Southern Nuclear

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Edwin I. Hatch Nuclear Plant – Units 1 & 2
Joseph M. Farley Nuclear Plant – Units 1 & 2
Vogtle Electric Generating Plant – Units 1 & 2
Annual Radiological Environmental Operating Reports for 2018

Ladies and Gentlemen:

In accordance with section 5.6.2 of the referenced plants' Technical Specifications, Southern Nuclear Operating Company hereby submits the Annual Radiological Environmental Operating Reports for 2018.

This letter contains no NRC commitments. If you have any questions, please contact Jamie Coleman at 205.992.6611.

Respectfully submitted,

Justin Wheat
Nuclear Licensing Manager

JTW/RMJ

Enclosures: 1. Hatch Annual Radiological Environmental Operating Report for 2018
2. Farley Annual Radiological Environmental Operating Report for 2018
3. Vogtle Annual Radiological Environmental Operating Report for 2018

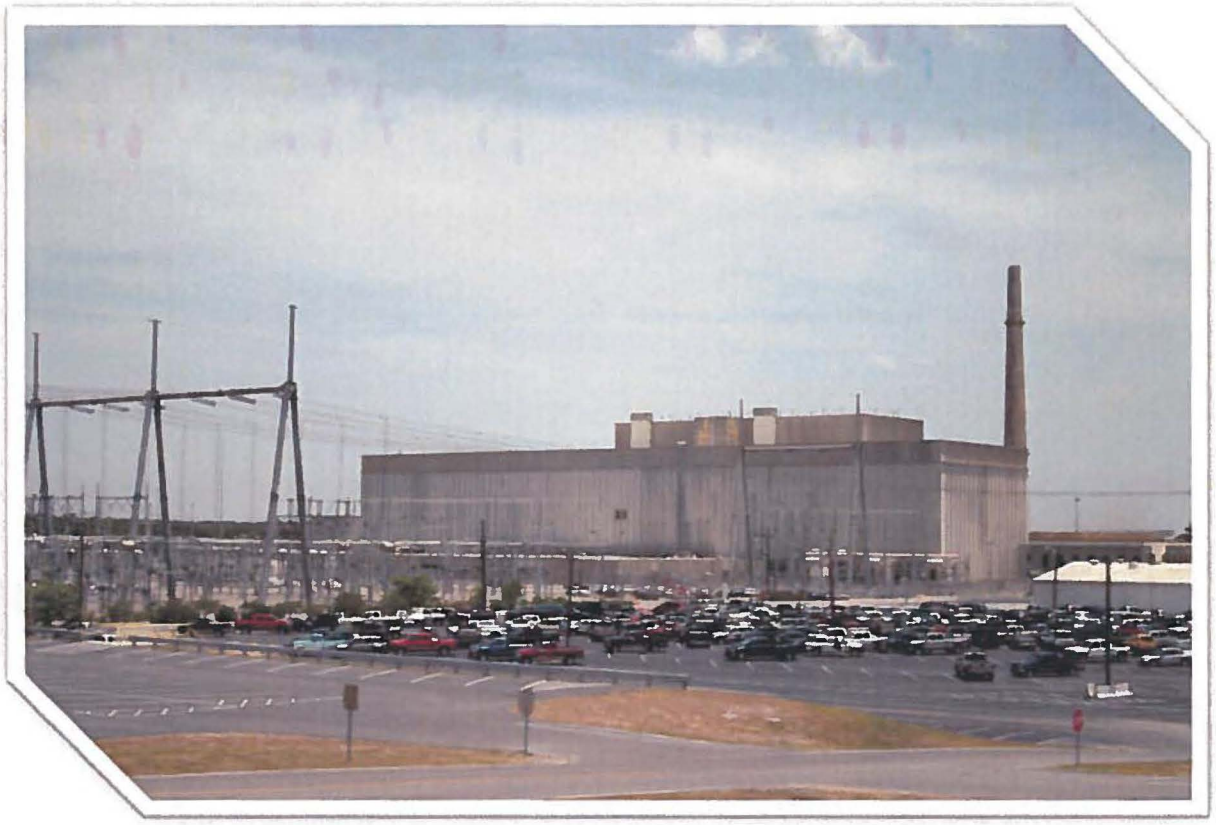
cc: Regional Administrator, Region II
NRR Project Manager – Farley, Hatch, Vogtle 1 & 2
Senior Resident Inspector – Farley, Hatch, Vogtle 1 & 2
RType: Farley=CFA04.054, Hatch=CHA02.004, Vogtle=CVC7000
State of Alabama Department of Public Health, Office of Radiation Control
State of Georgia Department of Natural Resources
American Nuclear Insurers

Edwin I. Hatch Nuclear Plant – Units 1 & 2
Joseph M. Farley Nuclear Plant– Units 1 & 2
Vogtle Electric Generating Plant– Units 1 & 2
Annual Radiological Environmental Operating Reports for 2018

Enclosure 1

Hatch Annual Radiological Environmental Operating Report for 2018

EDWIN I. HATCH NUCLEAR PLANT
2018 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT



Southern Nuclear

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LIST OF ACRONYMS

AREOR	Annual Radiological Environmental Operating Report
BWR	Boiling Water Reactor
CL	Confidence Level
GPC	Georgia Power Company
GPCEL	Georgia Power Company Environmental Laboratory
HNP	Edwin I. Hatch Nuclear Plant
ICP	Interlaboratory Comparison Program
MDC	Minimum Detectable Concentration
MDD	Minimum Detectable Difference
MWt	MegaWatts Thermal
NA	Not Applicable
NDM	No Detectable Measurement(s)
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSLD	Optically Stimulated Luminescence
REMP	Radiological Environmental Monitoring Program
RL	Reporting Level
RM	River Mile
SNC	Southern Nuclear Operating Company
TLD	Thermoluminescent Dosimeter
TS	Technical Specification

1 INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) was conducted in accordance with Chapter 4 of the Offsite Dose Calculation Manual (ODCM). The REMP activities for 2018 were reported herein in accordance with Technical Specification (TS) 5.6.2 and ODCM 7.1.

The objectives of the REMP were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs and;
2) Assess the radiological impact (if any) to the environment due to the operation of the Edwin I. Hatch Nuclear Plant (HNP).

The assessments included comparisons between the results of analyses of samples obtained at locations where radiological levels were not expected to be affected by plant operation (control stations), areas of higher population (community stations), and at locations where radiological levels were more likely to be affected by plant operation (indicator stations), as well as comparisons between preoperational and operational sample results.

HNP is owned by Georgia Power Company (GPC), Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia, and Dalton Utilities. The plant is located in Appling County, Georgia on the southwest side of the Altamaha River near Baxley, Georgia. Unit 1, a General Electric Company Boiling Water Reactor (BWR) with a licensed core thermal output of 924 MegaWatts (MWt), began commercial operation on December 31, 1975. Unit 2, also a General Electric Company BWR rated for 924 MWt, began commercial operation on September 5, 1979.

The pre-operational stage of the REMP began with the establishment and activation of the environmental monitoring stations in January of 1972. The operational stage of the REMP began on September 12, 1974 with Unit 1 initial criticality.

- A description of the REMP is provided in Section 2 of this report
- Section 3 provides a summary of the results, an assessment of any radiological impacts to the environment, and the results from the interlaboratory comparison
- A summary of the land use census and the river survey are included in Section 4
- Conclusions are included in Section 5

2 REMP DESCRIPTION

The following section provides a description of the sampling and laboratory protocols associated with the REMP. Table 2-1 provides a summary of the sample types to be collected and the analyses to be performed in order to monitor the airborne, direct radiation, waterborne and ingestion pathways, and also summarizes the collection and analysis frequencies (in accordance with ODCM Section 4.2). Table 2-2 provides specific information regarding the station locations, their proximity to the plant, and exposure pathways. Additionally, Appendix A of this report provides Maps A-1 through A-3 that depict the georeferenced location of sampling stations. Any Errata from previous reports are provided in Appendix B. All data points resulting from REMP sampling are provided in Appendix C.

Beginning in October 2017 and continuing through 2018, a contractor through Southern Nuclear Operating Company (SNC) provided services for the collection of most of the REMP samples, only fish samples were collected by the Georgia Power Company Environmental Lab (GPCEL) in Atlanta, Georgia. The GPCEL analyzed all REMP samples.

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or Sample	Approximate Number of Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Direct Radiation	37 routine monitoring stations	Quarterly	Gamma dose/Quarterly
Airborne Radioiodine and Particulates	Samples from six locations:	Continuous sampler operation with sample collection weekly	Particulate sampler: Analyze for gross beta radioactivity not less than 24 hours following filter change/Weekly; perform gamma isotopic analysis on affected sample when gross beta activity is 10 times the yearly mean of control samples. Perform gamma isotopic analysis on composite sample (by location)/Quarterly. Radioiodine canister: I-131 analysis/Weekly
Waterborne			
Surface	One sample upriver One sample downriver	Composite sample over one month period[1]	Gamma isotopic analysis[2]/Monthly Composite for tritium analysis/Quarterly
Drinking[3,4]	One sample of river water near the intake and one sample of finished water from each of one to three of the nearest water supplies which could be affected by HNP discharges.	River water collected near the intake will be a composite sample; the finished water will be a grab sample. These samples will be collected monthly unless the calculated dose due to consumption of the water is greater than 1 mrem/year; then the collection will be biweekly. The collections may revert to monthly should the calculated doses become less than 1 mrem/year.	I-131 analysis on each sample when biweekly collections are required. Gross beta and gamma isotopic analysis on each sample; composite (by location) for tritium analysis/Quarterly.
Groundwater	See Table 3-8 and Map A-4 in Appendix A for on-site well locations. These are part of the GWPP (NEI 07-07).	Quarterly sample; pump used to sample GW wells; grab sample from yard drains and ponds Groundwater is sampled per the guidance under NEI 07-07.	Tritium, gamma isotopic, and field parameters of each sample; hard-to-detects based on tritium and gamma results
Shoreline Sediment	Two	Semiannually	Gamma isotopic analysis[2]/Semiannually

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or Sample	Approximate Number of Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Ingestion			
Milk[5]	One	Bimonthly	Gamma isotopic analysis[2,7]/Bimonthly
Fish or Clams[6]	Two	Semiannually during spawning season	Gamma isotopic analysis[2] on edible portions /Semiannually
Grass or Leafy Vegetation	Three	Monthly during growing season	Gamma isotopic analysis[2,7]/Monthly

Notes:
[1]Composite sample aliquots were collected at time intervals were are very short (e.g., hourly) relative to the compositing period (e.g., monthly) to ensure obtaining a representative sample.
[2]Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
[3]If it is found that river water downstream of the plant is used for drinking, drinking water samples will be collected and analyzed as specified herein.
[4]A survey shall be conducted annually at least 50 river miles downstream of the plant to identify those who use water from the Altamaha River for drinking.
[5]Up to three sampling locations within five miles and in different sectors will be used as available. In addition, one or more control locations beyond 10 miles will be used.
[6]Commercially or recreationally important fish may be sampled. Clams may be sampled if difficulties are encountered in obtaining sufficient fish samples.
[7]If the gamma isotopic analysis is not sensitive enough to meet the Minimum Detectable Concentration (MDC) for I-131, a separate analysis for I-131 may be performed.

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
064	Other	Roadside Park	WNW	0.8	Direct
101	Indicator	Inner Ring	N	1.9	Direct
102	Indicator	Inner Ring	NNE	2.5	Direct
103	Indicator	Inner Ring	NE	1.8	Airborne, Direct
104	Indicator	Inner Ring	ENE	1.6	Direct
105	Indicator	Inner Ring	E	3.7	Direct
106	Indicator	Inner Ring	ESE	1.1	Direct, Vegetation
107	Indicator	Inner Ring	SE	1.2	Airborne, Direct
108	Indicator	Inner Ring	SSE	1.6	Direct
109	Indicator	Inner Ring	S	0.9	Direct
110	Indicator	Inner Ring	SSW	1.0	Direct
111	Indicator	Inner Ring	SW	0.9	Direct
112	Indicator	Inner Ring	WSW	1.0	Airborne, Direct, Vegetation
113	Indicator	Inner Ring	W	1.1	Direct
114	Indicator	Inner Ring	WNW	1.2	Direct
115	Indicator	Inner Ring	NW	1.1	Direct
116	Indicator	Inner Ring	NNW	2.0[4]	Airborne, Direct
170	Control	Upstream	WNW	**[2]	River[3]
172	Indicator	Downstream	E	**[2]	River[3]
201	Other	Outer Ring	N	5.0	Direct
202	Other	Outer Ring	NNE	4.9	Direct
203	Other	Outer Ring	NE	5.0	Direct
204	Other	Outer Ring	ENE	5.0	Direct
205	Other	Outer Ring	E	7.2	Direct
206	Other	Outer Ring	ESE	4.8	Direct
207	Other	Outer Ring	SE	4.3	Direct
208	Other	Outer Ring	SSE	4.8	Direct
209	Other	Outer Ring	S	4.4	Direct
210	Other	Outer Ring	SSW	4.3	Direct
211	Other	Outer Ring	SW	4.7	Direct
212	Other	Outer Ring	WSW	4.4	Direct
213	Other	Outer Ring	W	4.3	Direct
214	Other	Outer Ring	WNW	5.4	Direct
215	Other	Outer Ring	NW	4.4	Direct
216	Other	Outer Ring	NNW	4.8	Direct
301	Other	Toombs Central School	N	8.0	Direct

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
304	Control	State Prison	ENE	11.2	Airborne, Direct
304	Control	State Prison	ENE	10.3	Milk
309	Control	Baxley Substation	S	10.0	Airborne, Direct
416	Control	Emergency News Center	NNW	21.0	Direct, Vegetation

Notes:
[1]Direction and distance were determined from the main stack.

[2]Station 170 was located approximately 0.6 river miles upstream of the intake structure for river water, 1.1 river miles for sediment and clams, and 1.5 river miles for fish.

Station 172 was located approximately 3.0 river miles downstream of the discharge structure for river water, sediment and clams, and 1.7 river miles for fish.

The locations from which river water and sediment may be taken can be sharply defined. However, the sampling locations for clams often have to be extended over a wide area to obtain a sufficient quantity. High water adds to the difficulty in obtaining clam samples and may also make an otherwise suitable location for sediment sampling unavailable. A stretch of the river of a few miles or so was generally needed to obtain adequate fish samples. The mile locations given above represent approximations of the locations where samples were collected.

[3]River (fish or clams, shoreline sediment, and surface water)

[4]This station was shifted approximately 0.4 miles due to a highway widening project. Sector did not change. Map A-1 shows the new station location.

3 RESULTS SUMMARY

Included in this section are statistical evaluations of the laboratory results, comparison of the results by media, and a summary of the anomalies and deviations. Overall, 877 analyses were performed across nine exposure pathways. Tables and figures are provided throughout this section to provide an enhanced presentation of the information.

In recent history, man-made nuclides have been released into the environment and have resulted in wide spread distribution of radionuclides across the globe. For example, atmospheric nuclear weapons tests from the mid-1940s through 1980 distributed man-made nuclides around the world. The most recent atmospheric tests in the 1970s and in 1980 have had a significant impact upon the radiological concentrations found in the environment prior to and during pre-operation, and through early operation. Some long-lived radionuclides, such as Cs-137, continue to be detected and a portion of these detections are believed to be attributed to the nuclear weapons tests.

Additionally, data associated with certain radiological effects created by off-site events have been removed from the historical evaluation, this includes: the nuclear atmospheric weapon test in the fall of 1980, the Chernobyl incident in the spring of 1986 and the Fukushima accident in the spring of 2011.

As indicated in ODCM 7.1.2.1, the results for naturally occurring radionuclides that are also found in plant effluents must be reported along with man-made radionuclides. Historically, the radionuclide Be-7, which occurs abundantly in nature, is often detected in REMP samples, and occasionally detected in the plant's liquid and gaseous effluents. When it is detected in effluents and REMP samples, it is also included in the REMP results. In 2018, Be-7 was not detected in plant effluents and therefore it was not included in this report. The Be-7 detected in select REMP samples likely represents naturally occurring and/or background conditions

As part of the data evaluation process, SNC considered the impact of the non-plant associated nuclides along with a statistical evaluation of the REMP data. The statistical evaluations included within this report include the Minimum Detectable Concentration (MDC), the Minimum Detectable Difference (MDD), and Chauvenet's Criterion as described below.

Minimum Detectable Concentration

The minimum detectable concentration is defined as an estimate of the true concentration of an analyte required to give a specified high probability that the measured response will be greater than the critical value.

Minimum Detectable Difference

The Minimum Detectable Difference (MDD) compares the lowest significant difference (between the means) of a control station, versus an indicator station or a community

station, that can be determined statistically at the 99% Confidence Level (CL). A difference in mean values which was less than the MDD was considered to be statistically indiscernible. The MDD is used to evaluate the statistical proximity between the indicator/community and control sample results, but generally, any results that are less than the MDC and/or Reporting Levels (RL) are considered to have minimal impact on the surrounding environs.

Chauvenet's Criterion

All results were tested for conformance with Chauvenet's Criterion (G. D. Chase and J. L. Rabinowitz, Principles of Radioisotope Methodology, Burgess Publishing Company, 1962, pages 87-90) to identify values which differed from the mean of a set by a statistically significant amount. Identified outliers were investigated to determine the reason(s) for the difference. If equipment malfunction or other valid physical reasons were identified as causing the variation, the anomalous result was excluded from the data set as non-representative.

Table 3-1 summarizes and evaluates the annual results for the indicator stations against the control and community stations (where applicable) and as appropriate, results were evaluated against the MDCs (listed in Table 3-1) and RLs (listed in Table 3-2). The required MDCs were achieved during laboratory sample analysis. The 2018 results were compared with previous results, including those obtained during pre-operation. No data points were excluded for violating Chauvenet's Criterion.

