17-May-18	HORSERADISH LEAVES	ZN-65	<	34.4	Duplicate
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	12.0	
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	24.1	Duplicate
17-May-18	HORSERADISH LEAVES	I-131	<	57.4	
17-May-18	HORSERADISH LEAVES	I-131	<	52.9	Duplicate
17-May-18	HORSERADISH LEAVES	CS-134	<	19.4	Duplicate
17-May-18	HORSERADISH LEAVES	CS-134	<	15.4	
17-May-18	HORSERADISH LEAVES	CS-137	<	20.4	
17-May-18	HORSERADISH LEAVES	CS-137	<	20.8	Duplicate
01-Oct-18	HORSERADISH LEAVES	BE-7	300.8 +/-	104.4	
01-Oct-18	HORSERADISH LEAVES	K-40	4,494.8 +/-	377.5	
01-Oct-18	HORSERADISH LEAVES	MN-54	<	8.8	
01-Oct-18	HORSERADISH LEAVES	CO-58	<	6.8	
01-Oct-18	HORSERADISH LEAVES	FE-59	<	21.3	
01-Oct-18	HORSERADISH LEAVES	CO-60	<	10.2	
01-Oct-18	HORSERADISH LEAVES	ZN-65	<	36.8	
01-Oct-18	HORSERADISH LEAVES	ZR-NB-95	<	9.0	
01-Oct-18	HORSERADISH LEAVES	I-131	<	20.6	
01-Oct-18	HORSERADISH LEAVES	CS-134	<	13.6	
01-Oct-18	HORSERADISH LEAVES	CS-137	<	11.5	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-May-18	HORSERADISH LEAVES	BE-7	1,383.5 +/-	202.7	
17-May-18	HORSERADISH LEAVES	K-40	6,958.6 +/-	438.5	
17-May-18	HORSERADISH LEAVES	MN-54	<	12.6	
17-May-18	HORSERADISH LEAVES	CO-58	<	15.2	
17-May-18	HORSERADISH LEAVES	FE-59	<	18.6	
17-May-18	HORSERADISH LEAVES	CO-60	<	14.6	
17-May-18	HORSERADISH LEAVES	ZN-65	<	30.8	
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	15.0	
17-May-18	HORSERADISH LEAVES	I-131	<	26.6	
17-May-18	HORSERADISH LEAVES	CS-134	<	12.1	
17-May-18	HORSERADISH LEAVES	CS-137	<	13.1	
14-Jun-18	HORSERADISH LEAVES	BE-7	916.1 +/-	191.8	
14-Jun-18	HORSERADISH LEAVES	K-40	6,580.4 +/-	496.4	
14-Jun-18	HORSERADISH LEAVES	MN-54	<	15.1	
14-Jun-18	HORSERADISH LEAVES	CO-58	<	15.3	
14-Jun-18	HORSERADISH LEAVES	FE-59	<	17.4	
14-Jun-18	HORSERADISH LEAVES	CO-60	<	7.8	
14-Jun-18	HORSERADISH LEAVES	ZN-65	<	15.7	
14-Jun-18	HORSERADISH LEAVES	ZR-NB-95	<	15.0	
14-Jun-18	HORSERADISH LEAVES	I-131	<	31.9	
14-Jun-18	HORSERADISH LEAVES	CS-134	<	11.3	
14-Jun-18	HORSERADISH LEAVES	CS-137	<	13.7	
30-Jul-18	HORSERADISH LEAVES	BE-7	655.5 +/-	194.5	
30-Jul-18	HORSERADISH LEAVES	K-40	4,274.1 +/-	421.6	
30-Jul-18	HORSERADISH LEAVES	MN-54	<	12.6	
30-Jul-18	HORSERADISH LEAVES	CO-58	<	13.1	
30-Jul-18	HORSERADISH LEAVES	FE-59	<	16.7	
30-Jul-18	HORSERADISH LEAVES	CO-60	<	4.3	
30-Jul-18	HORSERADISH LEAVES	ZN-65	<	19.7	
30-Jul-18	HORSERADISH LEAVES	ZR-NB-95	<	14.1	
30-Jul-18	HORSERADISH LEAVES	I-131	<	37.2	
30-Jul-18	HORSERADISH LEAVES	CS-134	<	13.9	
30-Jul-18	HORSERADISH LEAVES	CS-137	<	14.2	
13-Aug-18	HORSERADISH LEAVES	BE-7	576.1 +/-	170.1	
13-Aug-18	HORSERADISH LEAVES	K-40	5,341.8 +/-	433.2	
13-Aug-18	HORSERADISH LEAVES	MN-54	<	12.2	
13-Aug-18	HORSERADISH LEAVES	CO-58	<	7.7	
13-Aug-18	HORSERADISH LEAVES	FE-59	<	17.9	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
13-Aug-18	HORSERADISH LEAVES	CO-60	<	11.3	
13-Aug-18	HORSERADISH LEAVES	ZN-65	<	30.9	
13-Aug-18	HORSERADISH LEAVES	ZR-NB-95	<	16.4	
13-Aug-18	HORSERADISH LEAVES	I-131	<	25.9	
13-Aug-18	HORSERADISH LEAVES	CS-134	<	13.5	
13-Aug-18	HORSERADISH LEAVES	CS-137	<	10.5	
10-Sep-18	HORSERADISH LEAVES	BE-7	793.9 +/-	218.5	
10-Sep-18	HORSERADISH LEAVES	K-40	4,539.3 +/-	489.1	
10-Sep-18	HORSERADISH LEAVES	MN-54	<	20.2	
10-Sep-18	HORSERADISH LEAVES	CO-58	<	16.4	
10-Sep-18	HORSERADISH LEAVES	FE-59	<	31.4	
10-Sep-18	HORSERADISH LEAVES	CO-60	<	9.0	
10-Sep-18	HORSERADISH LEAVES	ZN-65	<	41.5	
10-Sep-18	HORSERADISH LEAVES	ZR-NB-95	<	18.9	
10-Sep-18	HORSERADISH LEAVES	I-131	<	45.1	
10-Sep-18	HORSERADISH LEAVES	CS-134	<	18.0	
10-Sep-18	HORSERADISH LEAVES	CS-137	<	17.9	
01-Oct-18	HORSERADISH LEAVES	BE-7	261.6 +/-	76.5	
01-Oct-18	HORSERADISH LEAVES	K-40	4,943.6 +/-	203.9	
01-Oct-18	HORSERADISH LEAVES	MN-54	<	7.8	
01-Oct-18	HORSERADISH LEAVES	CO-58	<	5.6	
01-Oct-18	HORSERADISH LEAVES	FE-59	<	16.1	
01-Oct-18	HORSERADISH LEAVES	CO-60	<	5.7	
01-Oct-18	HORSERADISH LEAVES	ZN-65	<	15.0	
01-Oct-18	HORSERADISH LEAVES	ZR-NB-95	<	5.0	
01-Oct-18	HORSERADISH LEAVES	I-131	<	18.9	
01-Oct-18	HORSERADISH LEAVES	CS-134	<	6.6	
01-Oct-18	HORSERADISH LEAVES	CS-137	<	7.1	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-May-18	HORSERADISH LEAVES	BE-7	1,010.6 +/-	177.0	
17-May-18	HORSERADISH LEAVES	K-40	6,340.5 +/-	425.5	
17-May-18	HORSERADISH LEAVES	MN-54	<	12.4	
17-May-18	HORSERADISH LEAVES	CO-58	<	15.0	
17-May-18	HORSERADISH LEAVES	FE-59	<	24.8	
17-May-18	HORSERADISH LEAVES	CO-60	<	12.1	
17-May-18	HORSERADISH LEAVES	ZN-65	<	14.8	
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	13.9	
17-May-18	HORSERADISH LEAVES	I-131	<	38.3	
17-May-18	HORSERADISH LEAVES	CS-134	<	12.0	
17-May-18	HORSERADISH LEAVES	CS-137	<	15.1	
14-Jun-18	HORSERADISH LEAVES	BE-7	1,286.9 +/-	213.3	
14-Jun-18	HORSERADISH LEAVES	K-40	6,594.8 +/-	431.4	
14-Jun-18	HORSERADISH LEAVES	MN-54	<	13.1	
14-Jun-18	HORSERADISH LEAVES	CO-58	<	7.1	
14-Jun-18	HORSERADISH LEAVES	FE-59	<	35.2	
14-Jun-18	HORSERADISH LEAVES	CO-60	<	11.7	
14-Jun-18	HORSERADISH LEAVES	ZN-65	<	19.6	
14-Jun-18	HORSERADISH LEAVES	ZR-NB-95	<	11.0	
14-Jun-18	HORSERADISH LEAVES	I-131	<	53.2	
14-Jun-18	HORSERADISH LEAVES	CS-134	<	13.3	
14-Jun-18	HORSERADISH LEAVES	CS-137	<	8.4	
30-Jul-18	HORSERADISH LEAVES	BE-7	966.2 +/-	180.5	
30-Jul-18	HORSERADISH LEAVES	K-40	4,849.4 +/-	427.8	
30-Jul-18	HORSERADISH LEAVES	MN-54	<	12.8	
30-Jul-18	HORSERADISH LEAVES	CO-58	<	11.1	
30-Jul-18	HORSERADISH LEAVES	FE-59	<	16.8	
30-Jul-18	HORSERADISH LEAVES	CO-60	<	15.0	
30-Jul-18	HORSERADISH LEAVES	ZN-65	<	21.1	
30-Jul-18	HORSERADISH LEAVES	ZR-NB-95	<	8.2	
30-Jul-18	HORSERADISH LEAVES	I-131	<	31.8	
30-Jul-18	HORSERADISH LEAVES	CS-134	<	15.5	
30-Jul-18	HORSERADISH LEAVES	CS-137	<	8.8	
13-Aug-18	HORSERADISH LEAVES	BE-7	869.8 +/-	193.9	
13-Aug-18	HORSERADISH LEAVES	K-40	5,421.6 +/-	445.4	
13-Aug-18	HORSERADISH LEAVES	MN-54	<	8.7	
13-Aug-18	HORSERADISH LEAVES	CO-58	<	9.7	
13-Aug-18	HORSERADISH LEAVES	FE-59	<	21.1	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
13-Aug-18	HORSERADISH LEAVES	CO-60	<	10.2	
13-Aug-18	HORSERADISH LEAVES	ZN-65	<	11.0	
13-Aug-18	HORSERADISH LEAVES	ZR-NB-95	<	15.2	
13-Aug-18	HORSERADISH LEAVES	I-131	<	34.0	
13-Aug-18	HORSERADISH LEAVES	CS-134	<	14.7	
13-Aug-18	HORSERADISH LEAVES	CS-137	<	10.5	
10-Sep-18	HORSERADISH LEAVES	BE-7	613.6 +/-	252.7	
10-Sep-18	HORSERADISH LEAVES	K-40	4,734.2 +/-	471.3	
10-Sep-18	HORSERADISH LEAVES	MN-54	<	15.6	
10-Sep-18	HORSERADISH LEAVES	CO-58	<	14.4	
10-Sep-18	HORSERADISH LEAVES	FE-59	<	33.2	
10-Sep-18	HORSERADISH LEAVES	CO-60	<	10.1	
10-Sep-18	HORSERADISH LEAVES	ZN-65	<	30.2	
10-Sep-18	HORSERADISH LEAVES	ZR-NB-95	<	9.6	
10-Sep-18	HORSERADISH LEAVES	I-131	<	28.2	
10-Sep-18	HORSERADISH LEAVES	CS-134	<	17.5	
10-Sep-18	HORSERADISH LEAVES	CS-137	<	15.9	
01-Oct-18	HORSERADISH LEAVES	BE-7	227.2 +/-	66.1	
01-Oct-18	HORSERADISH LEAVES	K-40	5,540.8 +/-	185.6	
01-Oct-18	HORSERADISH LEAVES	MN-54	<	5.4	