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Units)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Airborne Particulates (fCi/m3)	Gross Beta 301	10	20.8 6.5-47.4 (206/206)	Baxley Sub. S 10 mi. (Control)	21.9 10.8-45.5 (52/52)		21.2 3.5-45.5 (98/98)
	Gamma Isotopic 24						
	Be-7	24					
	I-131	70	NDM(c)		NDM		NDM
	Cs-134	50	NDM		NDM		NDM
	Cs-137	60	NDM		NDM		NDM
Airborne Radioiodine (fCi/m3)	I-131 304	70	NDM		NDM	NDM	NDM
Direct Radiation (mR/91 days)	Gamma Dose 148		11.4 81.-19.1 (64/64)	Inner Ring NW 1.1 mi.	17.4 15.5-19.1 (4/4)	11.1 7.1-16.4 (72/72)	11.3 9.7-13.9 (12/12)
Milk (pCi/l)	Gamma Isotopic 24						
	I-131	1			NDM		NDM
	Cs-134	15			NDM		NDM
	Cs-137	18			NDM		NDM
	Ba-140	60			NDM		NDM
	La-140	15			NDM		NDM
Vegetation (pCi/kg-wet)	Gamma Isotopic 36						
	Be-7						
	I-131	60	NDM				NDM
	Cs-134	60	NDM				NDM
	Cs-137	80	NDM		NDM		NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Units)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
River Water (pCi/l)	Gamma Isotopic 12						
	Mn-54	15	NDM		NDM		NDM
	Fe-59	30	NDM		NDM		NDM
	Co-58	15	NDM		NDM		NDM
	Co-60	15	NDM		NDM		NDM
	Zn-65	30	NDM		NDM		NDM
	Zr-95	30	NDM		NDM		NDM
	Nb-95	15	NDM		NDM		NDM
	I-131	15(d)	NDM		NDM		NDM
	Cs-134	15	NDM		NDM		NDM
	Cs-137	18	NDM		NDM		NDM
	Ba-140	60	NDM		NDM		NDM
	La-140	15	NDM		NDM		NDM
	Tritium 8	3000 (e)	94.6 78.9-105 (4/4)	Upstream WNW ~0.6 RM from intake	94.6 78.9-105 (4/4)		165 -87-165 (1/4)
Fish (pCi/kg-wet)	Gamma Isotopic 1						
	Be-7	655(d)	NDM				NDM
	Mn-54	130	NDM				NDM
	Fe-59	260	NDM				NDM
	Co-58	130	NDM				NDM
	Co-60	130	NDM				NDM
	Zn-65	260	NDM				NDM
	Cs-134	130	NDM				NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Units)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
	Cs-137	150	NDM				NDM
Sediment (pCi/kg-dry)	Gamma Isotopic 4						
	Cs-134	150	NDM				NDM
	Cs-137	180	43.6 0-43.6 (1/2)	Upstream WNW 1.1 RM from intake	43.6 0-43.6 (1/2)		68.50 60.7-76.3 (2/2)

Notes:
(a)The MDC is defined in ODCM 10.1. Except as noted otherwise, the values listed in this column are the detection capabilities required by ODCM Table 4-3. The values listed in this column are a priori (before the fact) MDCs. In practice, the a posteriori (after the fact) MDCs are generally lower than the values listed.
(b) Mean and range were based upon detectable measurements only. The fraction of all measurements at a specified location that are detectable is placed in parenthesis.
(c) No Detectable Measurement(s) (NDM).
(d) If a drinking water pathway were to exist, a MDC of 1pCi/L would have been used.
(e) If a drinking water pathway were to exist, a MDC of 2000 pCi/L would have been used.
Not Applicable (NA) (sample not required)

Table 3-2. Reporting Levels (RL)

Analysis	Water (pCi/l)	Airborne Particulate or Gases (fCi/m3)	Fish (pCi/kg-wet)	Milk (pCi/l)	Grass or Leafy Vegetation (pCi/kg-wet)
H-3	20,000[a]				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-95	400				
Nb-95	700				
I-131	2[b]	900		3	100
Cs-134	30	10,000	1,000	60	1,000
Cs-137	50	20,000	2,000	70	2,000
Ba-140	200			300	
La-140	100			400	

[a] This is the 40 CFR 141 value for drinking water samples. If no drinking water pathway exists, a value of 30,000 may be used.
[b] If no drinking water pathway exists, a value of 20 pCi/l may be used.

In accordance with ODCM 4.1.1.2.1, deviations from the required sampling schedule were permitted, if samples were unobtainable due to hazardous conditions, unavailability, inclement weather, equipment malfunction or other just reasons. Deviations from conducting the REMP sampling (as described in Table 2-1) are summarized in Table 3-3 along with their causes and resolution.

Table 3-3. Anomalies and Deviations from Radiological Environmental Monitoring Program

Collection Period	Affected Samples	Anomaly (A)* or Deviation (D)**	Cause	Resolution
06/12/18 – 06/19/18	Air station #107	(D) No air station sample was collected.	Power Supply to the station was lost.	Power provider performed maintenance on the supply lines.
06/19/18	Air station #304	(D) Non-representative sample collected	Particulate filter did not completely cover the sample area.	Additional oversight of personnel conducting sample collection.
08/17/18	Air Station #107	(D) No air station sample was collected.	Power Supply to the station was lost.	Power provider performed maintenance on the supply lines.
08/16/18	Air Stations #112, #116, & #304	(D) Particulate sample invalid.	Samples were exposed to water in shipping.	Shipping methods revised to ensure samples not exposed to liquid environment.
10/23/18 – 11/26/18	Air Station #309	(D) No air station sample was collected.	Power supply disconnected for switchyard work.	Air station was returned to service upon completion of switchyard reconfiguration.
3Q18	OSLDD H207	(D) No sample collected	Cartridge missing	OSLDD returned to service
4Q18	OSLDD H108	(D) No sample collected	Cartridge missing	OSLDD returned to service
4Q18	OSLDD H113	(D) No sample collected	Cartridge missing	OSLDD returned to service
08/7/18	Air Station #103	(D) No air station sample was collected.	Power Supply to the station was lost – fuse blown due to inclement weather	The fuse was replaced and the air station was returned to service.
8/1/2018	Fish	(D)No sample collected	Equipment malfunction	New equipment purchased, sampling schedule returned to normal

* An anomaly is considered a non-standard sample that still meets sampling criteria outlined in SNC and Georgia Power Lab procedures.
** A deviation is a sample result that is not recorded due to not meeting scheduling and/or procedural requirements as outlined by SNC and Georgia Power Labs

3.1 Airborne Particulates

As specified in Table 2-1, airborne particulate filters and charcoal canisters were collected weekly at four indicator stations (Stations 103, 107, 112 and 116) which encircle the plant at the site periphery and at two control stations (Station 304 and 309) which is approximately 10 miles from the main stack. At each sampling location containing a filter and cartridge series, air was continuously drawn through a glass fiber filter to retain airborne particulate and an activated charcoal canister was placed in series with the particulate filter in order to adsorb radioiodine.

3.1.1 Gross Beta

As provided in Table 3-1, the 2018 annual average weekly gross beta activity was 19.7 fCi/m3 for the indicator stations. It was 0.2 fCi/m3 less than the control station average of 19.9 fCi/m3 for the year. No MDD was applied since the indicator average was less than the control.

Average Air Gross Beta historical data (Table 3-4) is graphed to show trends associated with a prevalent exposure pathway (Figure 3-1). In general, there was close agreement between the results for the indicator, control and community stations. This close agreement supports the position that the plant was not contributing significantly to the gross beta concentrations in air.

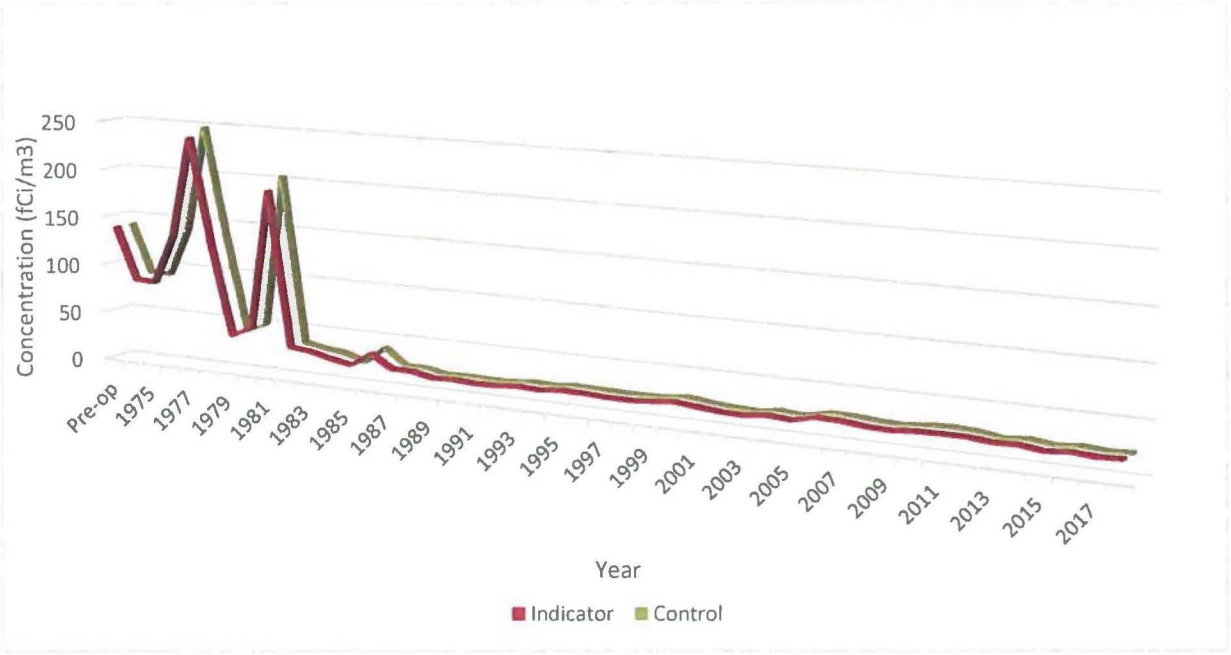
Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)
Pre-op	140	140		1996	21.3	21.4
1974	87	90		1997	20.3	20.7
1975	85	90		1998	20.0	20.5
1976	135	139		1999	21.3	21.3
1977	239	247		2000	23.6	23.9
1978	130	137		2001	21.5	21.0
1979	38	39		2002	19.3	19.2
1980	49	48		2003	18.8	18.2
1981	191	203		2004	21.4	21.3
1982	33	34		2005	19.7	19.4
1983	31	30		2006	24.9	24.7
1984	26	28		2007	24.4	24.3
1985	22	21		2008	21.8	22.5
1986	36	38		2009	21.2	21.4
1987	23	22		2010	23.1	24.0
1988	22.6	21.7		2011	23.5	25.1
1989	18.4	17.8		2012	23.7	22.7
1990	19.3	18.7		2013	21.3	20.3
1991	18.1	18		2014	22.0	22.3
1992	18.5	18.4		2015	19.1	19.6
1993	20.4	20.7		2016	21.4	21.6

Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)
1994	19.5	19.7		2017	19.7	19.9
1995	21.7	21.7		2018	20.8	21.2

Figure 3-1. Average Weekly Gross Beta Air Concentration



3.1.2 Gamma Particulates

During 2018, no man-made radionuclides were detected from the gamma isotopic analysis of the quarterly composites of the air particulate filter.

Airborne Radioiodine - I-131 was not detected in the air cartridges at either the indicator or control stations in 2018. Historically, gamma isotopes have been detected as a result of offsite events. On only one occasion since 1986, has a man-made radionuclide been detected in a quarterly composite. A small amount of Cs-137 (1.7 fCi/m3) was identified in the first quarter of 1991 at Station 304. The MDC and RL for Cs-137 in air are 60 and 20,000 fCi/m3, respectively.

3.2 Direct Radiation

In 2018, direct (external) radiation was measured with Optically Stimulated Luminescent (OSLD) dosimeters by placing two OSLD badges at each station. The gamma dose at each station was reported as the average reading of the two badges. The badges were analyzed on a quarterly

basis. An inspection was performed near mid-quarter for offsite badges to ensure that the badges were on-station and to replace any missing or damaged badges.

Two direct radiation stations were established in each of the 16 compass sectors, to form two concentric rings. The inner ring (Stations 101 through 116) was located near the plant perimeter as shown in Map A-1 in Appendix A and the outer ring (Stations 201 through 216) was located at distances of four to five miles from the plant as shown in Map A-2 in Appendix A. The stations in the East sector were a few additional miles away with regards to the other stations in their respective rings due to large swamps making normal access extremely difficult. The 16 stations forming the inner ring were designated as the indicator stations. The two-ring configuration of stations was established in accordance with NRC Branch Technical Position "An Acceptable Radiological Environmental Monitoring Program", Revision 1, November 1979. The three control stations (Nos. 304, 309 and 416) were located at distances greater than 10 miles from the plant as shown in Map A-2. The mean and range values presented in the "Other" column in Table 3-1 includes the outer ring stations (stations 201 through 216) as well as stations 064 and 301, which monitor special interest areas. Station 064 was located at the onsite roadside park, while Station 301 was located near the Toombs Central School. Station 210, in the outer ring, was located near the Altamaha School (the only other nearby school).

As provided in Table 3-1, the 2018 average quarterly exposure at the indicator stations (inner ring) was 12.5 mR with a range of 8.0-20.6 mR. The indicator station average was 1.0 mR higher than the control station average (11.5 mR with a range of 8.3-14.1 mR). This difference was slightly above the MDD of 0.8 mR so it is statistically discernible; however, there was very close agreement to the control values.

The quarterly exposures acquired at the community/other (outer ring) stations during 2018 ranged from 7.8 to 17.5 mR with an average of 12.1 mR which was 0.6 mR more than that for the control stations. However, this difference was not discernible since it is less than the MDD of 0.7 mR.

Average Direct Radiation historical data (Table 3-5) is graphed to show trends associated with a prevalent exposure pathway (Figure 3-2). The decrease between 1991 and 1992 values was attributed to a change in Thermoluminescent Dosimeters (TLDs) from Teledyne to Panasonic. It should be noted however that the differences between indicator and control and outer ring values did not change. The increase shown in 2010 reflected issues with the aging Panasonic TLD reader. The close agreement between the station groups has supported the position that the plant was not contributing significantly to direct radiation in the environment.

Figure 3-3 below provides a more detailed view of the 2018 values. The values for the special interest areas detailed below, indicate that Plant Hatch did not significantly contribute to direct radiation at those areas.

Table 3-5. Average Quarterly Exposure from Direct Radiation (Historical)

Period	Indicator (mR)	Control (mR)	Outer Ring (mR)		Period	Indicator (mR)	Control (mR)	Outer Ring (mR)
Pre-op	22.3	23.0	NA		1996	11.6	11.3	11.6
1974	23.2	25.6	NA		1997	12.3	11.8	12.3
1975	10.0	10.5	NA		1998	12.1	12.3	12.3
1976	8.18	6.90	NA		1999	12.8	13.2	13.0
1977	7.31	6.52	NA		2000	13.6	13.3	13.3
1978	6.67	6.01	NA		2001	12.0	12.1	11.8
1979	5.16	6.77	NA		2002	11.7	11.7	11.5
1980	4.44	5.04	4.42		2003	11.4	11.4	11.4
1981	5.90	5.70	5.70		2004	12.2	12.4	12.2
1982	12.3	12.0	11.3		2005	12.1	12.5	12.0
1983	11.4	11.3	10.6		2006	12.4	11.9	11.8
1984	13.3	12.9	11.9		2007	12.8	12.5	12.6
1985	14.7	14.7	13.7		2008	13.0	12.3	12.4
1986	15.0	14.0	14.5		2009	12.4	12.2	12.2
1987	14.9	14.6	15.3		2010	15.8	15.6	16.0
1988	15.0	14.7	15.2		2011	19.7	19.1	19.2
1989	16.4	18.0	16.5		2012	14.4	13.6	14.1
1990	14.9	13.9	14.7		2013	12.7	10.2	12.4
1991	15.1	13.7	15.6		2014	12.0	11.7	11.8
1992	11.9	10.9	12.3		2015	12.1	11.7	12.1
1993	11.6	10.7	11.5		2016	12.1	11.0	11.3
1994	11.0	10.7	11.2		2017	12.5	11.5	12.1
1995	11.5	10.8	11.3		2018	11.4	11.3	11.1

Figure 3-2. Average Quarterly Exposure from Direct Radiation

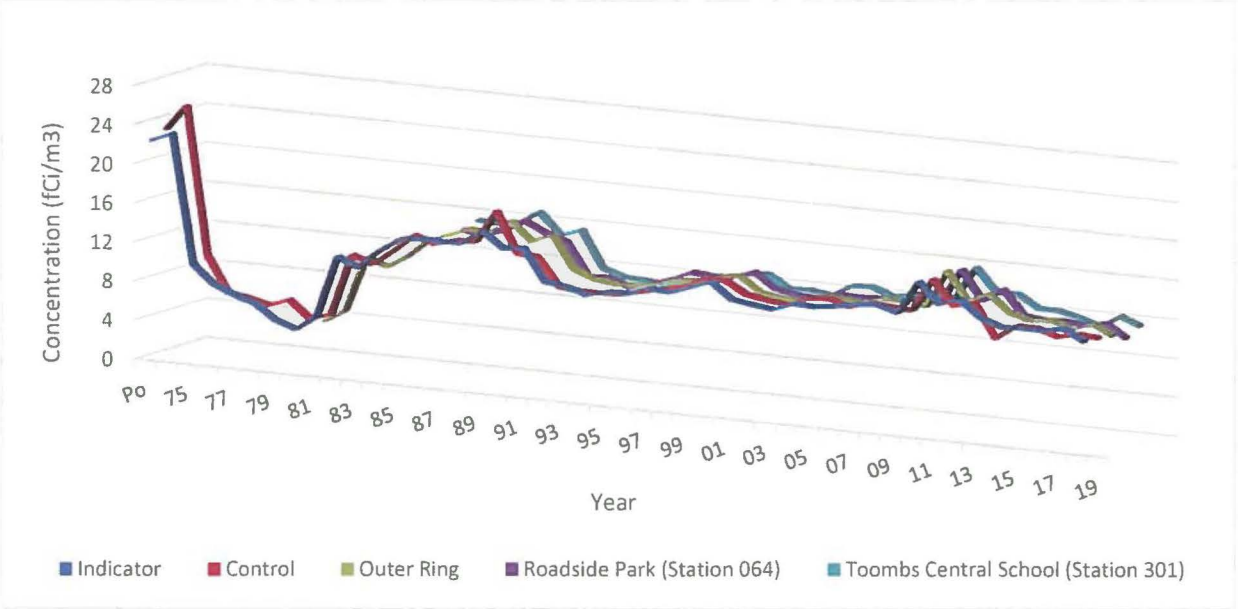
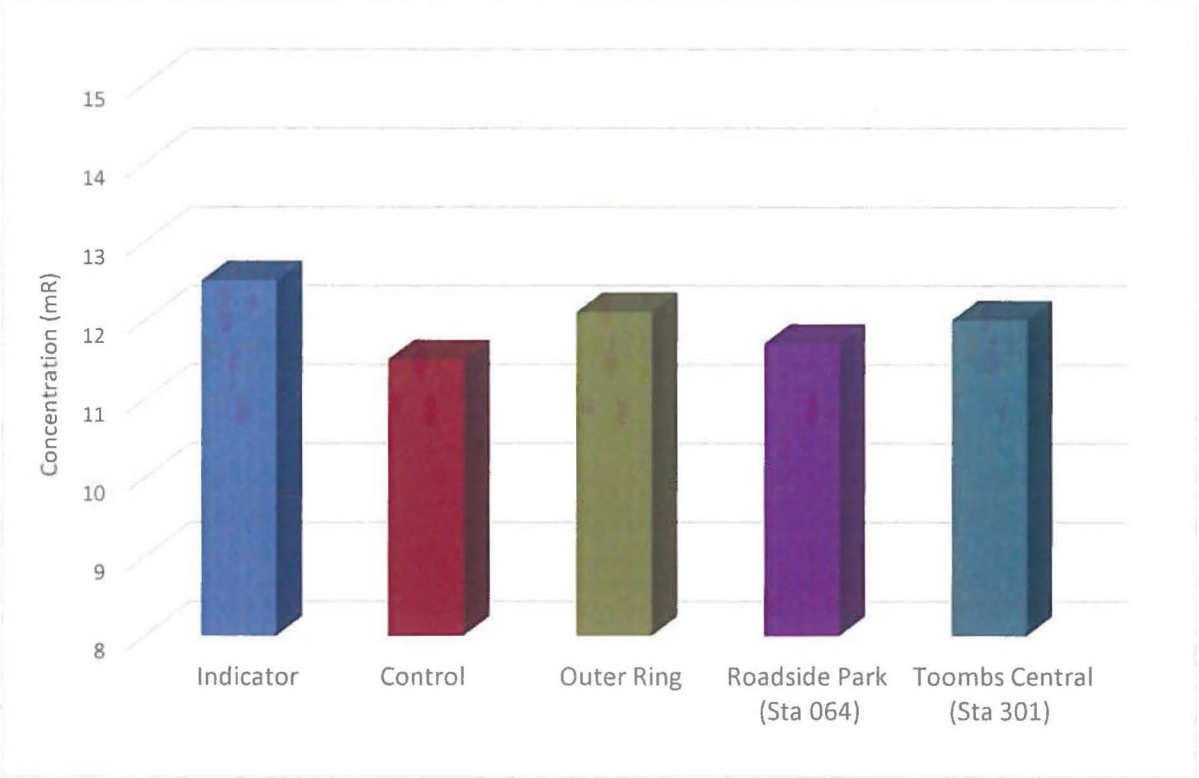


Figure 3-3. 2018 Average Exposure from Direct Radiation



3.3 Biological Media

Cs-137 was the only radionuclide analyzed across all three biological mediums. As indicated in Figure 3-4, the Cs-137 activity levels were below the respective MDCs and well below that of the respective RLs for each sample media for both the indicator and control stations.