01-Oct-18	HORSERADISH LEAVES	CO-58	<	6.8	
01-Oct-18	HORSERADISH LEAVES	FE-59	<	15.3	
01-Oct-18	HORSERADISH LEAVES	CO-60	<	6.9	
01-Oct-18	HORSERADISH LEAVES	ZN-65	<	12.8	
01-Oct-18	HORSERADISH LEAVES	ZR-NB-95	<	8.2	
01-Oct-18	HORSERADISH LEAVES	I-131	<	13.9	
01-Oct-18	HORSERADISH LEAVES	CS-134	<	7.1	
01-Oct-18	HORSERADISH LEAVES	CS-137	<	8.1	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-May-18	HORSERADISH LEAVES	BE-7	1,227.8 +/-	251.2	
17-May-18	HORSERADISH LEAVES	K-40	6,196.2 +/-	473.1	
17-May-18	HORSERADISH LEAVES	MN-54	<	14.2	
17-May-18	HORSERADISH LEAVES	CO-58	<	16.8	
17-May-18	HORSERADISH LEAVES	FE-59	<	41.5	
17-May-18	HORSERADISH LEAVES	CO-60	<	18.7	
17-May-18	HORSERADISH LEAVES	ZN-65	<	33.2	
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	12.2	
17-May-18	HORSERADISH LEAVES	I-131	<	35.4	
17-May-18	HORSERADISH LEAVES	CS-134	<	16.7	
17-May-18	HORSERADISH LEAVES	CS-137	<	16.5	
14-Jun-18	HORSERADISH LEAVES	BE-7	1,409.3 +/-	194.8	
14-Jun-18	HORSERADISH LEAVES	K-40	6,429.1 +/-	457.7	
14-Jun-18	HORSERADISH LEAVES	MN-54	<	14.1	
14-Jun-18	HORSERADISH LEAVES	CO-58	<	16.5	
14-Jun-18	HORSERADISH LEAVES	FE-59	<	23.1	
14-Jun-18	HORSERADISH LEAVES	CO-60	<	8.8	
14-Jun-18	HORSERADISH LEAVES	ZN-65	<	27.9	
14-Jun-18	HORSERADISH LEAVES	ZR-NB-95	<	21.5	
14-Jun-18	HORSERADISH LEAVES	I-131	<	55.8	
14-Jun-18	HORSERADISH LEAVES	CS-134	<	12.9	
14-Jun-18	HORSERADISH LEAVES	CS-137	<	12.4	
30-Jul-18	HORSERADISH LEAVES	BE-7	646.2 +/-	143.0	
30-Jul-18	HORSERADISH LEAVES	K-40	3,998.5 +/-	350.0	
30-Jul-18	HORSERADISH LEAVES	MN-54	<	12.2	
30-Jul-18	HORSERADISH LEAVES	CO-58	<	10.9	
30-Jul-18	HORSERADISH LEAVES	FE-59	<	19.9	
30-Jul-18	HORSERADISH LEAVES	CO-60	<	9.6	
30-Jul-18	HORSERADISH LEAVES	ZN-65	<	19.6	
30-Jul-18	HORSERADISH LEAVES	ZR-NB-95	<	12.0	
30-Jul-18	HORSERADISH LEAVES	I-131	<	28.4	
30-Jul-18	HORSERADISH LEAVES	CS-134	<	11.8	
30-Jul-18	HORSERADISH LEAVES	CS-137	<	14.3	
13-Aug-18	HORSERADISH LEAVES	BE-7	344.5 +/-	115.9	
13-Aug-18	HORSERADISH LEAVES	K-40	5,893.5 +/-	383.8	
13-Aug-18	HORSERADISH LEAVES	MN-54	<	10.9	
13-Aug-18	HORSERADISH LEAVES	CO-58	<	7.4	
13-Aug-18	HORSERADISH LEAVES	FE-59	<	22.4	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
13-Aug-18	HORSERADISH LEAVES	CO-60	<	11.6	
13-Aug-18	HORSERADISH LEAVES	ZN-65	<	12.7	
13-Aug-18	HORSERADISH LEAVES	ZR-NB-95	<	9.5	
13-Aug-18	HORSERADISH LEAVES	I-131	<	18.4	
13-Aug-18	HORSERADISH LEAVES	CS-134	<	9.9	
13-Aug-18	HORSERADISH LEAVES	CS-137	<	12.0	
10-Sep-18	HORSERADISH LEAVES	BE-7	496.7 +/-	134.3	
10-Sep-18	HORSERADISH LEAVES	K-40	4,054.7 +/-	380.8	
10-Sep-18	HORSERADISH LEAVES	MN-54	<	9.7	
10-Sep-18	HORSERADISH LEAVES	CO-58	<	9.6	
10-Sep-18	HORSERADISH LEAVES	FE-59	<	25.3	
10-Sep-18	HORSERADISH LEAVES	CO-60	<	9.3	
10-Sep-18	HORSERADISH LEAVES	ZN-65	<	25.7	
10-Sep-18	HORSERADISH LEAVES	ZR-NB-95	<	9.8	
10-Sep-18	HORSERADISH LEAVES	I-131	<	21.5	
10-Sep-18	HORSERADISH LEAVES	CS-134	<	12.8	
10-Sep-18	HORSERADISH LEAVES	CS-137	<	14.0	
01-Oct-18	HORSERADISH LEAVES	BE-7	137.2 +/-	53.6	
01-Oct-18	HORSERADISH LEAVES	K-40	3,505.0 +/-	136.8	
01-Oct-18	HORSERADISH LEAVES	MN-54	<	5.6	
01-Oct-18	HORSERADISH LEAVES	CO-58	<	4.7	
01-Oct-18	HORSERADISH LEAVES	FE-59	<	9.6	
01-Oct-18	HORSERADISH LEAVES	CO-60	<	4.9	
01-Oct-18	HORSERADISH LEAVES	ZN-65	<	9.5	
01-Oct-18	HORSERADISH LEAVES	ZR-NB-95	<	4.3	
01-Oct-18	HORSERADISH LEAVES	I-131	<	7.8	
01-Oct-18	HORSERADISH LEAVES	CS-134	<	4.7	
01-Oct-18	HORSERADISH LEAVES	CS-137	<	5.7	

Exposure Pathway - Ingestion
Food/Garden
Location: Q-6

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
17-May-18	HORSERADISH LEAVES	BE-7	1,012.4 +/-	207.1	
17-May-18	HORSERADISH LEAVES	K-40	5,485.4 +/-	459.1	
17-May-18	HORSERADISH LEAVES	MN-54	<	16.6	
17-May-18	HORSERADISH LEAVES	CO-58	<	10.0	
17-May-18	HORSERADISH LEAVES	FE-59	<	23.7	
17-May-18	HORSERADISH LEAVES	CO-60	<	11.9	
17-May-18	HORSERADISH LEAVES	ZN-65	<	32.2	
17-May-18	HORSERADISH LEAVES	ZR-NB-95	<	19.1	
17-May-18	HORSERADISH LEAVES	I-131	<	31.3	
17-May-18	HORSERADISH LEAVES	CS-134	<	12.9	
17-May-18	HORSERADISH LEAVES	CS-137	<	12.3	
14-Jun-18	HORSERADISH LEAVES	BE-7	801.3 +/-	167.6	
14-Jun-18	HORSERADISH LEAVES	K-40	5,629.3 +/-	396.1	
14-Jun-18	HORSERADISH LEAVES	MN-54	<	13.2	
14-Jun-18	HORSERADISH LEAVES	CO-58	<	14.0	
14-Jun-18	HORSERADISH LEAVES	FE-59	<	34.7	
14-Jun-18	HORSERADISH LEAVES	CO-60	<	12.5	
14-Jun-18	HORSERADISH LEAVES	ZN-65	<	17.3	
14-Jun-18	HORSERADISH LEAVES	ZR-NB-95	<	12.6	
14-Jun-18	HORSERADISH LEAVES	I-131	<	30.9	
14-Jun-18	HORSERADISH LEAVES	CS-134	<	10.2	
14-Jun-18	HORSERADISH LEAVES	CS-137	<	13.1	
30-Jul-18	HORSERADISH LEAVES	BE-7	421.9 +/-	130.6	
30-Jul-18	HORSERADISH LEAVES	K-40	5,086.6 +/-	435.4	
30-Jul-18	HORSERADISH LEAVES	MN-54	<	15.4	
30-Jul-18	HORSERADISH LEAVES	CO-58	<	12.5	
30-Jul-18	HORSERADISH LEAVES	FE-59	<	23.4	
30-Jul-18	HORSERADISH LEAVES	CO-60	<	9.0	
30-Jul-18	HORSERADISH LEAVES	ZN-65	<	38.3	
30-Jul-18	HORSERADISH LEAVES	ZR-NB-95	<	13.7	
30-Jul-18	HORSERADISH LEAVES	I-131	<	18.5	
30-Jul-18	HORSERADISH LEAVES	CS-134	<	11.7	
30-Jul-18	HORSERADISH LEAVES	CS-137	<	7.5	
13-Aug-18	HORSERADISH LEAVES	BE-7	365.2 +/-	122.2	
13-Aug-18	HORSERADISH LEAVES	K-40	6,900.9 +/-	377.3	
13-Aug-18	HORSERADISH LEAVES	MN-54	<	9.8	
13-Aug-18	HORSERADISH LEAVES	CO-58	<	6.5	
13-Aug-18	HORSERADISH LEAVES	FE-59	<	20.9	

Exposure Pathway - Ingestion
Food/Garden
Location: Q-6

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
13-Aug-18	HORSERADISH LEAVES	CO-60	<	6.7	
13-Aug-18	HORSERADISH LEAVES	ZN-65	<	17.6	
13-Aug-18	HORSERADISH LEAVES	ZR-NB-95	<	6.7	
13-Aug-18	HORSERADISH LEAVES	I-131	<	15.9	
13-Aug-18	HORSERADISH LEAVES	CS-134	<	9.7	
13-Aug-18	HORSERADISH LEAVES	CS-137	<	9.4	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
05-Nov-18	IRRIGATED SOYBEANS	BE-7	<	72.7	
05-Nov-18	IRRIGATED SOYBEANS	K-40	14,086.0 +/-	500.2	
05-Nov-18	IRRIGATED SOYBEANS	MN-54	<	11.0	
05-Nov-18	IRRIGATED SOYBEANS	CO-58	<	8.0	
05-Nov-18	IRRIGATED SOYBEANS	FE-59	<	21.7	
05-Nov-18	IRRIGATED SOYBEANS	CO-60	<	8.1	
05-Nov-18	IRRIGATED SOYBEANS	ZN-65	<	38.4	
05-Nov-18	IRRIGATED SOYBEANS	ZR-NB-95	<	13.4	
05-Nov-18	IRRIGATED SOYBEANS	I-131	<	20.2	
05-Nov-18	IRRIGATED SOYBEANS	CS-134	<	9.0	
05-Nov-18	IRRIGATED SOYBEANS	CS-137	<	9.6	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
04-Oct-18	IRRIGATED CORN	BE-7	<	44.6	
04-Oct-18	IRRIGATED CORN	K-40	2,766.1 +/-	256.9	
04-Oct-18	IRRIGATED CORN	MN-54	<	6.8	
04-Oct-18	IRRIGATED CORN	CO-58	<	8.5	
04-Oct-18	IRRIGATED CORN	FE-59	<	13.0	
04-Oct-18	IRRIGATED CORN	CO-60	<	8.1	
04-Oct-18	IRRIGATED CORN	ZN-65	<	13.8	
04-Oct-18	IRRIGATED CORN	ZR-NB-95	<	7.2	
04-Oct-18	IRRIGATED CORN	I-131	<	9.8	
04-Oct-18	IRRIGATED CORN	CS-134	<	8.7	
04-Oct-18	IRRIGATED CORN	CS-137	<	6.9	