3.3.1 Milk

In accordance with Tables 2-1 and 2-2, milk samples were collected semi-monthly from Station 304 (the state prison dairy) which was a control station located more than 10 miles from the plant. Since 1989, efforts to locate a reliable milk sample source within five miles of the plant have been unsuccessful and the 2018 land census did not identify a milk animal within five miles of the plant.

Gamma isotopic (including I-131 and Cs-137) analyses were performed on each collected milk sample and there were no detectable results for gamma isotopes.

3.3.2 Vegetation

In accordance with Tables 2-1 and 2-2, vegetation (forage) samples were collected monthly for gamma isotopic analyses at two indicator locations near the site boundary (Stations 106 and 112) and at one control station located about 21 miles from the plant (Station 416). Cs-137 was not detected in any of indicator or control station samples. The man-made radionuclide Cs-137 were periodically identified in vegetation samples and was generally attributed to offsite sources (such as weapons testing, Chernobyl, and Fukushima).

While Cs-137 and I-131 were periodically found in vegetation samples during pre-operation, the historical trends and the relationship between the indicator and control stations demonstrate that plant operations were having no adverse impact to the environment. The sample results have consistently been below the MDC and the RL for Cs-137 (80 and 2000 pCi/kg-wet, respectively).

During 2018, no man-made gamma isotopes were detected in any Hatch REMP vegetation samples.

3.3.3 Fish

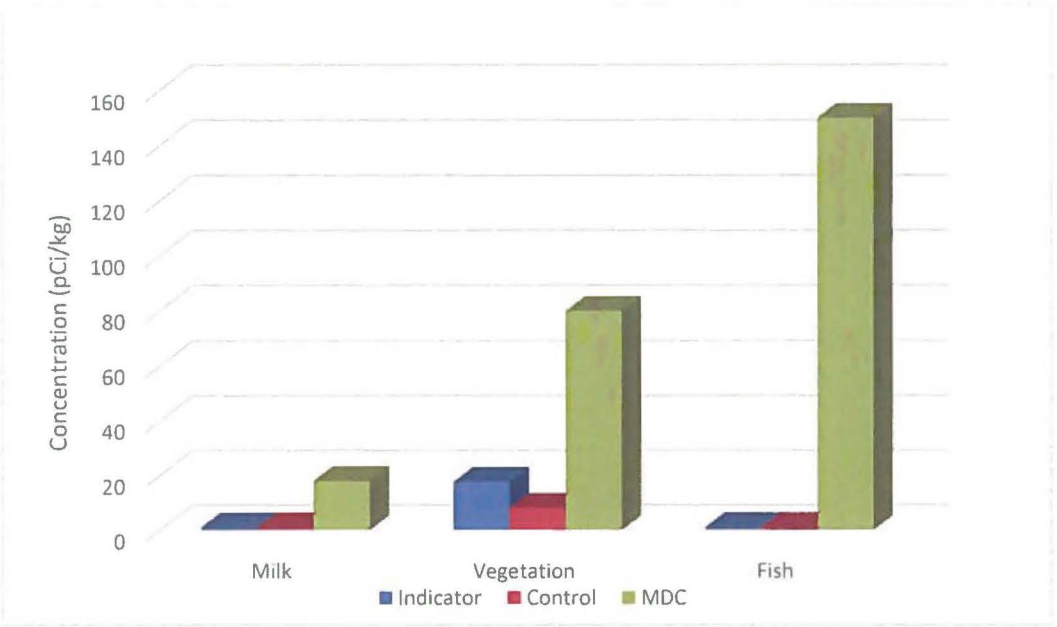
Fish samples were collected in accordance with the ODCM (as indicated in Table 2-1). For the semi-annual collections, the control location (Station 170) was located upriver of the plant intake structure, and the indicator location (Station 172) was located downriver of the plant discharge structure.

Due to excessive river levels coupled with equipment failures, only one fish sample from Station 172 (Indicator) was collected in 2018. Laboratory analysis did not indicate any radionuclide activity.

3.3.4 Biological Media Summary

There were no statistical differences, trends, or anomalies associated with the 2018 biological media samples when compared to historical data. Figure 3-4 below, details the 2018 Cs-137 concentration compared to the MDC.

Figure 3-4. 2018 Biological Media Average Cs-137 Concentrations

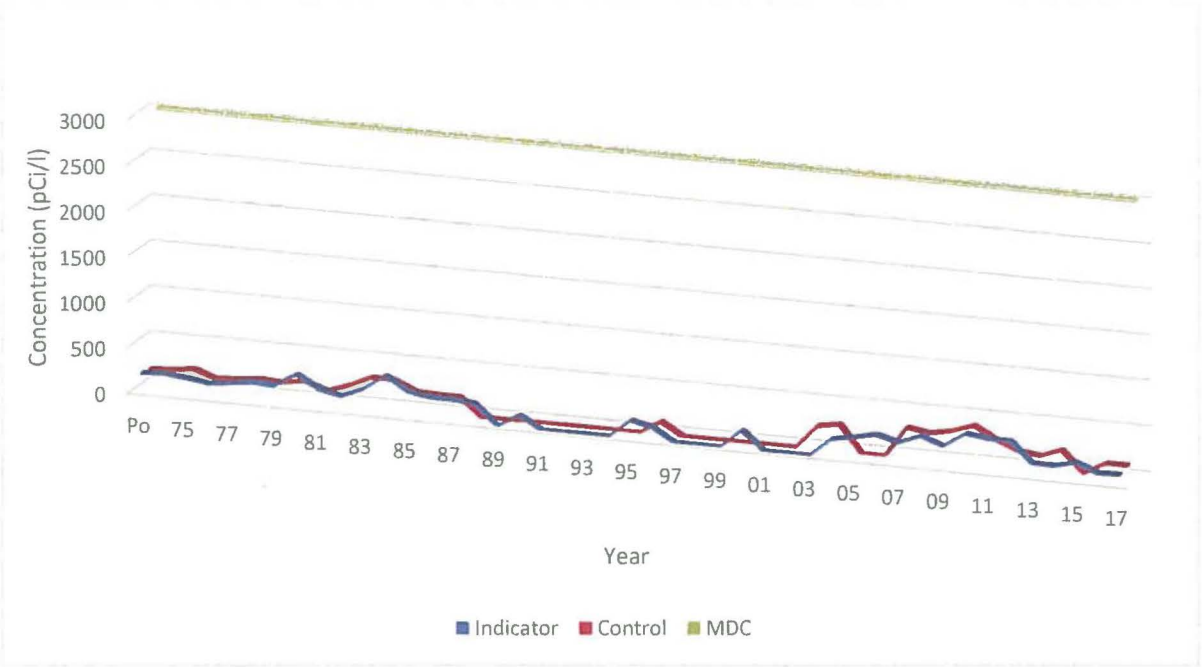


3.4 Surface Water

Composite river water samples were collected monthly at one upstream control location and at one downstream indicator location (shown on Map A-3 in Appendix A). The details of the sampling protocols are outlined in Tables 2-1 and Table 2-2. A gamma isotopic analysis was conducted on each monthly sample. The monthly aliquots were combined to form quarterly composite samples in order to be analyzed for tritium.

As provided in Table 3-1, there were no positive results during 2018 from the gamma isotopic analysis of the river water samples. Also indicated in Table 3-1, the average tritium concentration found at the indicator station was 113 pCi/l which was 38 pCi/l less than the average at the control station (151 pCi/l). No MDD was calculated because the indicator average was less than the control. Historically, the relationship between the indicator and control stations has remained consistent. Figure 3-5 below details the 2018 historical average tritium concentrations in river water.

Figure 3-5. Average Annual Tritium Concentrations in River Water



3.5 Sediment

Sediment was collected along the shoreline of the Altamaha River in the spring and fall at the upstream control station (No. 170) and the downstream indicator station (No. 172). A gamma isotopic analysis was performed on each sample. There were no man-made radionuclides detected in sediment samples, except for Cs-137, which is plotted along with biological media (Cs-137 across all detected mediums) in Section 3.3.4 and Figure 3-4. The Cs-137 average at the indicator stations was 43.60 pCi/kg which was 24.9 p/Ci/kg less than the control station average of 68.50 pCi/kg. No MDD was applied because the indicator was less than the control. The values for Cs-137 in sediment were both below the MDC of 180 pCi/kg.

3.6 Interlaboratory Comparison Program

In accordance with ODCM 4.1.3, GPCEL participated in an Interlaboratory Comparison Program (ICP) which satisfied the requirements of Regulatory Guide 4.15, Revision 1, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment", February 1979. The ICP included the required determinations (sample medium/radionuclide combinations) included in the REMP.

The ICP was conducted by Eckert & Ziegler Analytics, Inc. (EZA) of Atlanta, Georgia. EZA has a documented Quality Assurance (QA) program and the capability to prepare Quality Control (QC) materials traceable to the National Institute of Standards and Technology. The ICP is a third-party

blind testing program which provided a means to ensure independent checks were performed on the accuracy and precision of the measurements of radioactive materials in environmental sample matrices. EZA supplied the crosscheck samples to GPCEL which performed routine laboratory analyses. Each of the specified analyses was performed three times.

The accuracy of each result was measured by the normalized deviation, which is the ratio of the reported average less the known value to the total error. An investigation was undertaken whenever the absolute value of the normalized deviation was greater than three or whenever the coefficient of variation was greater than 15% for all radionuclides other than Cr-51 and Fe-59. For Cr-51 and Fe-59, an investigation was undertaken when the coefficient of variation exceeded the values shown on Table 3-6 below:

Table 3-6. Interlaboratory Comparison Limits

Nuclide	Concentration *	Total Sample Activity (pCi)	Percent Coefficient of Variation
Cr-51	<300	NA	25
	NA	>1000	25
	>300	<1000	15
Fe-59	<80	NA	25
	>80	NA	15
* For air filters, concentration units are pCi/filter. For all other media, concentration units are pCi/liter (pCi/l).			

As required by ODCM 4.1.3.3 and 7.1.2.3, a summary of the results of the GPCEL's participation in the ICP is provided in Table 3-7 for:

- gross beta and gamma isotopic analyses of an air filter
- gamma isotopic analyses of milk samples
- gross beta, tritium and gamma isotopic analyses of water samples

The 2018 analyses included tritium, gross beta and gamma emitting radio-nuclides in different matrices. The attached results for all analyses were within acceptable limits for accuracy (less than 15% coefficient of variation and less than 3.0 normalized deviations, except for Cr-51 and Fe-59, which are outlined in Table 3-6).

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
I-131 ANALYSIS OF AN AIR CARTRIDGE (pCi/cartridge)							
I-131	4/16/2018	94.21	94.50	3.17	1.58	5.95	-0.05
GAMMA ISOTOPIC ANALYSIS OF AN AIR FILTER (pCi/filter)							
Ce-141	9/13/2018	84.01	80.4	4.01	1.34	7.17	0.60
Co-58		95.10	90.2	0.99	1.51	5.08	1.02
Co-60		118.20	119	1.18	1.99	4.33	-0.16
Cr-51		174.69	166	10.2	2.77	11.5	0.43
Cs-134		71.58	77	3.84	1.29	7.49	-1.10
Cs-137		97.82	92.6	2.22	1.55	5.22	1.02
Fe-59		79.52	74.9	4.09	1.25	7.46	0.68
Mn-54		115.77	105	2.64	1.75	5.13	1.81
Zn-65		146.42	126	6.06	2.11	6.54	2.13
GROSS BETA ANALYSIS OF AN AIR FILTER (PCI/FILTER)							
Gross Beta	6/7/2018	184.56	214	4.77	3.58	5.16	-3.09
	9/13/2018	122.7	131	1.75	2.18	3.33	-2.02
GAMMA ISOTOPIC ANALYSIS OF A MILK SAMPLE (PCI/LITER)							
Co-58	9/13/2018	158.87	144	7.24	2.4	7.23	1.29
Co-60		208.82	190	5.4	3.17	5.14	1.75
Cr-51		294.41	265	26.1	4.42	14.17	0.7
Cs-134		135.2	123	1.24	2.05	4.73	1.91
Cs-137		165.33	147	5.34	2.46	6.31	1.76
Fe-59		132.2	119	5.27	1.99	7.99	1.25
I-131		61.23	58.2	3.39	0.97	10.42	0.47
Mn-54		194.37	167	7.87	2.79	6.51	2.16
Zn-65		229.73	201	11.9	3.35	8.07	1.55
GROSS BETA ANALYSIS OF WATER SAMPLE (PCI/LITER)							
Gross Beta	6/7/2018	255.8	226	12.79	3.77	6.62	1.76

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
GAMMA ISOTOPIC ANALYSIS OF WATER SAMPLES (PCI/LITER)							
Ce-141	6/7/2018	90.5	85.8	8.86	1.43	12.70	0.41
Co-58		100.41	92.9	5.34	1.55	8.46	0.88
Co-60		123.32	118	3.52	1.98	5.77	0.75
Cr-51		261.85	249	26.1	4.16	16.22	0.30
Cs-134		123.39	119	2.48	1.98	5.08	0.70
Cs-137		111.95	103	1.56	1.72	6.42	1.24
Fe-59		91.37	89.7	7.81	1.50	12.13	0.15
I-131		84.47	74.4	5.03	1.24	11.02	1.08
Mn-54		145.02	135	4.33	2.26	6.40	1.08
Zn-65		186.81	164	8.20	2.74	7.87	1.55
TRITIUM ANALYSIS OF WATER SAMPLES (PCI/LITER)							
H-3	9/13/2018	12564	12960	68.89	215	2.17	-1.23
GAMMA ISOTOPIC ANALYSIS OF VEGETATION SAMPLES (PCI/LITER)							
Co-58	6/7/2018	155.39	148	7.69	2.46	9.74	0.49
Co-60		190.43	188	14.24	3.14	9.65	0.13
Cr-51		400.88	396	50.74	6.61	21.64	0.06
Cs-134		204.33	188	14.05	3.15	8.60	0.93
Cs-137		164.48	164	6.50	2.73	8.58	0.03
Fe-59		154.07	143	21.09	2.38	18.36	0.39
Mn-54		208.63	215	14.16	3.59	9.57	-0.32
Zn-65		276.46	261	23.11	4.36	12.76	0.44
Ce-141		148.26	136	11.58	2.28	12.67	0.65

3.7 Groundwater

To ensure compliance with NEI 07-07 (Industry Ground Water Protection Initiative – Final Guidance Document), Southern Nuclear developed the Nuclear Management Procedure, Radiological Groundwater Protection Program. The procedure contains detailed site-specific monitoring plans, program technical bases, and communications protocol (to ensure that radioactive leaks and spills are addressed and communicated appropriately). In an effort to prevent future leaks of radioactive material to groundwater, SNC plants have established buried piping and tanks inspection programs. No changes were made to the Groundwater Protection Program in 2018.

Plant Hatch maintained the following wells (Table 3-8), which were sampled at a frequency that satisfied the requirements of NEI 07-07. Table3-9 contains the results of the Groundwater Protection Program tritium results (in pCi/L). See Map A-4 in Appendix A for well locations.

Table 3-8. Groundwater Monitoring Locations

Well	Depth (Feet)	Monitoring Purpose
R1	82.9	Confined Aquifer Upgradient
R2	82.7	Confined Aquifer Near Diesel Generator Bldg.
R3	89.2	Confined Aquifer Near CST-1
R4	41	Dilution Line Near River Water Discharge Structure
R5	33.6	Between Subsurface Drain Lines Downgradient
R6	38.2	Between Subsurface Drain Lines Downgradient
NW2A	27	Water Table Near CST-2 Inside of Subsurface Drain
NW2B	27	Water Table Outside of Subsurface Drain
NW3A	26.5	Water Table Inside of Subsurface Drain
NW3B	25.3	Water Table Outside of Subsurface Drain
NW4A	27	Water Table Upgradient Inside of Subsurface Drain
NW5A	26.7	Water Table Upgradient Inside of Subsurface Drain
NW5B	26.3	Water Table Upgradient Outside of Subsurface Drain
NW6	27	Water Table Near Diesel Generator Bldg.
NW8	23	Water Table Near Diesel Generator Bldg.
NW9	26.1	Water Table Downgradient Inside of Subsurface Drain
NW10	26.2	Water Table Near CST-2
T3	18	Water Table Near Turbine Bldg.
T7	21.4	Water Table Near Diesel Generator Bldg.
T10	18.8	Water Table Near CST-1
T12	23.2	Water Table Near CST-1
T15	27.4	Water Table Near CST-1

Table 3-8. Groundwater Monitoring Locations

Well	Depth (Feet)	Monitoring Purpose
P15A	74.5	Confined Aquifer Near Turbine Bldg.
P15B	18	Water Table Near Turbine Bldg.
P17A	77	Confined Aquifer Near Diesel Generator Bldg.
P17B	14.8	Water Table Near Diesel Generator Bldg.
Deep Well 1	680	Backup Supply for Potable Water (infrequently used)
Deep Well 2	711	Plant Potable Water Supply
Deep Well 3	710	Potable Water Supply – Rec. Center, Firing Range, and Garage
NU-2[1]	~60	Confined Aquifer Near CST-1
GW-1[1]	19.6	Water Table downstream of CST-1 (outside CW tunnel boundary)
GW-2[1]	19.7	Water Table downstream of CST-1 (inside CW tunnel boundary)
GW-3[1]	21.0	Water Table downstream of CST-1 (outside CW tunnel boundary)

[1]Added to the Groundwater Protection Program

Table 3-9. Groundwater Protection Program Tritium Results (pCi/L)

Well	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
R1	NS	NDM	NS	NDM
R2	NS	NDM	NS	NDM
R3	NS	2,160	NS	1,980
R4	290	NDM	NDM	NDM
R5	1,410	1,990	1,820	2,580
R6	202	NDM	NDM	NDM
NW2A	NS	NDM	NS	NDM
NW2B	NS	NDM	NS	NDM
NW3A	NS	NDM	NS	NDM
NW4A	NS	NDM	NS	NDM
NW5A	NS	NDM	NS	NDM
NW5B	NS	NS	NS	NDM
NW6	NS	NDM	NS	NS
NW8	NS	NDM	NS	NS
NW9	NS	NDM	NS	NDM
NW10	2,140	3,170	1,230	13,200
T3	NS	2,890	NS	919
T7	NS	494	NS	NDM
T10	11,730	37,870	21,720	20,540
T12	304,100	345,200	74,360	50,100
T15	9,980	18,380	6,705	1,907
P15A	NS	NDM	NS	NS

Table 3-9. Groundwater Protection Program Tritium Results (pCi/L)

Well	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
P15B	NS	1,160	NS	781
P17A	NS	NDM	NS	NDM
Deep Well 1	NS-OOS	NS-OOS	NS-OOS	NS-OOS
Deep Well 2	NS	NDM	NS	197
Deep Well 3	NS	NDM	NS	NDM
NU-2	37,700	82,900	146,000	114,000
GW-1	NDM	NDM	143	253
GW-2	NS	NDM	141	NDM
GW-3	NDM	NDM	NDM	NDM

NS – No Sample, either due to sample schedule, field conditions (i.e. dry well) or pump OOS (out of service).
NDM – No Detectable Measurement

Plant Hatch has had historic tritium leaks into the perched aquifer from around the Unit 1 Condensate Storage Tank (CST), documented on 10 CFR 50.75(g) records. The tritium values in the wells that were found to be elevated above MDC were from previous CST and related piping leaks and were not considered present issues. In accordance with NEI 07-07 2.2.a, voluntary communication was made with State/local stakeholders on December 4, 2018 with regards to an identified release around the CST-2 area. The station continues to investigate the cause of this event. Historic leaks and spills were reported in accordance with NEI 07-07.