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

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
01-Oct-18	NON-IRRIGATED CORN	BE-7	<	59.3	
01-Oct-18	NON-IRRIGATED CORN	K-40	2,978.5 +/-	310.3	
01-Oct-18	NON-IRRIGATED CORN	MN-54	<	8.3	
01-Oct-18	NON-IRRIGATED CORN	CO-58	<	9.7	
01-Oct-18	NON-IRRIGATED CORN	FE-59	<	16.2	
01-Oct-18	NON-IRRIGATED CORN	CO-60	<	6.9	
01-Oct-18	NON-IRRIGATED CORN	ZN-65	<	13.2	
01-Oct-18	NON-IRRIGATED CORN	ZR-NB-95	<	8.3	
01-Oct-18	NON-IRRIGATED CORN	I-131	<	14.4	
01-Oct-18	NON-IRRIGATED CORN	CS-134	<	8.7	
01-Oct-18	NON-IRRIGATED CORN	CS-137	<	7.1	

Exposure Pathway - Aquatic
Bottom Sediment
Location: DC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
08-May-18	BOTTOM SEDIMENT	K-40	9,298.3 +/-	973.2	
08-May-18	BOTTOM SEDIMENT	MN-54	<	43.6	
08-May-18	BOTTOM SEDIMENT	CO-58	<	55.6	
08-May-18	BOTTOM SEDIMENT	FE-59	<	101.7	
08-May-18	BOTTOM SEDIMENT	CO-60	<	28.5	
08-May-18	BOTTOM SEDIMENT	ZN-65	<	120.7	
08-May-18	BOTTOM SEDIMENT	CS-134	<	36.1	
08-May-18	BOTTOM SEDIMENT	CS-137	<	57.9	
08-May-18	BOTTOM SEDIMENT	FE-55	<	14,443.6	
17-Oct-18	BOTTOM SEDIMENT	K-40	13,441.0 +/-	1,001.0	
17-Oct-18	BOTTOM SEDIMENT	MN-54	<	39.9	
17-Oct-18	BOTTOM SEDIMENT	CO-58	<	60.6	
17-Oct-18	BOTTOM SEDIMENT	FE-59	<	58.9	
17-Oct-18	BOTTOM SEDIMENT	CO-60	<	18.4	
17-Oct-18	BOTTOM SEDIMENT	ZN-65	<	82.1	
17-Oct-18	BOTTOM SEDIMENT	CS-134	<	29.8	
17-Oct-18	BOTTOM SEDIMENT	CS-137	89.7 +/-	49.8	
17-Oct-18	BOTTOM SEDIMENT	FE-55	<	14,698.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: ESW 2018-15

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	11,833.0 +/-	692.8	
09-May-18	BOTTOM SEDIMENT	MN-54	<	29.6	
09-May-18	BOTTOM SEDIMENT	CO-58	<	30.9	
09-May-18	BOTTOM SEDIMENT	FE-59	<	51.6	
09-May-18	BOTTOM SEDIMENT	CO-60	<	23.8	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	58.5	
09-May-18	BOTTOM SEDIMENT	CS-134	<	22.0	
09-May-18	BOTTOM SEDIMENT	CS-137	46.8 +/-	27.6	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,375.1	

Exposure Pathway - Aquatic
Bottom Sediment
Location: ESW 2018-16

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	10,468.0 +/-	877.3	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	36.2	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	51.5	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	66.4	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	20.2	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	62.4	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	31.0	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	40.2	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	14,762.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: JRR

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	15,488.0 +/-	1,275.4	
09-May-18	BOTTOM SEDIMENT	MN-54	<	52.9	
09-May-18	BOTTOM SEDIMENT	CO-58	<	54.9	
09-May-18	BOTTOM SEDIMENT	FE-59	<	163.1	
09-May-18	BOTTOM SEDIMENT	CO-60	<	40.5	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	92.3	
09-May-18	BOTTOM SEDIMENT	CS-134	<	48.5	
09-May-18	BOTTOM SEDIMENT	CS-137	<	46.9	
29-Nov-18	BOTTOM SEDIMENT	K-40	12,186.0 +/-	1,170.7	
29-Nov-18	BOTTOM SEDIMENT	MN-54	<	57.8	
29-Nov-18	BOTTOM SEDIMENT	CO-58	<	60.7	
29-Nov-18	BOTTOM SEDIMENT	FE-59	<	110.8	
29-Nov-18	BOTTOM SEDIMENT	CO-60	<	40.8	
29-Nov-18	BOTTOM SEDIMENT	ZN-65	<	105.6	
29-Nov-18	BOTTOM SEDIMENT	CS-134	<	35.7	
29-Nov-18	BOTTOM SEDIMENT	CS-137	95.7 +/-	39.1	

Exposure Pathway - Aquatic
Bottom Sediment
Location: MUDS

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
01-May-18	BOTTOM SEDIMENT	K-40	10,322.0 +/-	713.9	
01-May-18	BOTTOM SEDIMENT	MN-54	<	34.1	
01-May-18	BOTTOM SEDIMENT	CO-58	<	33.0	
01-May-18	BOTTOM SEDIMENT	FE-59	<	102.2	
01-May-18	BOTTOM SEDIMENT	CO-60	<	18.2	
01-May-18	BOTTOM SEDIMENT	ZN-65	<	51.7	
01-May-18	BOTTOM SEDIMENT	CS-134	<	26.0	
01-May-18	BOTTOM SEDIMENT	CS-137	<	21.4	

Exposure Pathway - Aquatic
Bottom Sediment
Location: SC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
01-May-18	BOTTOM SEDIMENT	K-40	11,248.0 +/-	798.9	
01-May-18	BOTTOM SEDIMENT	MN-54	<	36.0	
01-May-18	BOTTOM SEDIMENT	CO-58	<	43.1	
01-May-18	BOTTOM SEDIMENT	FE-59	<	98.5	
01-May-18	BOTTOM SEDIMENT	CO-60	<	27.2	
01-May-18	BOTTOM SEDIMENT	ZN-65	<	65.4	
01-May-18	BOTTOM SEDIMENT	CS-134	<	27.0	
01-May-18	BOTTOM SEDIMENT	CS-137	<	33.5	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-57

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	11,048.0 +/-	1,210.5	
09-May-18	BOTTOM SEDIMENT	MN-54	<	67.4	
09-May-18	BOTTOM SEDIMENT	CO-58	<	58.2	
09-May-18	BOTTOM SEDIMENT	FE-59	<	136.6	
09-May-18	BOTTOM SEDIMENT	CO-60	<	53.1	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	126.4	
09-May-18	BOTTOM SEDIMENT	CS-134	<	51.1	
09-May-18	BOTTOM SEDIMENT	CS-137	<	48.0	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,712.4	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-58

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	11,203.0 +/-	1,274.7	
09-May-18	BOTTOM SEDIMENT	MN-54	<	43.6	
09-May-18	BOTTOM SEDIMENT	CO-58	<	65.3	
09-May-18	BOTTOM SEDIMENT	FE-59	<	171.6	
09-May-18	BOTTOM SEDIMENT	CO-60	<	53.5	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	80.9	
09-May-18	BOTTOM SEDIMENT	CS-134	<	61.8	
09-May-18	BOTTOM SEDIMENT	CS-137	<	49.4	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,437.9	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-59

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	15,249.0 +/-	1,528.8	
09-May-18	BOTTOM SEDIMENT	MN-54	<	60.7	
09-May-18	BOTTOM SEDIMENT	CO-58	<	72.4	
09-May-18	BOTTOM SEDIMENT	FE-59	<	150.2	
09-May-18	BOTTOM SEDIMENT	CO-60	<	54.4	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	127.4	
09-May-18	BOTTOM SEDIMENT	CS-134	<	54.5	
09-May-18	BOTTOM SEDIMENT	CS-137	<	59.6	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,835.9	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-60

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	11,821.0 +/-	1,314.9	
09-May-18	BOTTOM SEDIMENT	MN-54	<	70.8	
09-May-18	BOTTOM SEDIMENT	CO-58	<	70.7	
09-May-18	BOTTOM SEDIMENT	FE-59	<	118.6	
09-May-18	BOTTOM SEDIMENT	CO-60	<	38.4	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	142.0	
09-May-18	BOTTOM SEDIMENT	CS-134	<	49.5	
09-May-18	BOTTOM SEDIMENT	CS-137	84.0 +/-	49.3	
09-May-18	BOTTOM SEDIMENT	NI-63	<	417.4	
09-May-18	BOTTOM SEDIMENT	SR-89	<	73.4	
09-May-18	BOTTOM SEDIMENT	SR-90	32.4 +/-	17.7	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,363.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-61

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	10,024.0 +/-	856.4	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	48.7	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	46.1	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	59.6	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	20.7	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	100.9	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	29.4	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	39.9	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	13,934.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-62

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	10,686.0 +/-	848.6	
22-Oct-18	BOTTOM SEDIMENT	K-40	10,686.0 +/-	848.6	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	44.1	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	44.1	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	54.5	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	54.5	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	122.0	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	122.0	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	29.0	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	29.0	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	79.0	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	79.0	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	35.1	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	35.1	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	43.6	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	43.6	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	14,494.0	
22-Oct-18	BOTTOM SEDIMENT	SR-90	32.6 +/-	18.4	
22-Oct-18	BOTTOM SEDIMENT	NI-63	<	418.1	
22-Oct-18	BOTTOM SEDIMENT	SR-89	<	79.2	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-63

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	9,106.0 +/-	776.5	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	44.4	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	31.2	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	100.7	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	24.2	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	69.2	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	23.1	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	39.7	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	13,542.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS 2018-64

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	10,562.0 +/-	868.2	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	43.9	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	42.9	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	114.7	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	22.4	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	64.9	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	30.2	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	37.8	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	14,359.0	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS HS-15

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
09-May-18	BOTTOM SEDIMENT	K-40	11,727.0 +/-	1,244.7	
09-May-18	BOTTOM SEDIMENT	MN-54	<	38.4	
09-May-18	BOTTOM SEDIMENT	CO-58	<	40.2	
09-May-18	BOTTOM SEDIMENT	FE-59	<	151.6	
09-May-18	BOTTOM SEDIMENT	CO-60	<	46.1	
09-May-18	BOTTOM SEDIMENT	ZN-65	<	95.9	
09-May-18	BOTTOM SEDIMENT	CS-134	<	49.9	
09-May-18	BOTTOM SEDIMENT	CS-137	<	44.1	
09-May-18	BOTTOM SEDIMENT	FE-55	<	14,772.4	

Exposure Pathway - Aquatic
Bottom Sediment
Location: UHS HS-16

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
22-Oct-18	BOTTOM SEDIMENT	K-40	11,581.0 +/-	1,034.0	
22-Oct-18	BOTTOM SEDIMENT	MN-54	<	50.0	
22-Oct-18	BOTTOM SEDIMENT	CO-58	<	62.3	
22-Oct-18	BOTTOM SEDIMENT	FE-59	<	143.3	
22-Oct-18	BOTTOM SEDIMENT	CO-60	<	28.1	
22-Oct-18	BOTTOM SEDIMENT	ZN-65	<	74.5	
22-Oct-18	BOTTOM SEDIMENT	CS-134	<	40.1	
22-Oct-18	BOTTOM SEDIMENT	CS-137	<	50.5	
22-Oct-18	BOTTOM SEDIMENT	FE-55	<	13,704.0	