4 SURVEY SUMMARIES

4.1 Land Use Census

In accordance with ODCM 4.1.2, a land use census was conducted on November 14, 2018 that circumscribed each of the 16 compass sectors within a five mile radius in order to verify the locations of the nearest radiological receptor. The land use census results are tabulated in Table 4-1. The 2018 land use census did not indicate any major changes from 2017, therefore, a revision to the ODCM will not be required. Residents were located in each sector as identified below; no resident was identified closer than the current closest resident.

Table 4-1. Land Use Census Results

Sector	Residence	Milk Animal	Beef Cattle	Garden
Distance in Miles to the Nearest Location in Each Sector				
N	2.0	None	None	3.8
NNE	2.9	None	None	None
NE	3.3	None	4.7	3.1
ENE	4.2	None	4.1	None
E	3.0	None	None	None
ESE	3.8	None	None	None
SE	1.8	None	2.4	None
SSE	2.0	None	3.6	2.2
S	1.0	None	2.5	1.0
SSW	1.3	None	2.1	2.5
SW	1.1	None	2.6	1.6
WSW	1.0	None	3.6	2.0
W	1.1	None	2.7	None
WNW	1.1	None	None	None
NW	3.6	None	4.5	None
NNW	1.8	None	2.8	2.9

4.2 Altamaha River Survey

A survey of the Altamaha River downstream of the plant for approximately 50 miles (approximately river miles 66.5 to 117.0) was conducted on October 18, 2018 to identify any new withdrawal of water from the river for drinking, irrigation, or construction purposes.

Correspondence from the Georgia Environmental Protection Division (EPD) on November 5, 2018, and November 6, 2018, indicated that no new agricultural or drinking water withdrawal permits had been issued at those respective times.

5 CONCLUSIONS

This report has confirmed SNCs conformance with the requirements of Chapter 4 of the ODCM and the objectives were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs and;

2) Assess the radiological impact (if any) to the environment due to the operation of the HNP.

Based on the 2018 activities associated with the REMP, SNC offers the following conclusions:

- Samples were collected and there were no deviations or anomalies that negatively affected the quality of the REMP
- Land use census and river survey did not reveal any changes
- Analytical results were below reporting levels
- These values were consistent with historical results which indicate no adverse radiological environmental impacts associated with the operation of HNP

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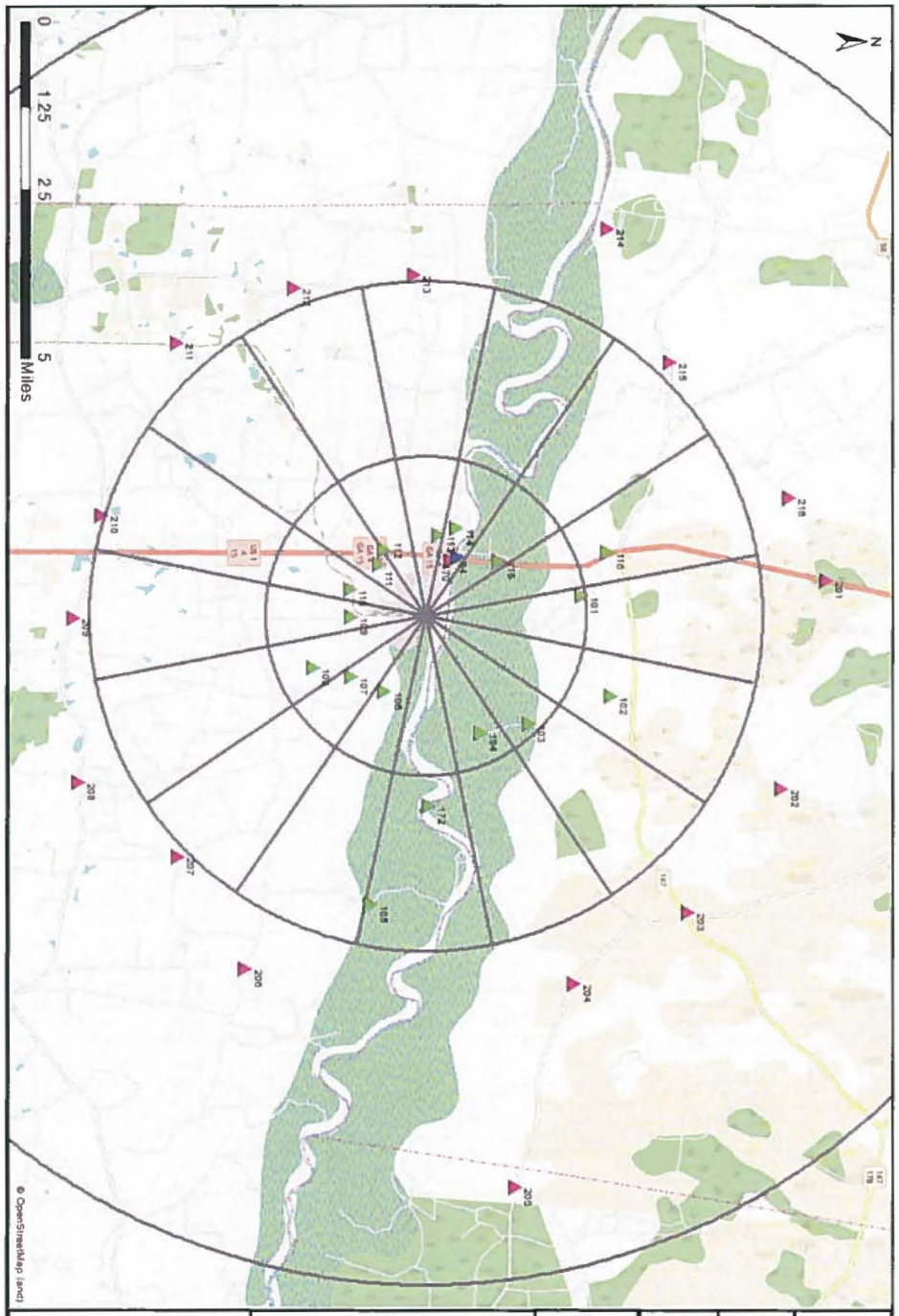
APPENDIX A

Maps



Legend:

Indicator Stations -

Control Stations -

Other Stations -

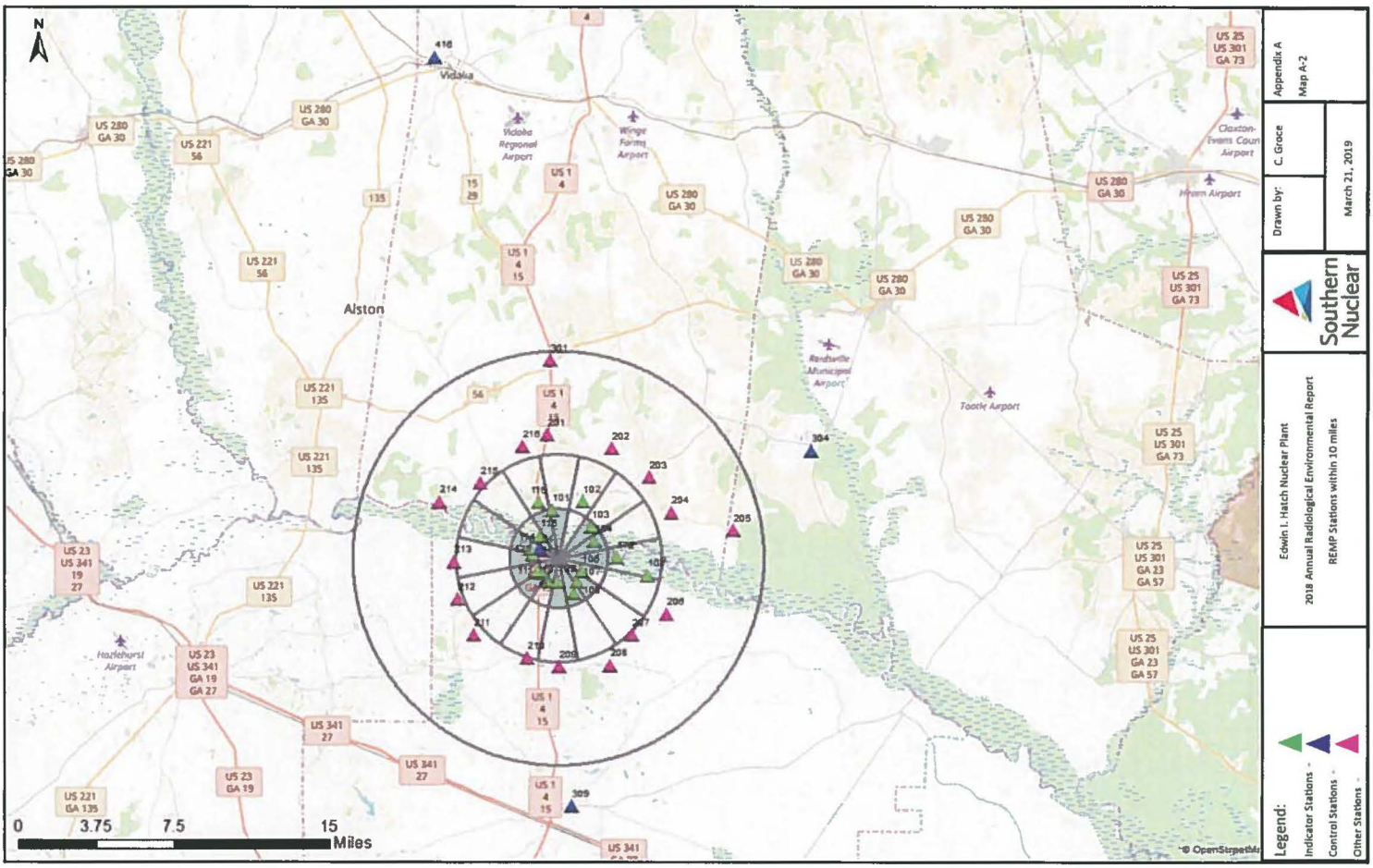
Edwin I. Hatch Nuclear Plant

2018 Annual Radiological Environmental Report

REMP Stations in Plant Vicinity

Southern Nuclear

Drawn by:	C. Groce	Appendix A
March 21, 2019		Map A-1


N
Alston
Vidalia
Vidalia Regional Airport
Wings Farms Airport
Claxton-Evans County Airport
Hazlehurst Airport
Toombs Airport
US 280 GA 30
US 221 56
US 221 135
US 1 4 15
US 25 US 301 GA 73
US 23 US 341 19 27
US 23 US 341 GA 19 GA 27
US 341 27
US 23 GA 19
US 221 GA 135
US 25 US 301 GA 23 GA 57
0 3.75 7.5 15 Miles
Legend:
Indicator Stations
Control Stations
Other Stations
Edwin I. Hatch Nuclear Plant
2018 Annual Radiological Environmental Report
REMP Stations within 10 miles
Southern Nuclear
Drawn by: C. Groce
March 21, 2019
Appendix A
Map A-2

Legend:	Edwin I. Hatch Nuclear Plant	Southern Nuclear	Drawn by: C. Groce	Appendix A
GWPP Wells	2018 Annual Radiological Environmental Report			Map A-3
Non-GWPP Wells	Facility Groundwater Wells		March 21, 2019	

APPENDIX B

Errata

The 2016 Hatch Annual Radiological Environmental Operating Report (AREOR) did not contain details about a 2016 leak from the CST-1 piping that was voluntarily reported to stakeholders in February of that year. The state agency was notified on February 16, 2016 in accordance with NEI 07.07 2.2a, of a release from the Unit 1 CST Core Spray Suction (CSS) Line. The CSS line was isolated after an investigation in the area and a failed pressure test. Tritium values consequently decreased and ultimately returned to normal levels.

APPENDIX C

Data

The following pages contain the individual data points from the 2018 reporting year. The units for the data points varies by media, as follows:

- Airborne Radioiodine and Particulates/Water/Milk – picocuries/liter (pCi/l)
- Sediment/Vegetation/Fish – picocuries/kilogram (pCi/kg)
- Direct Radiation – millirem (mR)

Matrix	Nuclide	Loc ID	Collect Date	Result	Sample ID
River Water	Ba-140	170	1/4/2018	0	113707001
River Water	Ba-140	170	2/6/2018	0	114243001
River Water	Ba-140	170	3/6/2018	0	114573001
H-3 Water	Ba-140	170	4/3/2018	0	114890001
River Water	Ba-140	170	5/8/2018	0	115339001
River Water	Ba-140	170	6/5/2018	0	115658001
River Water	Ba-140	170	7/3/2018	0	116124001
River Water	Ba-140	170	8/7/2018	0	116644001
River Water	Ba-140	170	9/4/2018	0	117034001
River Water	Ba-140	170	10/2/2018	0	117395001
River Water	Ba-140	170	11/6/2018	0	118106001
River Water	Ba-140	170	12/4/2018	0	118437001
River Water	Ba-140	172	1/4/2018	0	113707002
River Water	Ba-140	172	2/6/2018	0	114243002
River Water	Ba-140	172	3/6/2018	0	114573002
H-3 Water	Ba-140	172	4/3/2018	0	114890002
River Water	Ba-140	172	5/8/2018	0	115339002
River Water	Ba-140	172	6/5/2018	0	115658002
River Water	Ba-140	172	7/3/2018	0	116124002
River Water	Ba-140	172	8/7/2018	0	116644002
River Water	Ba-140	172	9/4/2018	0	117034002
River Water	Ba-140	172	10/2/2018	0	117395002
River Water	Ba-140	172	11/6/2018	0	118106002
River Water	Ba-140	172	12/4/2018	0	118437002
Milk Gamma	Ba-140	GSP	1/9/2018	0	113761001
Milk Gamma	Ba-140	GSP	1/23/2018	0	114033001
Milk Gamma	Ba-140	GSP	2/13/2018	0	114309001
Milk Gamma	Ba-140	GSP	2/27/2018	0	114452001
Milk Gamma	Ba-140	GSP	3/13/2018	0	114648001
Milk Gamma	Ba-140	GSP	3/27/2018	0	114765001
Milk Gamma	Ba-140	GSP	4/10/2018	0	115000001
Milk Gamma	Ba-140	GSP	4/24/2018	0	115166001
Milk Gamma	Ba-140	GSP	5/15/2018	0	115401001
Milk Gamma	Ba-140	GSP	5/29/2018	0	115558001
Milk Gamma	Ba-140	GSP	6/12/2018	0	115797001
Milk Gamma	Ba-140	GSP	6/26/2018	0	116000001
Milk Gamma	Ba-140	GSP	7/10/2018	0	116212001
Milk Gamma	Ba-140	GSP	7/24/2018	0	116425001
Milk Gamma	Ba-140	GSP	8/14/2018	0	116706001
Milk Gamma	Ba-140	GSP	8/28/2018	0	116874001
Milk Gamma	Ba-140	GSP	9/11/2018	0	117068001
Milk Gamma	Ba-140	GSP	9/25/2018	0	117253001
Milk Gamma	Ba-140	GSP	10/9/2018	0	117514001
Milk Gamma	Ba-140	GSP	10/23/2018	0	117827001
Milk Gamma	Ba-140	GSP	11/13/2018	0	118152001
Milk Gamma	Ba-140	GSP	11/27/2018	0	118276001
Milk Gamma	Ba-140	GSP	12/26/2018	0	118717001
Milk Gamma	Ba-140	Ga State Prison	12/11/2018	0	118557001
River Water	Co-58	170	1/4/2018	0	113707001
River Water	Co-58	170	2/6/2018	0	114243001
River Water	Co-58	170	3/6/2018	0	114573001
H-3 Water	Co-58	170	4/3/2018	0	114890001