Exposure Pathway - Aquatic Vegetation
Location: DC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
24-Jul-18	CATTAILS	BE-7	243.5 +/-	86.8	
24-Jul-18	CATTAILS	K-40	2,505.7 +/-	192.2	
24-Jul-18	CATTAILS	MN-54	<	7.9	
24-Jul-18	CATTAILS	CO-58	<	5.7	
24-Jul-18	CATTAILS	FE-59	<	10.6	
24-Jul-18	CATTAILS	CO-60	<	7.7	
24-Jul-18	CATTAILS	ZN-65	<	12.6	
24-Jul-18	CATTAILS	ZR-NB-95	<	11.7	
24-Jul-18	CATTAILS	I-131	<	34.4	
24-Jul-18	CATTAILS	CS-134	<	8.3	
24-Jul-18	CATTAILS	CS-137	<	8.9	

Exposure Pathway - Aquatic Vegetation
Location: MUDS

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
11-Jul-18	BRITTLE NAIAD	BE-7	200.1 +/-	32.4	
11-Jul-18	BRITTLE NAIAD	K-40	2,175.3 +/-	65.4	
11-Jul-18	BRITTLE NAIAD	MN-54	<	2.6	
11-Jul-18	BRITTLE NAIAD	CO-58	<	2.8	
11-Jul-18	BRITTLE NAIAD	FE-59	<	4.2	
11-Jul-18	BRITTLE NAIAD	CO-60	<	2.1	
11-Jul-18	BRITTLE NAIAD	ZN-65	<	4.9	
11-Jul-18	BRITTLE NAIAD	ZR-NB-95	<	3.5	
11-Jul-18	BRITTLE NAIAD	I-131	<	6.4	
11-Jul-18	BRITTLE NAIAD	CS-134	<	2.5	
11-Jul-18	BRITTLE NAIAD	CS-137	<	2.8	

Exposure Pathway - Aquatic Vegetation
Location: SC

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
12-Jun-18	CATTAILS	BE-7	<	188.4	
12-Jun-18	CATTAILS	K-40	2,245.6 +/-	229.6	
12-Jun-18	CATTAILS	MN-54	<	5.1	
12-Jun-18	CATTAILS	CO-58	<	7.2	
12-Jun-18	CATTAILS	FE-59	<	16.0	
12-Jun-18	CATTAILS	CO-60	<	4.4	
12-Jun-18	CATTAILS	ZN-65	<	7.2	
12-Jun-18	CATTAILS	ZR-NB-95	<	7.6	
12-Jun-18	CATTAILS	I-131	<	24.7	
12-Jun-18	CATTAILS	CS-134	<	8.1	
12-Jun-18	CATTAILS	CS-137	<	6.2	

Exposure Pathway - Terrestrial
Vegetation
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
12-Jun-18	PASTURAGE	BE-7	2,010.9 +/-	234.5	
12-Jun-18	PASTURAGE	K-40	8,309.2 +/-	545.3	
12-Jun-18	PASTURAGE	MN-54	<	16.9	
12-Jun-18	PASTURAGE	CO-58	<	15.0	
12-Jun-18	PASTURAGE	FE-59	<	28.0	
12-Jun-18	PASTURAGE	CO-60	<	6.5	
12-Jun-18	PASTURAGE	ZN-65	<	31.8	
12-Jun-18	PASTURAGE	ZR-NB-95	<	18.0	
12-Jun-18	PASTURAGE	I-131	<	38.0	
12-Jun-18	PASTURAGE	CS-134	<	12.9	
12-Jun-18	PASTURAGE	CS-137	<	17.0	

Exposure Pathway - Terrestrial
Vegetation
Location: MUDS

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
12-Jun-18	PASTURAGE	BE-7	2,537.8 +/-	223.8	
12-Jun-18	PASTURAGE	K-40	3,714.8 +/-	323.3	
12-Jun-18	PASTURAGE	MN-54	<	13.0	
12-Jun-18	PASTURAGE	CO-58	<	10.1	
12-Jun-18	PASTURAGE	FE-59	<	12.7	
12-Jun-18	PASTURAGE	CO-60	<	6.8	
12-Jun-18	PASTURAGE	ZN-65	<	16.8	
12-Jun-18	PASTURAGE	ZR-NB-95	<	12.6	
12-Jun-18	PASTURAGE	I-131	<	35.4	
12-Jun-18	PASTURAGE	CS-134	<	10.6	
12-Jun-18	PASTURAGE	CS-137	<	6.5	

Exposure Pathway - Terrestrial
Soil
Location: EEA

Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Dry)		Duplicate Analysis
01-May-18	SOIL	K-40	11,760.0 +/-	816.3	
01-May-18	SOIL	MN-54	<	28.2	
01-May-18	SOIL	CO-58	<	44.6	
01-May-18	SOIL	FE-59	<	92.0	
01-May-18	SOIL	CO-60	<	25.6	
01-May-18	SOIL	ZN-65	<	105.4	
01-May-18	SOIL	CS-134	<	32.1	
01-May-18	SOIL	CS-137	181.9 +/-	33.3	

Exposure Pathway - Ingestion
Meat
Location: A2.0

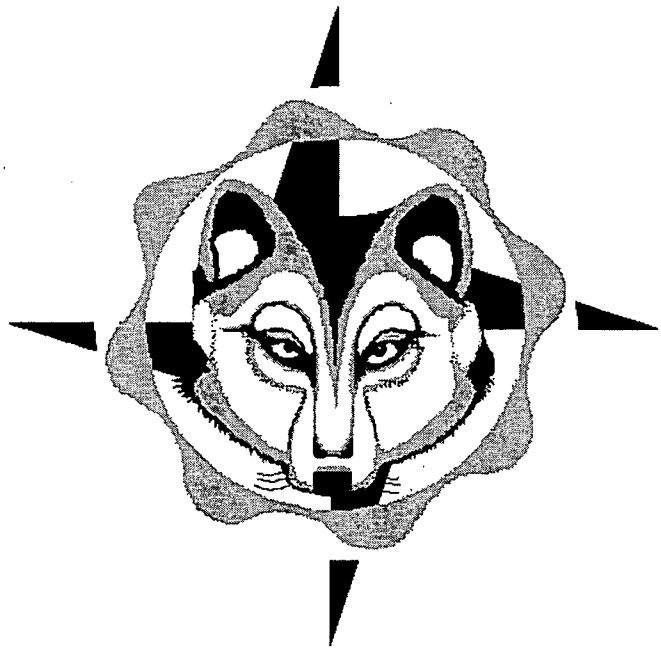
Collection Date	Sample Description	Nuclide	Concentration (pCi/Kg Wet)		Duplicate Analysis
18-Apr-18	WILD TURKEY	K-40	2,940.4 +/-	377.2	
18-Apr-18	WILD TURKEY	MN-54	<	8.4	
18-Apr-18	WILD TURKEY	CO-58	<	13.7	
18-Apr-18	WILD TURKEY	FE-59	<	11.8	
18-Apr-18	WILD TURKEY	CO-60	<	9.5	
18-Apr-18	WILD TURKEY	ZN-65	<	22.5	
18-Apr-18	WILD TURKEY	CS-134	<	16.3	
18-Apr-18	WILD TURKEY	CS-137	<	14.9	
18-Apr-18	WILD TURKEY	H-3	612.0 +/-	89.0	

APPENDIX D

LAND USE CENSUS REPORT

WOLF CREEK GENERATING STATION

2018 LAND USE CENSUS REPORT



Prepared by: Matt Vopat

Jon Matthew Vopat — 10/04/18 Date

Peer Review: Teresa L. Rice

Teresa L. Rice — 10/08/18 Date

Approved by: James K. Rudeen

James K. Rudeen — 10/08/18 Date

EXECUTIVE SUMMARY

The annual Land Use Census of rural residents within five miles of the Wolf Creek Generating Station (WCGS) has been completed in 2018 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

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

TABLE 1

2018 Land Use Census Data

Location of Nearest:

Sector	Residence	Milking Animals	Broadleaf Garden
A	A2.60-17TE1527	None	A2.60-17TE1527
B	B3.53-QURD1755	None	None
C	C1.92-16RD1655	None	C3.58-RERD1675
D	D2.33-RERD1520	None	D3.00-16RD1829
E	E1.78-QULA1451	None	None
F	F1.76-14RD1730	None	F3.37-14RD1904
G	G3.03-13RD1820	None	None
H	H3.09-12RD1711	None	None
J	J3.70-11RD1540	None	J3.70-11RD1540
K	K2.70-12LA1437	None	K4.10-NARD1120
L	L2.10-NARD1339	None	L2.39-NARD1309
M	M2.34-14RD1346	None	M3.78-LYRD1390
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: A2.60-17TE1527

"A" = Sector A

"2.60" = 2.60 miles from the reactor

"17TE1527" = address

TABLE 2

SECTOR	2017 NEAREST RESIDENCE	2018 NEAREST RESIDENCE
A	A2.60-17TE1527	A2.60-17TE1527
B	B3.53-QURD1755	B3.53-QURD1755
C	C2.00-16RD1715	C1.92-16RD1655
D	D2.33-RERD1520	D2.33-RERD1520
E	E1.78-QULA1451	E1.78-QULA1451
F	F1.84-QULA1419	F1.76-14RD1730
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	K2.70-12LA1437
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 2017 Land Use Census.

TABLE 3

2018 Land Use Census Milk and Garden Data

SECTOR	2017 MILKING ANIMALS	2018 MILKING ANIMALS	2017 NEAREST GARDEN PRODUCING BROADLEAF VEGETATION	2018 NEAREST GARDEN PRODUCING BROADLEAF VEGETATION
A	None	None	A2.60-17TE1527	A2.60-17TE1527
B	None	None	B4.09-18RD1739	None
C	None	None	C3.58-RERD1675	C3.58-RERD1675
D	None	None	D3.00-16RD1829	D3.00-16RD1829
E	None	None	None	None
F	None	None	F3.37-14RD1904	F3.37-14RD1904
G	None	None	G3.60-RERD1198	None
H	None	None	H3.09-12RD1711	None
J	None	None	J3.75-11RD1580	J3.70-11RD1540
K	None	None	K4.10-NARD1120	K4.10-NARD1120
L	None	None	L2.39-NARD1309	L2.39-NARD1309
M	None	None	M3.69-LYLA1290	M3.78-LYRD1390
N	None	None	N2.08-15RD1350	N2.08-15RD1350
P	None	None	P4.95-LADR339	P2.94-16RD1309
Q	None	None	Q2.35-MILA1619	Q2.35-MILA1619
R	None	None	None	None

NOTE: Underlined entries indicate changes from the 2017 Land Use Census.

TABLE 4

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

FROM LAND USE			FROM SA-16-004					
SECTOR	DIST (MI)	CALC (METERS)	NEAR DIST	NEAR D / Q	FAR DIST	FAR D / Q	CALC	SECTOR RANKING
A	2.60	4184	4000	1.85E-09	5000	1.26E-09	1.74E-09	1
B								
C	3.58	5761	5000	2.77E-10	6000	2.04E-10	2.21E-10	10
D	3.00	4828	4000	2.93E-10	5000	1.99E-10	2.15E-10	11
E								
F	3.37	5423	5000	2.86E-10	6000	2.10E-10	2.54E-10	8
G								
H								
J	3.70	5955	5000	6.06E-10	6000	4.46E-10	4.53E-10	6
K	4.10	6598	6000	3.88E-10	7000	2.88E-10	3.28E-10	7
L	2.39	3846	3000	1.12E-09	4000	6.75E-10	7.44E-10	4
M	3.78	6083	6000	2.55E-10	7000	1.89E-10	2.50E-10	9
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: Matt Vopat Date: 10/04/18

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