River Water	Co-58	170	5/8/2018	0	115339001
River Water	Co-58	170	6/5/2018	0	115658001
River Water	Co-58	170	7/3/2018	0	116124001
River Water	Co-58	170	8/7/2018	0	116644001
River Water	Co-58	170	9/4/2018	0	117034001
River Water	Co-58	170	10/2/2018	0	117395001
Sediment	Co-58	170	11/6/2018	0	118107001
River Water	Co-58	170	11/6/2018	0	118106001
River Water	Co-58	170	12/4/2018	0	118437001
Fish	Co-58	170 Catfish	12/19/2018	0	118631001
River Water	Co-58	172	1/4/2018	0	113707002
River Water	Co-58	172	2/6/2018	0	114243002
River Water	Co-58	172	3/6/2018	0	114573002
H-3 Water	Co-58	172	4/3/2018	0	114890002
River Water	Co-58	172	5/8/2018	0	115339002
River Water	Co-58	172	6/5/2018	0	115658002
River Water	Co-58	172	7/3/2018	0	116124002
River Water	Co-58	172	8/7/2018	0	116644002
River Water	Co-58	172	9/4/2018	0	117034002
River Water	Co-58	172	10/2/2018	0	117395002
Sediment	Co-58	172	11/6/2018	0	118107002
River Water	Co-58	172	11/6/2018	0	118106002
River Water	Co-58	172	12/4/2018	0	118437002
Fish	Co-58	172 Catfish	12/19/2018	0	118631002
River Water	Co-60	170	1/4/2018	0	113707001
River Water	Co-60	170	2/6/2018	0	114243001
River Water	Co-60	170	3/6/2018	0	114573001
H-3 Water	Co-60	170	4/3/2018	0	114890001
Sediment	Co-60	170	5/8/2018	0	115340001
River Water	Co-60	170	5/8/2018	0	115339001
River Water	Co-60	170	6/5/2018	0	115658001
River Water	Co-60	170	7/3/2018	0	116124001
River Water	Co-60	170	8/7/2018	0	116644001
River Water	Co-60	170	9/4/2018	0	117034001
River Water	Co-60	170	10/2/2018	0	117395001
Sediment	Co-60	170	11/6/2018	0	118107001
River Water	Co-60	170	11/6/2018	0	118106001
River Water	Co-60	170	12/4/2018	0	118437001
Fish	Co-60	170 Catfish	12/19/2018	0	118631001
River Water	Co-60	172	1/4/2018	0	113707002
River Water	Co-60	172	2/6/2018	0	114243002
River Water	Co-60	172	3/6/2018	0	114573002
H-3 Water	Co-60	172	4/3/2018	0	114890002
River Water	Co-60	172	5/8/2018	0	115339002
Sediment	Co-60	172	5/8/2018	0	115340002
River Water	Co-60	172	6/5/2018	0	115658002
River Water	Co-60	172	7/3/2018	0	116124002
River Water	Co-60	172	8/7/2018	0	116644002
River Water	Co-60	172	9/4/2018	0	117034002
River Water	Co-60	172	10/2/2018	0	117395002
Sediment	Co-60	172	11/6/2018	0	118107002
River Water	Co-60	172	11/6/2018	0	118106002
River Water	Co-60	172	12/4/2018	0	118437002

Fish	Co-60	172 Catfish	12/19/2018	0	118631002
Air Qtr Comp	Cs-134	103	3/26/2018	0	114799001
Air Qtr Comp	Cs-134	103	6/26/2018	0	116117001
Air Qtr Comp	Cs-134	103	9/25/2018	0	117418001
Air Qtr Comp	Cs-134	103	12/26/2018	0	118754001
Vegetation	Cs-134	106	1/30/2018	0	114159002
Vegetation	Cs-134	106	2/27/2018	0	114455002
Vegetation	Cs-134	106	3/27/2018	0	114768003
Vegetation	Cs-134	106	4/24/2018	0	115171003
Vegetation	Cs-134	106	5/29/2018	0	115559003
Vegetation	Cs-134	106	6/26/2018	0	116001003
Vegetation	Cs-134	106	7/31/2018	0	116549003
Vegetation	Cs-134	106	8/28/2018	0	116876003
Vegetation	Cs-134	106	9/25/2018	0	117252003
Vegetation	Cs-134	106	10/29/2018	0	117941003
Vegetation	Cs-134	106	11/27/2018	0	118275003
Vegetation	Cs-134	106	12/26/2018	0	118716003
Air Qtr Comp	Cs-134	107	3/26/2018	0	114799002
Air Qtr Comp	Cs-134	107	6/26/2018	0	116117002
Air Qtr Comp	Cs-134	107	9/25/2018	0	117418002
Air Qtr Comp	Cs-134	107	12/26/2018	0	118754002
Vegetation	Cs-134	112	1/30/2018	0	114159001
Vegetation	Cs-134	112	2/27/2018	0	114455001
Air Qtr Comp	Cs-134	112	3/26/2018	0	114799003
Vegetation	Cs-134	112	3/27/2018	0	114768002
Vegetation	Cs-134	112	4/24/2018	0	115171002
Vegetation	Cs-134	112	5/29/2018	0	115559002
Air Qtr Comp	Cs-134	112	6/26/2018	0	116117003
Vegetation	Cs-134	112	6/26/2018	0	116001002
Vegetation	Cs-134	112	7/31/2018	0	116549002
Vegetation	Cs-134	112	8/28/2018	0	116876002
Vegetation	Cs-134	112	9/25/2018	0	117252002
Air Qtr Comp	Cs-134	112	9/25/2018	0	117418003
Vegetation	Cs-134	112	10/29/2018	0	117941002
Vegetation	Cs-134	112	11/27/2018	0	118275002
Vegetation	Cs-134	112	12/26/2018	0	118716002
Air Qtr Comp	Cs-134	112	12/26/2018	0	118754003
Air Qtr Comp	Cs-134	116	3/26/2018	0	114799004
Air Qtr Comp	Cs-134	116	6/26/2018	0	116117004
Air Qtr Comp	Cs-134	116	9/25/2018	0	117418004
Air Qtr Comp	Cs-134	116	12/26/2018	0	118754004
River Water	Cs-134	170	1/4/2018	0	113707001
River Water	Cs-134	170	2/6/2018	0	114243001
River Water	Cs-134	170	3/6/2018	0	114573001
H-3 Water	Cs-134	170	4/3/2018	0	114890001
Sediment	Cs-134	170	5/8/2018	0	115340001
River Water	Cs-134	170	5/8/2018	0	115339001
River Water	Cs-134	170	6/5/2018	0	115658001
River Water	Cs-134	170	7/3/2018	0	116124001
River Water	Cs-134	170	8/7/2018	0	116644001
River Water	Cs-134	170	9/4/2018	0	117034001
River Water	Cs-134	170	10/2/2018	0	117395001
Sediment	Cs-134	170	11/6/2018	0	118107001

River Water	Cs-134	170	11/6/2018	0	118106001
River Water	Cs-134	170	12/4/2018	0	118437001
Fish	Cs-134	170 Catfish	12/19/2018	0	118631001
River Water	Cs-134	172	1/4/2018	0	113707002
River Water	Cs-134	172	2/6/2018	0	114243002
River Water	Cs-134	172	3/6/2018	0	114573002
H-3 Water	Cs-134	172	4/3/2018	0	114890002
River Water	Cs-134	172	5/8/2018	0	115339002
Sediment	Cs-134	172	5/8/2018	0	115340002
River Water	Cs-134	172	6/5/2018	0	115658002
River Water	Cs-134	172	7/3/2018	0	116124002
River Water	Cs-134	172	8/7/2018	0	116644002
River Water	Cs-134	172	9/4/2018	0	117034002
River Water	Cs-134	172	10/2/2018	0	117395002
Sediment	Cs-134	172	11/6/2018	0	118107002
River Water	Cs-134	172	11/6/2018	0	118106002
River Water	Cs-134	172	12/4/2018	0	118437002
Fish	Cs-134	172 Catfish	12/19/2018	0	118631002
Air Qtr Comp	Cs-134	304	3/26/2018	0	114799005
Air Qtr Comp	Cs-134	304	6/26/2018	0	116117005
Air Qtr Comp	Cs-134	304	9/25/2018	0	117418005
Air Qtr Comp	Cs-134	304	12/26/2018	0	118754005
Air Qtr Comp	Cs-134	309	3/26/2018	0	114799006
Air Qtr Comp	Cs-134	309	6/26/2018	0	116117006
Air Qtr Comp	Cs-134	309	9/25/2018	0	117418006
Air Qtr Comp	Cs-134	309	12/26/2018	0	118754006
Vegetation	Cs-134	416	1/30/2018	0	114159003
Vegetation	Cs-134	416	2/27/2018	0	114455003
Vegetation	Cs-134	416	3/27/2018	0	114768001
Vegetation	Cs-134	416	4/24/2018	0	115171001
Vegetation	Cs-134	416	5/29/2018	0	115559001
Vegetation	Cs-134	416	6/26/2018	0	116001001
Vegetation	Cs-134	416	7/31/2018	0	116549001
Vegetation	Cs-134	416	8/28/2018	0	116876001
Vegetation	Cs-134	416	9/25/2018	0	117252001
Vegetation	Cs-134	416	10/29/2018	0	117941001
Vegetation	Cs-134	416	11/27/2018	0	118275001
Vegetation	Cs-134	416	12/26/2018	0	118716001
Milk Gamma	Cs-134	GSP	1/9/2018	0	113761001
Milk Gamma	Cs-134	GSP	1/23/2018	0	114033001
Milk Gamma	Cs-134	GSP	2/13/2018	0	114309001
Milk Gamma	Cs-134	GSP	2/27/2018	0	114452001
Milk Gamma	Cs-134	GSP	3/13/2018	0	114648001
Milk Gamma	Cs-134	GSP	3/27/2018	0	114765001
Milk Gamma	Cs-134	GSP	4/10/2018	0	115000001
Milk Gamma	Cs-134	GSP	4/24/2018	0	115166001
Milk Gamma	Cs-134	GSP	5/15/2018	0	115401001
Milk Gamma	Cs-134	GSP	5/29/2018	0	115558001
Milk Gamma	Cs-134	GSP	6/12/2018	0	115797001
Milk Gamma	Cs-134	GSP	6/26/2018	0	116000001
Milk Gamma	Cs-134	GSP	7/10/2018	0	116212001
Milk Gamma	Cs-134	GSP	7/24/2018	0	116425001
Milk Gamma	Cs-134	GSP	8/14/2018	0	116706001

Milk Gamma	Cs-134	GSP	8/28/2018	0	116874001
Milk Gamma	Cs-134	GSP	9/11/2018	0	117068001
Milk Gamma	Cs-134	GSP	9/25/2018	0	117253001
Milk Gamma	Cs-134	GSP	10/9/2018	0	117514001
Milk Gamma	Cs-134	GSP	10/23/2018	0	117827001
Milk Gamma	Cs-134	GSP	11/13/2018	0	118152001
Milk Gamma	Cs-134	GSP	11/27/2018	0	118276001
Milk Gamma	Cs-134	GSP	12/26/2018	0	118717001
Milk Gamma	Cs-134	Ga State Prison	12/11/2018	0	118557001
Air Qtr Comp	Cs-137	103	3/26/2018	0	114799001
Air Qtr Comp	Cs-137	103	6/26/2018	0	116117001
Air Qtr Comp	Cs-137	103	9/25/2018	0	117418001
Air Qtr Comp	Cs-137	103	12/26/2018	0	118754001
Vegetation	Cs-137	106	1/30/2018	28.4867	114159002
Vegetation	Cs-137	106	2/27/2018	20.2488	114455002
Vegetation	Cs-137	106	3/27/2018	38.4667	114768003
Vegetation	Cs-137	106	4/24/2018	0	115171003
Vegetation	Cs-137	106	5/29/2018	0	115559003
Vegetation	Cs-137	106	6/26/2018	0	116001003
Vegetation	Cs-137	106	7/31/2018	0	116549003
Vegetation	Cs-137	106	8/28/2018	0	116876003
Vegetation	Cs-137	106	9/25/2018	211.57	117252003
Vegetation	Cs-137	106	10/29/2018	43.828	117941003
Vegetation	Cs-137	106	11/27/2018	0	118275003
Vegetation	Cs-137	106	12/26/2018	0	118716003
Air Qtr Comp	Cs-137	107	3/26/2018	0	114799002
Air Qtr Comp	Cs-137	107	6/26/2018	0	116117002
Air Qtr Comp	Cs-137	107	9/25/2018	0	117418002
Air Qtr Comp	Cs-137	107	12/26/2018	0	118754002
Vegetation	Cs-137	112	1/30/2018	0	114159001
Vegetation	Cs-137	112	2/27/2018	0	114455001
Air Qtr Comp	Cs-137	112	3/26/2018	0	114799003
Vegetation	Cs-137	112	3/27/2018	0	114768002
Vegetation	Cs-137	112	4/24/2018	0	115171002
Vegetation	Cs-137	112	5/29/2018	0	115559002
Air Qtr Comp	Cs-137	112	6/26/2018	0	116117003
Vegetation	Cs-137	112	6/26/2018	62.291	116001002
Vegetation	Cs-137	112	7/31/2018	7.294	116549002
Vegetation	Cs-137	112	8/28/2018	0	116876002
Vegetation	Cs-137	112	9/25/2018	0	117252002
Air Qtr Comp	Cs-137	112	9/25/2018	0	117418003
Vegetation	Cs-137	112	10/29/2018	0	117941002
Vegetation	Cs-137	112	11/27/2018	0	118275002
Vegetation	Cs-137	112	12/26/2018	0	118716002
Air Qtr Comp	Cs-137	112	12/26/2018	0	118754003
Air Qtr Comp	Cs-137	116	3/26/2018	0	114799004
Air Qtr Comp	Cs-137	116	6/26/2018	0	116117004
Air Qtr Comp	Cs-137	116	9/25/2018	0	117418004
Air Qtr Comp	Cs-137	116	12/26/2018	0	118754004
River Water	Cs-137	170	1/4/2018	0	113707001
River Water	Cs-137	170	2/6/2018	0	114243001
River Water	Cs-137	170	3/6/2018	0	114573001
H-3 Water	Cs-137	170	4/3/2018	0	114890001

Sediment	Cs-137	170	5/8/2018	60.683	115340001
River Water	Cs-137	170	5/8/2018	0	115339001
River Water	Cs-137	170	6/5/2018	0	115658001
River Water	Cs-137	170	7/3/2018	0	116124001
River Water	Cs-137	170	8/7/2018	0	116644001
River Water	Cs-137	170	9/4/2018	0	117034001
River Water	Cs-137	170	10/2/2018	0	117395001
Sediment	Cs-137	170	11/6/2018	76.322	118107001
River Water	Cs-137	170	11/6/2018	0	118106001
River Water	Cs-137	170	12/4/2018	0	118437001
Fish	Cs-137	170 Catfish	12/19/2018	0	118631001
River Water	Cs-137	172	1/4/2018	0	113707002
River Water	Cs-137	172	2/6/2018	0	114243002
River Water	Cs-137	172	3/6/2018	0	114573002
H-3 Water	Cs-137	172	4/3/2018	0	114890002
River Water	Cs-137	172	5/8/2018	0	115339002
Sediment	Cs-137	172	5/8/2018	0	115340002
River Water	Cs-137	172	6/5/2018	0	115658002
River Water	Cs-137	172	7/3/2018	0	116124002
River Water	Cs-137	172	8/7/2018	0	116644002
River Water	Cs-137	172	9/4/2018	0	117034002
River Water	Cs-137	172	10/2/2018	0	117395002
Sediment	Cs-137	172	11/6/2018	87.201	118107002
River Water	Cs-137	172	11/6/2018	0	118106002
River Water	Cs-137	172	12/4/2018	0	118437002
Fish	Cs-137	172 Catfish	12/19/2018	0	118631002
Air Qtr Comp	Cs-137	304	3/26/2018	0	114799005
Air Qtr Comp	Cs-137	304	6/26/2018	0	116117005
Air Qtr Comp	Cs-137	304	9/25/2018	0	117418005
Air Qtr Comp	Cs-137	304	12/26/2018	0	118754005
Air Qtr Comp	Cs-137	309	3/26/2018	0	114799006
Air Qtr Comp	Cs-137	309	6/26/2018	0	116117006
Air Qtr Comp	Cs-137	309	9/25/2018	0	117418006
Air Qtr Comp	Cs-137	309	12/26/2018	0	118754006
Vegetation	Cs-137	416	1/30/2018	0	114159003
Vegetation	Cs-137	416	2/27/2018	0	114455003
Vegetation	Cs-137	416	3/27/2018	0	114768001
Vegetation	Cs-137	416	4/24/2018	0	115171001
Vegetation	Cs-137	416	5/29/2018	72.7113	115559001
Vegetation	Cs-137	416	6/26/2018	25.2867	116001001
Vegetation	Cs-137	416	7/31/2018	0	116549001
Vegetation	Cs-137	416	8/28/2018	0	116876001
Vegetation	Cs-137	416	9/25/2018	0	117252001
Vegetation	Cs-137	416	10/29/2018	0	117941001
Vegetation	Cs-137	416	11/27/2018	0	118275001
Vegetation	Cs-137	416	12/26/2018	0	118716001
Milk Gamma	Cs-137	GSP	1/9/2018	0	113761001
Milk Gamma	Cs-137	GSP	1/23/2018	0	114033001
Milk Gamma	Cs-137	GSP	2/13/2018	0	114309001
Milk Gamma	Cs-137	GSP	2/27/2018	0	114452001
Milk Gamma	Cs-137	GSP	3/13/2018	0	114648001
Milk Gamma	Cs-137	GSP	3/27/2018	0	114765001
Milk Gamma	Cs-137	GSP	4/10/2018	0	115000001

Milk Gamma	Cs-137	GSP	4/24/2018	0	115166001
Milk Gamma	Cs-137	GSP	5/15/2018	0	115401001
Milk Gamma	Cs-137	GSP	5/29/2018	0	115558001
Milk Gamma	Cs-137	GSP	6/12/2018	0	115797001
Milk Gamma	Cs-137	GSP	6/26/2018	0	116000001
Milk Gamma	Cs-137	GSP	7/10/2018	0	116212001
Milk Gamma	Cs-137	GSP	7/24/2018	0	116425001
Milk Gamma	Cs-137	GSP	8/14/2018	0	116706001
Milk Gamma	Cs-137	GSP	8/28/2018	0	116874001
Milk Gamma	Cs-137	GSP	9/11/2018	0	117068001
Milk Gamma	Cs-137	GSP	9/25/2018	0	117253001
Milk Gamma	Cs-137	GSP	10/9/2018	0	117514001
Milk Gamma	Cs-137	GSP	10/23/2018	0	117827001
Milk Gamma	Cs-137	GSP	11/13/2018	0	118152001
Milk Gamma	Cs-137	GSP	11/27/2018	0	118276001
Milk Gamma	Cs-137	GSP	12/26/2018	0	118717001
Milk Gamma	Cs-137	Ga State Prison	12/11/2018	0	118557001
River Water	Fe-59	170	1/4/2018	0	113707001
River Water	Fe-59	170	2/6/2018	0	114243001
River Water	Fe-59	170	3/6/2018	0	114573001
H-3 Water	Fe-59	170	4/3/2018	0	114890001
River Water	Fe-59	170	5/8/2018	0	115339001
River Water	Fe-59	170	6/5/2018	0	115658001
River Water	Fe-59	170	7/3/2018	0	116124001
River Water	Fe-59	170	8/7/2018	0	116644001
River Water	Fe-59	170	9/4/2018	0	117034001
River Water	Fe-59	170	10/2/2018	0	117395001
River Water	Fe-59	170	11/6/2018	0	118106001
River Water	Fe-59	170	12/4/2018	0	118437001
Fish	Fe-59	170 Catfish	12/19/2018	0	118631001
River Water	Fe-59	172	1/4/2018	0	113707002
River Water	Fe-59	172	2/6/2018	0	114243002
River Water	Fe-59	172	3/6/2018	0	114573002
H-3 Water	Fe-59	172	4/3/2018	0	114890002
River Water	Fe-59	172	5/8/2018	0	115339002
River Water	Fe-59	172	6/5/2018	0	115658002
River Water	Fe-59	172	7/3/2018	0	116124002
River Water	Fe-59	172	8/7/2018	0	116644002
River Water	Fe-59	172	9/4/2018	0	117034002
River Water	Fe-59	172	10/2/2018	0	117395002
River Water	Fe-59	172	11/6/2018	0	118106002
River Water	Fe-59	172	12/4/2018	0	118437002
Fish	Fe-59	172 Catfish	12/19/2018	0	118631002
Air Filters	Gross Beta	103	1/3/2018	.04173	113688001
Air Filters	Gross Beta	103	1/9/2018	.0446	113763001
Air Filters	Gross Beta	103	1/16/2018	.01492	113865001
Air Filters	Gross Beta	103	1/23/2018	.02956	114034001
Air Filters	Gross Beta	103	1/30/2018	.01605	114157001
Air Filters	Gross Beta	103	2/6/2018	.02465	114241001
Air Filters	Gross Beta	103	2/13/2018	.01386	114310001
Air Filters	Gross Beta	103	2/20/2018	.01722	114362001
Air Filters	Gross Beta	103	2/27/2018	.01621	114453001
Air Filters	Gross Beta	103	3/6/2018	.02446	114571001

Air Filters	Gross Beta	103	3/13/2018	.03095	114650001
Air Filters	Gross Beta	103	3/20/2018	.0281	114723001
Air Filters	Gross Beta	103	3/27/2018	.0211	114766001
Air Filters	Gross Beta	103	4/3/2018	.01588	114888001
Air Filters	Gross Beta	103	4/10/2018	.02207	114999001
Air Filters	Gross Beta	103	4/17/2018	.02397	115068001
Air Filters	Gross Beta	103	4/24/2018	.02065	115167001
Air Filters	Gross Beta	103	5/1/2018	.02861	115249001
Air Filters	Gross Beta	103	5/8/2018	.0244	115373001
Air Filters	Gross Beta	103	5/15/2018	.02614	115402001
Air Filters	Gross Beta	103	5/22/2018	.01044	115495001
Air Filters	Gross Beta	103	5/29/2018	.01026	115560001
Air Filters	Gross Beta	103	6/5/2018	.01921	115659001
Air Filters	Gross Beta	103	6/12/2018	.02734	115794001
Air Filters	Gross Beta	103	6/19/2018	.01339	115900001
Air Filters	Gross Beta	103	6/26/2018	.02335	115998001
Air Filters	Gross Beta	103	7/2/2018	.01324	116122001
Air Filters	Gross Beta	103	7/10/2018	.01671	116213001
Air Filters	Gross Beta	103	7/17/2018	.02372	116309001
Air Filters	Gross Beta	103	7/24/2018	.01597	116457001
Air Filters	Gross Beta	103	7/31/2018	.02225	116547001
Air Filters	Gross Beta	103	8/21/2018	.01619	116838001
Air Filters	Gross Beta	103	8/28/2018	.01971	116873001
Air Filters	Gross Beta	103	9/4/2018	.01386	117032001
Air Filters	Gross Beta	103	9/11/2018	.02033	117073001
Air Filters	Gross Beta	103	9/18/2018	.01013	117190001
Air Filters	Gross Beta	103	9/25/2018	.02649	117250001
Air Filters	Gross Beta	103	10/2/2018	.01705	117393001
Air Filters	Gross Beta	103	10/9/2018	.033	117512001
Air Filters	Gross Beta	103	10/16/2018	.02235	117696001
Air Filters	Gross Beta	103	10/23/2018	.02135	117825001
Air Filters	Gross Beta	103	10/29/2018	.02695	117939001
Air Filters	Gross Beta	103	11/6/2018	.01831	118104001
Air Filters	Gross Beta	103	11/13/2018	.0219	118150001
Air Filters	Gross Beta	103	11/20/2018	.02116	118228001
Air Filters	Gross Beta	103	11/27/2018	.02694	118273001
Air Filters	Gross Beta	103	12/4/2018	.02168	118435001
Air Filters	Gross Beta	103	12/11/2018	.01561	118555001
Air Filters	Gross Beta	103	12/18/2018	.01532	118633001
Air Filters	Gross Beta	103	12/26/2018	.02089	118714001
Air Filters	Gross Beta	107	1/3/2018	.03726	113688002
Air Filters	Gross Beta	107	1/9/2018	.04486	113763002
Air Filters	Gross Beta	107	1/16/2018	.01675	113865002
Air Filters	Gross Beta	107	1/23/2018	.03172	114034002
Air Filters	Gross Beta	107	1/30/2018	.01719	114157002
Air Filters	Gross Beta	107	2/6/2018	.02269	114241002
Air Filters	Gross Beta	107	2/13/2018	.0145	114310002
Air Filters	Gross Beta	107	2/20/2018	.01848	114362002
Air Filters	Gross Beta	107	2/27/2018	.01404	114453002
Air Filters	Gross Beta	107	3/6/2018	.02762	114571002
Air Filters	Gross Beta	107	3/13/2018	.02716	114650002
Air Filters	Gross Beta	107	3/20/2018	.03303	114723002
Air Filters	Gross Beta	107	3/27/2018	.02319	114766002

Air Filters	Gross Beta	107	4/3/2018	.01448	114888002
Air Filters	Gross Beta	107	4/10/2018	.01817	114999002
Air Filters	Gross Beta	107	4/17/2018	.02376	115068002
Air Filters	Gross Beta	107	4/24/2018	.01484	115167002
Air Filters	Gross Beta	107	5/1/2018	.01989	115249002
Air Filters	Gross Beta	107	5/8/2018	.02227	115373002
Air Filters	Gross Beta	107	5/15/2018	.03138	115402002
Air Filters	Gross Beta	107	5/22/2018	.01428	115495002
Air Filters	Gross Beta	107	5/29/2018	.009073	115560002
Air Filters	Gross Beta	107	6/5/2018	.01656	115659002
Air Filters	Gross Beta	107	6/12/2018	.03032	115794002
Air Filters	Gross Beta	107	6/26/2018	.02524	115998002
Air Filters	Gross Beta	107	7/2/2018	.01515	116122002
Air Filters	Gross Beta	107	7/10/2018	.01937	116213002
Air Filters	Gross Beta	107	7/17/2018	.02404	116309002
Air Filters	Gross Beta	107	7/24/2018	.01494	116457002
Air Filters	Gross Beta	107	7/31/2018	.01882	116547002
Air Filters	Gross Beta	107	8/7/2018	.01099	116642002
Air Filters	Gross Beta	107	8/28/2018	.02708	116873002
Air Filters	Gross Beta	107	9/4/2018	.01306	117032002
Air Filters	Gross Beta	107	9/11/2018	.02125	117073002
Air Filters	Gross Beta	107	9/18/2018	.01001	117190002
Air Filters	Gross Beta	107	9/25/2018	.02541	117250002
Air Filters	Gross Beta	107	10/2/2018	.01821	117393002
Air Filters	Gross Beta	107	10/9/2018	.03056	117512002
Air Filters	Gross Beta	107	10/16/2018	.02024	117696002
Air Filters	Gross Beta	107	10/23/2018	.02142	117825002
Air Filters	Gross Beta	107	10/29/2018	.02968	117939002
Air Filters	Gross Beta	107	11/6/2018	.01964	118104002
Air Filters	Gross Beta	107	11/13/2018	.02091	118150002
Air Filters	Gross Beta	107	11/20/2018	.02293	118228002
Air Filters	Gross Beta	107	11/27/2018	.02381	118273002
Air Filters	Gross Beta	107	12/4/2018	.006512	118435002
Air Filters	Gross Beta	107	12/11/2018	.01804	118555002
Air Filters	Gross Beta	107	12/18/2018	.01575	118633002
Air Filters	Gross Beta	107	12/26/2018	.02023	118714002
Air Filters	Gross Beta	112	1/3/2018	.03348	113688003
Air Filters	Gross Beta	112	1/9/2018	.04025	113763003
Air Filters	Gross Beta	112	1/16/2018	.01527	113865003
Air Filters	Gross Beta	112	1/23/2018	.02479	114034003
Air Filters	Gross Beta	112	1/30/2018	.0182	114157003
Air Filters	Gross Beta	112	2/6/2018	.02336	114241003
Air Filters	Gross Beta	112	2/13/2018	.01511	114310003
Air Filters	Gross Beta	112	2/20/2018	.01653	114362003
Air Filters	Gross Beta	112	2/27/2018	.01363	114453003
Air Filters	Gross Beta	112	3/6/2018	.02154	114571003
Air Filters	Gross Beta	112	3/13/2018	.02723	114650003
Air Filters	Gross Beta	112	3/20/2018	.02927	114723003
Air Filters	Gross Beta	112	3/27/2018	.02233	114766003
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Air Filters	Gross Beta	112	4/10/2018	.02091	114999003
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Air Filters	Gross Beta	112	5/29/2018	.009948	115560003
Air Filters	Gross Beta	112	6/5/2018	.01715	115659003
Air Filters	Gross Beta	112	6/12/2018	.0263	115794003
Air Filters	Gross Beta	112	6/19/2018	.01317	115900003
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Air Filters	Gross Beta	112	7/10/2018	.01871	116213003
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Air Filters	Gross Beta	112	7/24/2018	.01275	116457003
Air Filters	Gross Beta	112	7/31/2018	.01925	116547003
Air Filters	Gross Beta	112	8/7/2018	.01305	116642003
Air Filters	Gross Beta	112	8/14/2018	.0191	116730001
Air Filters	Gross Beta	112	8/21/2018	.01194	116838003
Air Filters	Gross Beta	112	8/28/2018	.01768	116873003
Air Filters	Gross Beta	112	9/4/2018	.01088	117032003
Air Filters	Gross Beta	112	9/11/2018	.01147	117073003
Air Filters	Gross Beta	112	9/18/2018	.007121	117190003
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Air Filters	Gross Beta	112	10/9/2018	.03208	117512003
Air Filters	Gross Beta	112	10/16/2018	.02149	117696003
Air Filters	Gross Beta	112	10/23/2018	.0207	117825003
Air Filters	Gross Beta	112	10/29/2018	.02646	117939003
Air Filters	Gross Beta	112	11/6/2018	.01614	118104003
Air Filters	Gross Beta	112	11/13/2018	.02031	118150003
Air Filters	Gross Beta	112	11/20/2018	.02243	118228003
Air Filters	Gross Beta	112	11/27/2018	.02657	118273003
Air Filters	Gross Beta	112	12/4/2018	.02398	118435003
Air Filters	Gross Beta	112	12/11/2018	.01701	118555003
Air Filters	Gross Beta	112	12/18/2018	.01483	118633003
Air Filters	Gross Beta	112	12/26/2018	.01979	118714003
Air Filters	Gross Beta	116	1/3/2018	.04152	113688004
Air Filters	Gross Beta	116	1/9/2018	.04736	113763004
Air Filters	Gross Beta	116	1/16/2018	.01718	113865004
Air Filters	Gross Beta	116	1/23/2018	.03508	114034004
Air Filters	Gross Beta	116	1/30/2018	.01772	114157004
Air Filters	Gross Beta	116	2/6/2018	.0224	114241004
Air Filters	Gross Beta	116	2/13/2018	.01368	114310004
Air Filters	Gross Beta	116	2/20/2018	.01626	114362004
Air Filters	Gross Beta	116	2/27/2018	.01322	114453004
Air Filters	Gross Beta	116	3/6/2018	.02754	114571004
Air Filters	Gross Beta	116	3/13/2018	.02887	114650004
Air Filters	Gross Beta	116	3/20/2018	.02581	114723004
Air Filters	Gross Beta	116	3/27/2018	.02016	114766004
Air Filters	Gross Beta	116	4/3/2018	.01385	114888004
Air Filters	Gross Beta	116	4/10/2018	.02322	114999004
Air Filters	Gross Beta	116	4/17/2018	.02305	115068004
Air Filters	Gross Beta	116	4/24/2018	.02037	115167004
Air Filters	Gross Beta	116	5/1/2018	.01796	115249004

Air Filters	Gross Beta	116	5/8/2018	.03007	115373004
Air Filters	Gross Beta	116	5/15/2018	.0297	115402004
Air Filters	Gross Beta	116	5/22/2018	.01249	115495004
Air Filters	Gross Beta	116	5/29/2018	.01254	115560004
Air Filters	Gross Beta	116	6/5/2018	.01728	115659004
Air Filters	Gross Beta	116	6/12/2018	.02267	115794004
Air Filters	Gross Beta	116	6/19/2018	.015	115900004
Air Filters	Gross Beta	116	6/26/2018	.02118	115998004
Air Filters	Gross Beta	116	7/2/2018	.01382	116122004
Air Filters	Gross Beta	116	7/10/2018	.01728	116213004
Air Filters	Gross Beta	116	7/17/2018	.02516	116309004
Air Filters	Gross Beta	116	7/24/2018	.01402	116457004
Air Filters	Gross Beta	116	7/31/2018	.02314	116547004
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Air Filters	Gross Beta	116	8/14/2018	.01925	116730002
Air Filters	Gross Beta	116	8/21/2018	.01472	116838004
Air Filters	Gross Beta	116	8/28/2018	.01807	116873004
Air Filters	Gross Beta	116	9/4/2018	.01419	117032004
Air Filters	Gross Beta	116	9/11/2018	.01634	117073004
Air Filters	Gross Beta	116	9/18/2018	.008009	117190004
Air Filters	Gross Beta	116	9/25/2018	.01984	117250004
Air Filters	Gross Beta	116	10/2/2018	.02072	117393004
Air Filters	Gross Beta	116	10/9/2018	.03183	117512004
Air Filters	Gross Beta	116	10/16/2018	.0215	117696004
Air Filters	Gross Beta	116	10/23/2018	.01893	117825004
Air Filters	Gross Beta	116	10/29/2018	.02385	117939004
Air Filters	Gross Beta	116	11/6/2018	.01797	118104004
Air Filters	Gross Beta	116	11/13/2018	.01918	118150004
Air Filters	Gross Beta	116	11/20/2018	.0207	118228004
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Air Filters	Gross Beta	116	12/11/2018	.02007	118555004
Air Filters	Gross Beta	116	12/18/2018	.01549	118633004
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Air Filters	Gross Beta	304	1/9/2018	.04002	113763005
Air Filters	Gross Beta	304	1/16/2018	.01902	113865005
Air Filters	Gross Beta	304	1/23/2018	.03013	114034005
Air Filters	Gross Beta	304	1/30/2018	.01702	114157005
Air Filters	Gross Beta	304	2/6/2018	.02168	114241005
Air Filters	Gross Beta	304	2/13/2018	.01267	114310005
Air Filters	Gross Beta	304	2/20/2018	.01811	114362005
Air Filters	Gross Beta	304	2/27/2018	.01348	114453005
Air Filters	Gross Beta	304	3/6/2018	.02956	114571005
Air Filters	Gross Beta	304	3/13/2018	.03011	114650005
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Air Filters	Gross Beta	304	3/27/2018	.02242	114766005
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Air Filters	Gross Beta	304	4/10/2018	.02184	114999005
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Air Filters	Gross Beta	304	4/24/2018	.02026	115167005
Air Filters	Gross Beta	304	5/1/2018	.021	115249005
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Air Filters	Gross Beta	304	5/22/2018	.01036	115495005
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Air Filters	Gross Beta	304	6/5/2018	.01463	115659005
Air Filters	Gross Beta	304	6/12/2018	.02754	115794005
Air Filters	Gross Beta	304	6/19/2018	.003492	115900005
Air Filters	Gross Beta	304	6/26/2018	.02461	115998005
Air Filters	Gross Beta	304	7/2/2018	.01609	116122005
Air Filters	Gross Beta	304	7/10/2018	.01749	116213005
Air Filters	Gross Beta	304	7/17/2018	.02701	116309005
Air Filters	Gross Beta	304	7/24/2018	.01777	116457005
Air Filters	Gross Beta	304	7/31/2018	.02234	116547005
Air Filters	Gross Beta	304	8/7/2018	.01201	116642005
Air Filters	Gross Beta	304	8/14/2018	.02002	116730003
Air Filters	Gross Beta	304	8/21/2018	.01396	116838005
Air Filters	Gross Beta	304	8/28/2018	.01914	116873005
Air Filters	Gross Beta	304	9/4/2018	.01446	117032005
Air Filters	Gross Beta	304	9/11/2018	.01734	117073005
Air Filters	Gross Beta	304	9/18/2018	.009712	117190005
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Air Filters	Gross Beta	304	10/2/2018	.01983	117393005
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Air Filters	Gross Beta	304	10/16/2018	.01511	117696005
Air Filters	Gross Beta	304	10/23/2018	.01842	117825005
Air Filters	Gross Beta	304	10/29/2018	.02482	117939005
Air Filters	Gross Beta	304	11/6/2018	.01756	118104005
Air Filters	Gross Beta	304	11/13/2018	.02263	118150005
Air Filters	Gross Beta	304	11/20/2018	.02554	118228005
Air Filters	Gross Beta	304	11/27/2018	.02676	118273005
Air Filters	Gross Beta	304	12/4/2018	.02193	118435005
Air Filters	Gross Beta	304	12/11/2018	.01286	118555005
Air Filters	Gross Beta	304	12/18/2018	.01514	118633005
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Air Filters	Gross Beta	309	1/3/2018	.03881	113688006
Air Filters	Gross Beta	309	1/9/2018	.04333	113763006
Air Filters	Gross Beta	309	1/16/2018	.01669	113865006
Air Filters	Gross Beta	309	1/23/2018	.033	114034006
Air Filters	Gross Beta	309	1/30/2018	.01519	114157006
Air Filters	Gross Beta	309	2/6/2018	.02212	114241006
Air Filters	Gross Beta	309	2/13/2018	.01332	114310006
Air Filters	Gross Beta	309	2/20/2018	.0168	114362006
Air Filters	Gross Beta	309	2/27/2018	.01328	114453006
Air Filters	Gross Beta	309	3/6/2018	.0279	114571006
Air Filters	Gross Beta	309	3/13/2018	.03011	114650006
Air Filters	Gross Beta	309	3/20/2018	.02905	114723006
Air Filters	Gross Beta	309	3/27/2018	.02033	114766006
Air Filters	Gross Beta	309	4/3/2018	.0143	114888006
Air Filters	Gross Beta	309	4/10/2018	.01931	114999006
Air Filters	Gross Beta	309	4/17/2018	.02273	115068006
Air Filters	Gross Beta	309	4/24/2018	.02557	115167006
Air Filters	Gross Beta	309	5/1/2018	.02373	115249006
Air Filters	Gross Beta	309	5/8/2018	.0252	115373006
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Air Filters	Gross Beta	309	5/22/2018	.01309	115495006
Air Filters	Gross Beta	309	5/29/2018	.01218	115560006
Air Filters	Gross Beta	309	6/5/2018	.01953	115659006
Air Filters	Gross Beta	309	6/12/2018	.02672	115794006
Air Filters	Gross Beta	309	6/19/2018	.01377	115900006
Air Filters	Gross Beta	309	6/26/2018	.02604	115998006
Air Filters	Gross Beta	309	7/2/2018	.01607	116122006
Air Filters	Gross Beta	309	7/10/2018	.01841	116213006
Air Filters	Gross Beta	309	7/17/2018	.02559	116309006
Air Filters	Gross Beta	309	7/24/2018	.01829	116457006
Air Filters	Gross Beta	309	7/31/2018	.02336	116547006
Air Filters	Gross Beta	309	8/7/2018	.01262	116642006
Air Filters	Gross Beta	309	8/21/2018	.01462	116838006
Air Filters	Gross Beta	309	8/28/2018	.02217	116873006
Air Filters	Gross Beta	309	9/4/2018	.01194	117032006
Air Filters	Gross Beta	309	9/11/2018	.02026	117073006
Air Filters	Gross Beta	309	9/18/2018	.01083	117190006
Air Filters	Gross Beta	309	9/25/2018	.02467	117250006
Air Filters	Gross Beta	309	10/2/2018	.01645	117393006
Air Filters	Gross Beta	309	10/9/2018	.0291	117512006
Air Filters	Gross Beta	309	10/16/2018	.02138	117696006
Air Filters	Gross Beta	309	10/23/2018	.04545	117825006
Air Filters	Gross Beta	309	12/4/2018	.02704	118435006
Air Filters	Gross Beta	309	12/11/2018	.01779	118555006
Air Filters	Gross Beta	309	12/18/2018	.01784	118633006
Air Filters	Gross Beta	309	12/26/2018	.02138	118714006
Air Qtr Comp	I-131	103	3/26/2018	0	114799001
Air Qtr Comp	I-131	103	6/26/2018	0	116117001
Air Qtr Comp	I-131	103	9/25/2018	0	117418001
Air Qtr Comp	I-131	103	12/26/2018	0	118754001
Vegetation	I-131	106	1/30/2018	0	114159002
Vegetation	I-131	106	2/27/2018	0	114455002
Vegetation	I-131	106	3/27/2018	0	114768003
Vegetation	I-131	106	4/24/2018	0	115171003
Vegetation	I-131	106	5/29/2018	0	115559003
Vegetation	I-131	106	6/26/2018	0	116001003
Vegetation	I-131	106	7/31/2018	0	116549003
Vegetation	I-131	106	8/28/2018	0	116876003
Vegetation	I-131	106	9/25/2018	0	117252003
Vegetation	I-131	106	10/29/2018	0	117941003
Vegetation	I-131	106	11/27/2018	0	118275003
Vegetation	I-131	106	12/26/2018	0	118716003
Air Qtr Comp	I-131	107	3/26/2018	0	114799002
Air Qtr Comp	I-131	107	6/26/2018	0	116117002
Air Qtr Comp	I-131	107	9/25/2018	0	117418002
Air Qtr Comp	I-131	107	12/26/2018	0	118754002
Vegetation	I-131	112	1/30/2018	0	114159001
Vegetation	I-131	112	2/27/2018	0	114455001
Air Qtr Comp	I-131	112	3/26/2018	0	114799003
Vegetation	I-131	112	3/27/2018	0	114768002
Vegetation	I-131	112	4/24/2018	0	115171002
Vegetation	I-131	112	5/29/2018	0	115559002
Air Qtr Comp	I-131	112	6/26/2018	0	116117003

Vegetation	I-131	112	6/26/2018	0	116001002
Vegetation	I-131	112	7/31/2018	0	116549002
Vegetation	I-131	112	8/28/2018	0	116876002
Vegetation	I-131	112	9/25/2018	0	117252002
Air Qtr Comp	I-131	112	9/25/2018	0	117418003
Vegetation	I-131	112	10/29/2018	0	117941002
Vegetation	I-131	112	11/27/2018	0	118275002
Vegetation	I-131	112	12/26/2018	0	118716002
Air Qtr Comp	I-131	112	12/26/2018	0	118754003
Air Qtr Comp	I-131	116	3/26/2018	0	114799004
Air Qtr Comp	I-131	116	6/26/2018	0	116117004
Air Qtr Comp	I-131	116	9/25/2018	0	117418004
Air Qtr Comp	I-131	116	12/26/2018	0	118754004
River Water	I-131	170	1/4/2018	0	113707001
River Water	I-131	170	2/6/2018	0	114243001
River Water	I-131	170	3/6/2018	0	114573001
H-3 Water	I-131	170	4/3/2018	0	114890001
River Water	I-131	170	5/8/2018	0	115339001
River Water	I-131	170	6/5/2018	0	115658001
River Water	I-131	170	7/3/2018	0	116124001
River Water	I-131	170	8/7/2018	0	116644001
River Water	I-131	170	9/4/2018	0	117034001
River Water	I-131	170	10/2/2018	0	117395001
River Water	I-131	170	11/6/2018	0	118106001
River Water	I-131	170	12/4/2018	0	118437001
River Water	I-131	172	1/4/2018	0	113707002
River Water	I-131	172	2/6/2018	0	114243002
River Water	I-131	172	3/6/2018	0	114573002
H-3 Water	I-131	172	4/3/2018	0	114890002
River Water	I-131	172	5/8/2018	0	115339002
River Water	I-131	172	6/5/2018	0	115658002
River Water	I-131	172	7/3/2018	0	116124002
River Water	I-131	172	8/7/2018	0	116644002
River Water	I-131	172	9/4/2018	0	117034002
River Water	I-131	172	10/2/2018	0	117395002
River Water	I-131	172	11/6/2018	0	118106002
River Water	I-131	172	12/4/2018	0	118437002
Air Qtr Comp	I-131	304	3/26/2018	0	114799005
Air Qtr Comp	I-131	304	6/26/2018	0	116117005
Air Qtr Comp	I-131	304	9/25/2018	0	117418005
Air Qtr Comp	I-131	304	12/26/2018	0	118754005
Air Qtr Comp	I-131	309	3/26/2018	0	114799006
Air Qtr Comp	I-131	309	6/26/2018	0	116117006
Air Qtr Comp	I-131	309	9/25/2018	0	117418006
Air Qtr Comp	I-131	309	12/26/2018	0	118754006
Vegetation	I-131	416	1/30/2018	0	114159003
Vegetation	I-131	416	2/27/2018	0	114455003
Vegetation	I-131	416	3/27/2018	0	114768001
Vegetation	I-131	416	4/24/2018	0	115171001
Vegetation	I-131	416	5/29/2018	0	115559001
Vegetation	I-131	416	6/26/2018	0	116001001
Vegetation	I-131	416	7/31/2018	0	116549001
Vegetation	I-131	416	8/28/2018	0	116876001

Vegetation	I-131	416	9/25/2018	0	117252001
Vegetation	I-131	416	10/29/2018	0	117941001
Vegetation	I-131	416	11/27/2018	0	118275001
Vegetation	I-131	416	12/26/2018	0	118716001
Milk Gamma	I-131	GSP	1/9/2018	0	113761001
Milk Gamma	I-131	GSP	1/23/2018	0	114033001
Milk Gamma	I-131	GSP	2/13/2018	0	114309001
Milk Gamma	I-131	GSP	2/27/2018	0	114452001
Milk Gamma	I-131	GSP	3/13/2018	0	114648001
Milk Gamma	I-131	GSP	3/27/2018	0	114765001
Milk Gamma	I-131	GSP	4/10/2018	0	115000001
Milk Gamma	I-131	GSP	4/24/2018	0	115166001
Milk Gamma	I-131	GSP	5/15/2018	0	115401001
Milk Gamma	I-131	GSP	5/29/2018	0	115558001
Milk Gamma	I-131	GSP	6/12/2018	0	115797001
Milk Gamma	I-131	GSP	6/26/2018	0	116000001
Milk Gamma	I-131	GSP	7/10/2018	0	116212001
Milk Gamma	I-131	GSP	7/24/2018	0	116425001
Milk Gamma	I-131	GSP	8/14/2018	0	116706001
Milk Gamma	I-131	GSP	8/28/2018	0	116874001
Milk Gamma	I-131	GSP	9/11/2018	0	117068001
Milk Gamma	I-131	GSP	9/25/2018	0	117253001
Milk Gamma	I-131	GSP	10/9/2018	0	117514001
Milk Gamma	I-131	GSP	10/23/2018	0	117827001
Milk Gamma	I-131	GSP	11/13/2018	0	118152001
Milk Gamma	I-131	GSP	11/27/2018	0	118276001
Milk Gamma	I-131	GSP	12/26/2018	0	118717001
Milk Gamma	I-131	Ga State Prison	12/11/2018	0	118557001
River Water	La-140	170	1/4/2018	0	113707001
River Water	La-140	170	2/6/2018	0	114243001
River Water	La-140	170	3/6/2018	0	114573001
H-3 Water	La-140	170	4/3/2018	0	114890001
River Water	La-140	170	5/8/2018	0	115339001
River Water	La-140	170	6/5/2018	0	115658001
River Water	La-140	170	7/3/2018	0	116124001
River Water	La-140	170	8/7/2018	0	116644001
River Water	La-140	170	9/4/2018	0	117034001
River Water	La-140	170	10/2/2018	0	117395001
River Water	La-140	170	11/6/2018	0	118106001
River Water	La-140	170	12/4/2018	0	118437001
River Water	La-140	172	1/4/2018	0	113707002
River Water	La-140	172	2/6/2018	0	114243002
River Water	La-140	172	3/6/2018	0	114573002
H-3 Water	La-140	172	4/3/2018	0	114890002
River Water	La-140	172	5/8/2018	0	115339002
River Water	La-140	172	6/5/2018	0	115658002
River Water	La-140	172	7/3/2018	0	116124002
River Water	La-140	172	8/7/2018	0	116644002
River Water	La-140	172	9/4/2018	0	117034002
River Water	La-140	172	10/2/2018	0	117395002
River Water	La-140	172	11/6/2018	0	118106002
River Water	La-140	172	12/4/2018	0	118437002
Milk Gamma	La-140	GSP	1/9/2018	0	113761001

Milk Gamma	La-140	GSP	1/23/2018	0	114033001
Milk Gamma	La-140	GSP	2/13/2018	0	114309001
Milk Gamma	La-140	GSP	2/27/2018	0	114452001
Milk Gamma	La-140	GSP	3/13/2018	0	114648001
Milk Gamma	La-140	GSP	3/27/2018	0	114765001
Milk Gamma	La-140	GSP	4/10/2018	0	115000001
Milk Gamma	La-140	GSP	4/24/2018	0	115166001
Milk Gamma	La-140	GSP	5/15/2018	0	115401001
Milk Gamma	La-140	GSP	5/29/2018	0	115558001
Milk Gamma	La-140	GSP	6/12/2018	0	115797001
Milk Gamma	La-140	GSP	6/26/2018	0	116000001
Milk Gamma	La-140	GSP	7/10/2018	0	116212001
Milk Gamma	La-140	GSP	7/24/2018	0	116425001
Milk Gamma	La-140	GSP	8/14/2018	0	116706001
Milk Gamma	La-140	GSP	8/28/2018	0	116874001
Milk Gamma	La-140	GSP	9/11/2018	0	117068001
Milk Gamma	La-140	GSP	9/25/2018	0	117253001
Milk Gamma	La-140	GSP	10/9/2018	0	117514001
Milk Gamma	La-140	GSP	10/23/2018	0	117827001
Milk Gamma	La-140	GSP	11/13/2018	0	118152001
Milk Gamma	La-140	GSP	11/27/2018	0	118276001
Milk Gamma	La-140	GSP	12/26/2018	0	118717001
Milk Gamma	La-140	Ga State Prison	12/11/2018	0	118557001
River Water	Mn-54	170	1/4/2018	0	113707001
River Water	Mn-54	170	2/6/2018	0	114243001
River Water	Mn-54	170	3/6/2018	0	114573001
H-3 Water	Mn-54	170	4/3/2018	0	114890001
River Water	Mn-54	170	5/8/2018	0	115339001
River Water	Mn-54	170	6/5/2018	0	115658001
River Water	Mn-54	170	7/3/2018	0	116124001
River Water	Mn-54	170	8/7/2018	0	116644001
River Water	Mn-54	170	9/4/2018	0	117034001
River Water	Mn-54	170	10/2/2018	0	117395001
River Water	Mn-54	170	11/6/2018	0	118106001
River Water	Mn-54	170	12/4/2018	0	118437001
Fish	Mn-54	170 Catfish	12/19/2018	0	118631001
River Water	Mn-54	172	1/4/2018	0	113707002
River Water	Mn-54	172	2/6/2018	0	114243002
River Water	Mn-54	172	3/6/2018	0	114573002
H-3 Water	Mn-54	172	4/3/2018	0	114890002
River Water	Mn-54	172	5/8/2018	0	115339002
River Water	Mn-54	172	6/5/2018	0	115658002
River Water	Mn-54	172	7/3/2018	0	116124002
River Water	Mn-54	172	8/7/2018	0	116644002
River Water	Mn-54	172	9/4/2018	0	117034002
River Water	Mn-54	172	10/2/2018	0	117395002
River Water	Mn-54	172	11/6/2018	0	118106002
River Water	Mn-54	172	12/4/2018	0	118437002
Fish	Mn-54	172 Catfish	12/19/2018	0	118631002
River Water	Nb-95	170	1/4/2018	0	113707001
River Water	Nb-95	170	2/6/2018	0	114243001
River Water	Nb-95	170	3/6/2018	0	114573001
H-3 Water	Nb-95	170	4/3/2018	0	114890001

River Water	Nb-95	170	5/8/2018	0	115339001
River Water	Nb-95	170	6/5/2018	0	115658001
River Water	Nb-95	170	7/3/2018	0	116124001
River Water	Nb-95	170	8/7/2018	0	116644001
River Water	Nb-95	170	9/4/2018	0	117034001
River Water	Nb-95	170	10/2/2018	0	117395001
River Water	Nb-95	170	11/6/2018	0	118106001
River Water	Nb-95	170	12/4/2018	0	118437001
River Water	Nb-95	172	1/4/2018	0	113707002
River Water	Nb-95	172	2/6/2018	0	114243002
River Water	Nb-95	172	3/6/2018	0	114573002
H-3 Water	Nb-95	172	4/3/2018	0	114890002
River Water	Nb-95	172	5/8/2018	0	115339002
River Water	Nb-95	172	6/5/2018	0	115658002
River Water	Nb-95	172	7/3/2018	0	116124002
River Water	Nb-95	172	8/7/2018	0	116644002
River Water	Nb-95	172	9/4/2018	0	117034002
River Water	Nb-95	172	10/2/2018	0	117395002
River Water	Nb-95	172	11/6/2018	0	118106002
River Water	Nb-95	172	12/4/2018	0	118437002
H-3 Water	Tritium	170	1/4/2018	105	113803001
H-3 Water	Tritium	170	7/3/2018	90.5	116254001
H-3 Water	Tritium	170	10/2/2018	104	117539001
H-3 Water	Tritium	172	1/4/2018	-31.9	113803002
H-3 Water	Tritium	172	7/3/2018	-87	116254002
H-3 Water	Tritium	172	10/2/2018	165	117539002
River Water	Zn-65	170	1/4/2018	0	113707001
River Water	Zn-65	170	2/6/2018	0	114243001
River Water	Zn-65	170	3/6/2018	0	114573001
H-3 Water	Zn-65	170	4/3/2018	0	114890001
River Water	Zn-65	170	5/8/2018	0	115339001
River Water	Zn-65	170	6/5/2018	0	115658001
River Water	Zn-65	170	7/3/2018	0	116124001
River Water	Zn-65	170	8/7/2018	0	116644001
River Water	Zn-65	170	9/4/2018	0	117034001
River Water	Zn-65	170	10/2/2018	0	117395001
River Water	Zn-65	170	11/6/2018	0	118106001
River Water	Zn-65	170	12/4/2018	0	118437001
Fish	Zn-65	170 Catfish	12/19/2018	0	118631001
River Water	Zn-65	172	1/4/2018	0	113707002
River Water	Zn-65	172	2/6/2018	0	114243002
River Water	Zn-65	172	3/6/2018	0	114573002
H-3 Water	Zn-65	172	4/3/2018	0	114890002
River Water	Zn-65	172	5/8/2018	0	115339002
River Water	Zn-65	172	6/5/2018	0	115658002
River Water	Zn-65	172	7/3/2018	0	116124002
River Water	Zn-65	172	8/7/2018	0	116644002
River Water	Zn-65	172	9/4/2018	0	117034002
River Water	Zn-65	172	10/2/2018	0	117395002
River Water	Zn-65	172	11/6/2018	0	118106002
River Water	Zn-65	172	12/4/2018	0	118437002
Fish	Zn-65	172 Catfish	12/19/2018	0	118631002
River Water	Zr-95	170	1/4/2018	0	113707001

River Water	Zr-95	170	2/6/2018	0	114243001
River Water	Zr-95	170	3/6/2018	0	114573001
H-3 Water	Zr-95	170	4/3/2018	0	114890001
River Water	Zr-95	170	5/8/2018	0	115339001
River Water	Zr-95	170	6/5/2018	0	115658001
River Water	Zr-95	170	7/3/2018	0	116124001
River Water	Zr-95	170	8/7/2018	0	116644001
River Water	Zr-95	170	9/4/2018	0	117034001
River Water	Zr-95	170	10/2/2018	0	117395001
River Water	Zr-95	170	11/6/2018	0	118106001
River Water	Zr-95	170	12/4/2018	0	118437001
River Water	Zr-95	172	1/4/2018	0	113707002
River Water	Zr-95	172	2/6/2018	0	114243002
River Water	Zr-95	172	3/6/2018	0	114573002
H-3 Water	Zr-95	172	4/3/2018	0	114890002
River Water	Zr-95	172	5/8/2018	0	115339002
River Water	Zr-95	172	6/5/2018	0	115658002
River Water	Zr-95	172	7/3/2018	0	116124002
River Water	Zr-95	172	8/7/2018	0	116644002
River Water	Zr-95	172	9/4/2018	0	117034002
River Water	Zr-95	172	10/2/2018	0	117395002
River Water	Zr-95	172	11/6/2018	0	118106002
River Water	Zr-95	172	12/4/2018	0	118437002

Edwin I. Hatch Nuclear Plant – Units 1 & 2
Joseph M. Farley Nuclear Plant– Units 1 & 2
Vogtle Electric Generating Plant– Units 1 & 2
Annual Radiological Environmental Operating Reports for 2018

Enclosure 2

Farley Annual Radiological Environmental Operating Report for 2018

JOSEPH M. FARLEY NUCLEAR PLANT
2018 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Southern Nuclear

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Tables

Figures

Appendix A – Maps

Appendix B – Errata

LIST OF ACRONYMS

ADEM	Alabama Department of Environmental Management
APC	Alabama Power Company
GA EPD	State of Georgia Environmental Protection Division
FNP	Joseph M. Farley Nuclear Plant
GPCEL	Georgia Power Company Environmental Laboratory
ICP	Interlaboratory Comparison Program
MDC	Minimum Detectable Concentration
MDD	Minimum Detectable Difference
MWe	MegaWatts Thermal
NA	Not Applicable
NDM	No Detectable Measurement(s)
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSL	Optically Stimulated Luminescence
PWR	Pressurized Water Reactor
REMP	Radiological Environmental Monitoring Program
RL	Reporting Level
RM	River Mile
SNC	Southern Nuclear Operating Company
TLD	Thermoluminescent Dosimeter
TS	Technical Specification

1 INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) was conducted in accordance with Chapter 4 of the Offsite Dose Calculation Manual (ODCM). The REMP activities for 2018 were reported herein in accordance with Technical Specification (TS) 5.6.2 and ODCM 7.1.

The objectives of the REMP were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs and;
2) Assess the radiological impact (if any) to the environment due to the operation of the Joseph M. Farley Nuclear Plant (FNP).

The assessments included comparisons between results of analyses of samples obtained at locations where radiological levels were not expected to be affected by plant operation (control stations), areas of higher population (community stations), and at locations where radiological levels were more likely to be affected by plant operation (indicator stations), as well as comparisons between preoperational and operational sample results.

FNP is owned by Alabama Power Company (APC) and operated by Southern Nuclear Operating Company (SNC). The plant is located in Houston County, Alabama approximately fifteen miles east of Dothan, Alabama on the west bank of the Chattahoochee River. Unit 1, a Westinghouse Electric Corporation Pressurized Water Reactor (PWR) with a licensed core thermal power output of 2775 MegaWatts thermal (MWt), achieved initial criticality on August 9, 1977 and was declared "commercial" on December 1, 1977. Unit 2, also a 2775 MWt Westinghouse PWR, achieved initial criticality on May 8, 1981 and was declared "commercial" on July 30, 1981.

The preoperational stage of the REMP began with initial sample collections in January of 1975. The transition from the preoperational to the operational stage of the REMP was marked by Unit 1 initial criticality.

- A description of the REMP is provided in Section 2 of this report
- Section 3 provides a summary of the results, an assessment of any radiological impacts to the environment, and the results from the Interlaboratory Comparison
- A summary of the land use census and the river survey are included in Section 4
- Conclusions are included in Section 5

2 REMP DESCRIPTION

The following section provides a description of the sampling and laboratory protocols associated with the REMP. Table 2-1 provides a summary of the sample types to be collected and the analyses to be performed in order to monitor the airborne, direct radiation, waterborne and ingestion pathways, and also summarizes the collection and analysis frequencies (in accordance with ODCM Section 4.2). Table 2-2 provides specific information regarding the station locations, their proximity to the plant, and exposure pathways. Additionally, Appendix A of this report provides Maps A-1 through A-4 that depict the georeferenced location of sampling stations. Any Errata from previous reports are provided in Appendix B.

Plant personnel collected some samples, while others were collected by Alabama Power Company Environmental Affairs field team. The Georgia Power Environmental Laboratory (GPCEL) analyzed all REMP samples.

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Direct Radiation	40 routine monitoring stations with two or more dosimeters placed as follows: An inner ring of stations, one in each compass sector in the general area of the site boundary; An outer ring of stations, one in each compass sector at approximately 5 miles from the site; and Special interest areas, such as population centers, nearby recreation areas, and control stations	Quarterly	Gamma dose/Quarterly
Airborne Radioiodine and Particulates	Samples from eight locations: Three locations close to the site boundary in different sectors; Three community stations; within 8 miles Two control locations near population centers, approximately 15 and 18 miles away	Continuous sampler operation with sample collection weekly	Particulate sampler: Analyze for gross beta radioactivity ≥ 24 hours following filter change / Weekly. Perform gamma isotopic analysis on each sample when gross beta activity is > 10 times the yearly mean of control samples. Perform gamma isotopic analysis on composite sample (by location)/Quarterly. Radioiodine canister: I-131 analysis/Weekly
Waterborne			
Surface[3]	One sample upriver One sample downriver	Composite sample over one month period[4]	Gamma isotopic analysis[2]/Monthly Composite for tritium analysis/Quarterly

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Groundwater	Off-site monitoring includes one indicator station and one control station See Table 3-8 and Map A-4 in Appendix A for on-site well locations. These are part of the GWPP (NEI 07-07).	Quarterly Frequency based on GWPP	Off-site wells are analyzed only for Gamma Isotopic, I-131, & tritium Tritium, gamma isotopic, and field parameters of each sample; hard-to-detects based on tritium and gamma results
Shoreline Sediment[7]	One sample from downriver area with existing or potential recreational value One sample from upriver area with existing or potential recreational value	Semiannually	Gamma isotopic analysis[2]/Semiannually
Ingestion			
Milk[5]	Two samples from milking animals at control locations at a distance of about 10 miles or more	Bimonthly	Gamma isotopic analysis[2,6]/Bimonthly
Fish[8]	One bottom feeding fish and one game fish both upstream and downstream	Semiannually During spring/fall spawning season	Gamma isotopic analysis[2] on edible portions/ Semiannually Gamma isotopic analysis[2] on edible portions/ Annually.
Grass or Leafy Vegetation	One sample from two onsite locations near the site boundary in different sectors One sample from a control location at an approximate distance of 18 miles	Monthly during growing season	Gamma isotopic analysis[2,6]/Monthly

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Notes: [1]Airborne particulate sample filters were analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air particulate samples was greater than 10 times the yearly mean of control samples, gamma isotopic analysis was performed on the individual samples. [2]Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility. [3]Upriver sample was taken at a distance beyond significant influence of the discharge. Downriver samples were taken beyond but near the mixing zone. [4]Composite sample aliquots were collected at time intervals that were very short (e.g., hourly) relative to the compositing period (e.g., monthly) to ensure obtaining a representative sample. [5]A milking animal is a cow or goat producing milk for human consumption, no milk animals were found within five miles of the plant, a control sample not collected since 2009. [6]If the gamma isotopic analysis is not sensitive enough to meet the Minimum Detectable Concentration (MDC) for I-131, a separate analysis for I-131 may be performed. [7]These collections were normally made at river mile 41.3 for the indicator station and river mile 47.8 for the control station; however, due to river bottom sediment shifting caused by high flows, dredging, etc., collections may be made from river mile 40 to 42 for the indicator station and from river mile 47 to 49 for the control station. [8] Since several miles of river water may be needed to obtain adequate fish samples, these river mile positions represent the approximate locations from which the fish are taken. Collections for the indicator station should be from river mile 37.5 to 42.5 and for the control station from river mile 47 to 52.			

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
0501	Indicator	River Intake Structure (Spare)	ESE	0.8	Airborne
0701	Indicator	South-southeast Perimeter	SSE	1.0	Airborne
1101	Indicator	Plant Entrance	WSW	0.9	Airborne
1601	Indicator	North Perimeter	N	0.8	Airborne
0215	Control	Blakely GA	NE	15	Airborne, Direct
0718[2]	Control	Neals Landing, FL	SSE	18	Airborne, Direct
1218	Control	Dothan, AL	W	18	Airborne, Direct, Vegetation
0703	Community	GA Pacific Paper Co.	SSE	3	Airborne, Direct
1108	Community	Ashford, AL	WSW	8	Airborne
1605	Community	Columbia, AL	N	5	Airborne, Direct
0101	Indicator	Plant Perimeter	NNE	0.9	Direct
0201	Indicator	Plant Perimeter	NE	1.0	Direct
0301	Indicator	Plant Perimeter	ENE	0.9	Direct
0401	Indicator	Plant Perimeter	E	0.8	Direct
0501	Indicator	Plant Perimeter	ESE	0.8	Direct
0601	Indicator	Plant Perimeter	SE	1.1	Direct
0701	Indicator	Plant Perimeter	SSE	1.0	Direct, Vegetation
0801	Indicator	Plant Perimeter	S	1.0	Direct
0901	Indicator	Plant Perimeter	SSW	1.0	Direct
1001	Indicator	Plant Perimeter	SW	0.9	Direct
1101	Indicator	Plant Perimeter	WSW	0.9	Direct
1201	Indicator	Plant Perimeter	W	0.8	Direct
1301	Indicator	Plant Perimeter	WNW	0.8	Direct
1401	Indicator	Plant Perimeter	NW	1.1	Direct
1501	Indicator	Plant Perimeter	NNW	0.9	Direct
1601	Indicator	Plant Perimeter	N	0.8	Direct, Vegetation
1215	Control	Dothan, AL	W	15	Direct
1311	Control	Webb, AL	W	11	Direct
1612	Control	Haleburg, AL	WNW	12	Direct
1001	Community	Whatley Residence	SW	12	Direct
1108	Community	Ashford, AL	WSW	8.0	Direct
WRI	Indicator	Downstream of plant discharge, approximately RM 40	S	3.0	River Water
WRB	Control	Upstream of plant intake, approximately RM 47	NNE	3.0	River Water
WGI-07	Indicator	Paper Mill Well	SSE	4.0	Groundwater
WGB-10	Control	Whatley Residence	SW	1.2	Groundwater

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
RSI	Indicator	Downstream of plant discharge at Smith's Bend (RM 41)	S	4.0	Sediment
RSB	Control	Upstream of plant intake at Andrews Lock and Dam (RM 48)	N	4.0	Sediment
FGI & FGB	Indicator	Downstream of plant discharge at Smith's Bend (RM 41)	S	4.0	Fish
FGB & FBB	Control	Upstream of plant intake at Andrews Lock and Dam (RM 48)	N	4.0	Fish
0104	Community	Early Co., GA	NNE	4.0	Direct
0204	Community	Early Co., GA	NE	4.0	Direct
0304	Community	Early Co., GA	ENE	4.0	Direct
0405	Community	Early Co., GA	E	5.0	Direct
0505	Community	Early Co., GA	ESE	5.0	Direct
0605	Community	Early Co., GA	SE	5.0	Direct
0805	Community	Houston Co., AL	S	5.0	Direct
0904	Community	Houston Co., AL	SSW	4.0	Direct
1005	Community	Houston Co., AL	SW	5.0	Direct
1104	Community	Houston Co., AL	WSW	4.0	Direct
1204	Community	Houston Co., AL	W	4.0	Direct
1304	Community	Houston Co., AL	WNW	4.0	Direct
1404	Community	Houston Co., AL	NW	4.0	Direct
1504	Community	Houston Co., AL	NNW	4.0	Direct

Notes:
[1]Direction and distance were determined as the mid-point between the Unit 1 and Unit 2 vent stacks.
[2] Spare, per the ODCM

3 RESULTS SUMMARY

Included in this section are statistical evaluations of the laboratory results, comparison of the results by media, and a summary of the anomalies and deviations. Overall, 1,019 analyses were performed across nine exposure pathways. Tables and figures are provided throughout this section to provide an enhanced presentation of the information.

In recent history, man-made nuclides have been released into the environment and have resulted in wide spread distribution of radionuclides across the globe. For example, atmospheric nuclear weapons tests from the mid-1940s through 1980 distributed man-made nuclides around the world. The most recent atmospheric tests in the 1970s and in 1980 have had a significant impact upon the radiological concentrations found in the environment prior to and during pre-operation, and through early operation. Some long-lived radionuclides, such as Cs-137, continue to be detected and a portion of these detections are believed to be attributed to the nuclear weapons tests.

Additionally, data associated with certain radiological effects created by off-site events have been removed from the historical evaluation, this includes: the nuclear atmospheric weapon test in the fall of 1980, the Chernobyl incident in the spring of 1986 and the Fukushima accident in the spring of 2011.

As indicated in ODCM 7.1.2.1, the results for naturally occurring radionuclides that are also found in plant effluents must be reported along with man-made radionuclides. Historically, the radionuclide Be-7, which occurs abundantly in nature, is often detected in REMP samples, and occasionally detected in the plant's liquid and gaseous effluents. When it is detected in effluents and REMP samples, it is also included in the REMP results. In 2018, BE-7 was detected during two quarters and the results will be included in this report. The Be-7 detected in select REMP samples likely represents naturally occurring and/or background conditions.

As part of the data evaluation process, SNC considered the impact of the non-plant associated nuclides along with a statistical evaluation of the REMP data. The statistical evaluations included within this report include the Minimum Detectable Concentration (MDC), the Minimum Detectable Difference (MDD), and Chauvenet's Criterion as described below.

Minimum Detectable Concentration

The minimum detectable concentration is defined as an estimate of the true concentration of an analyte required to give a specified high probability that the measured response will be greater than the critical value.

Minimum Detectable Difference

The Minimum Detectable Difference (MDD) compares the lowest significant difference (between the means) of a control station versus an indicator or a community station, that can be determined statistically at the 99% Confidence Level (CL). A difference in mean values which was less than the MDD was considered statistically indiscernible. The MDD is used to evaluate the statistical proximity between the indicator/community and control sample results, but generally, any results that are less than the MDC and/or Reporting Levels (RL) are considered to have minimal impact on the surrounding environs.

Chauvenet's Criterion

All results were tested for conformance with Chauvenet's Criterion (G. D. Chase and J. L. Rabinowitz, Principles of Radioisotope Methodology, Burgess Publishing Company, 1962, pages 87-90) to identify values which differed from the mean of a set by a statistically significant amount. Identified outliers were investigated to determine the reason(s) for the difference. If equipment malfunction or other valid physical reasons were identified as causing the variation, the anomalous result was excluded from the data set as non-representative.

Table 3-1 summarizes and evaluates the annual results for the indicator stations against the control and community stations (where applicable) and as appropriate, results were evaluated against the MDCs (listed in Table 3-1) and RLs (listed in Table 3-2). The required MDCs were achieved during laboratory sample analysis. The 2018 results were compared with previous results, including those obtained during pre-operation. No data points were excluded for violating Chauvenet's Criterion.

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Locations Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Airborne Particulates (fCi/m3)	Gross Beta 406	10	18.1 5.2-42.2 (156/156)	Columbia, AL N 5 mi. Community	21.1 6.3-41.7 (52/52)	18.3 3.3-44 (156/156)	16.9 3.3-40.4 (94/94)
	Gamma Isotopic 32						
	Be-7	24	76.4 62.8-98.4 (12/16)	Blakely, GA NE 15 mi. Control	92.5 67.8-80.5 (4/4)	84.6 51.9-112.6 (12/12)	83.9 62.6-151.2 (8/8)
	I-131	70	NDM(c)		NDM	NDM	NDM
	Cs-134	50	NDM		NDM	NDM	NDM
	Cs-137	60	NDM		NDM	NDM	NDM
Airborne Radioiodine(fCi/m3)	I-131 312	70	NDM		NDM	NDM	NDM
Direct Radiation (mR/91 days)	Gamma Dose 160		16.3 12.2-25.4 (64/64)	Plant Perimeter, E 0.8 mi Indicator	24.9 24-25.4 (4/4)	13.7 10.8-16.2 (72/72)	16.7 11.3-25.1 (24/24)
Milk (pCi/l)	Gamma Isotopic 0						
	I-131	1					
	Cs-134	15					
	Cs-137	18					
	Ba-140	60					
	La-140	15					
Vegetation (pCi/kg-wet)	Gamma Isotopic 36						

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Locations Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
	Be-7	729	1634.3 391.2-4717.2 (24/24)	Dothan, AL W 18 mi. Control	1985.9 322.6-7813.3 (12/12)		1985.9 322.6-7813.3 (12/12)
	I-131	60	NDM				NDM
	Cs-134	60	NDM				NDM
	Cs-137	80	NDM	Dothan, AL W 18 mi. Control	31.2 22.4-39.9 (2/12)		31.2 22.4-39.9 (2/12)
River Water (pCi/l)	Gamma Isotopic 26						
	Mn-54	15	NDM		NDM	NDM	NDM
	Fe-59	30	NDM		NDM	NDM	NDM
	Co-58	15	NDM		NDM	NDM	NDM
	Co-60	15	NDM		NDM	NDM	NDM
	Zn-65	30	NDM		NDM	NDM	NDM
	Zr-95	30	NDM		NDM	NDM	NDM
	Nb-95	15	NDM		NDM	NDM	NDM
	I-131	15	NDM		NDM	NDM	NDM
	Cs-134	15	NDM		NDM	NDM	NDM
	Cs-137	18	NDM		NDM		
	Ba-140	60	NDM		NDM		
	La-140	15	NDM		NDM		
	Tritium 8	3000	181.3 92.4-379 (4/4)	Paper Mill (RM 40) Indicator	181.3 92.4-379 (4/4)		-4.6 -201-106 (4/4)
Off-site Groundwater	Gamma Isotopic 8						

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Locations Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
	Mn-54	15	NDM		NDM		NDM
	Fe-59	30	NDM		NDM		NDM
	Co-58	15	NDM		NDM		NDM
	Co-60	15	NDM		NDM		NDM
	Zn-65	30	NDM		NDM		NDM
	Zr-95	30	NDM		NDM		NDM
	Nb-95	15	NDM		NDM		NDM
	I-131	15	NDM		NDM		NDM
	Cs-134	15	NDM		NDM		NDM
	Cs-137	18	NDM		NDM		NDM
	Ba-140	60	NDM		NDM		NDM
	La-140	15	NDM		NDM		NDM
	Tritium 8	2000	-69.2 -181-39.3 (4/4)	Whatley Residence Well (SW1.2) Indicator	-32.0 -101-88.5 (4/4)		-32.0 -101-88.5 (4/4)
Bottom Feeding Fish (pCi/kg-wet)	Gamma Isotopic 4						
	Mn-54	130	NDM		NDM		NDM
	Fe-59	260	NDM		NDM		NDM
	Co-58	130	NDM		NDM		NDM
	Co-60	130	NDM		NDM		NDM
	Zn-65	260	NDM		NDM		NDM
	Cs-134	130	NDM		NDM		NDM
	Cs-137	150	17.9 0-17.9 (1/2)	Downstream of plant discharge near Smith's Bend (RM 41) - Indicator	17.9 0-17.9 (1/2)		NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Locations Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Game Fish (pCi/kg-wet)	Gamma Isotopic 4						
	Mn-54	130	NDM		NDM		NDM
	Fe-59	260	NDM		NDM		NDM
	Co-58	130	NDM		NDM		NDM
	Co-60	130	NDM		NDM		NDM
	Zn-65	260	NDM		NDM		NDM
	Cs-134	130	NDM		NDM		NDM
	Cs-137	150	25.4 18-32.7 (2/2)	Downstream of plant discharge near Smith's Bend (RM 41) - Indicator	25.4 18-32.7 (2/2)		NDM
Sediment (pCi/kg-dry)	Gamma Isotopic 4						
	Co-60	70	NDM		NDM		NDM
	Cs-134	150	NDM		NDM		NDM
	Cs-137	180	NDM		NDM		NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Locations Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		

Notes:

(a)The MDC is defined in ODCM 10.1. Except as noted otherwise, the values listed in this column are the detection capabilities required by ODCM Table 4-3. The values listed in this column are a priori (before the fact) MDCs. In practice, the a posteriori (after the fact) MDCs are generally lower than the values listed.

(b) Mean and range were based upon detectable measurements only. The fraction of all measurements at a specified location that are detectable is placed in parenthesis.

(c) No Detectable Measurement(s) (NDM).

(d) The Georgia Power Company Environmental Laboratory has determined that this value may be routinely attained under normal conditions. No value is provided in ODCM Table 4-3.

(e) Item 3 of ODCM Table 4-1 implies that an I-131 analysis is not required to be performed on water samples when the dose calculated from the consumption of water is less than 1 mrem per year. However, I-131 analyses have been performed on the finished drinking water samples.

(f) "Other" stations, as identified in the "Station Type" column of Table 2-2, are "Community" and/or "Special" stations.

Not Applicable (NA) (sample not required)

Table 3-2. Reporting Levels (RL)

Analysis	Water (pCi/l)	Airborne Particulate or Gases (fCi/m3)	Fish (pCi/kg-wet)	Milk (pCi/l)	Grass or Leafy Vegetation (pCi/kg-wet)
H-3	20,000[a]				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-95	400				
Nb-95	700				
I-131	2[b]	900		3	100
Cs-134	30	10,000	1,000	60	1,000
Cs-137	50	20,000	2,000	70	2,000
Ba-140	200			300	
La-140	100			400	

[a] This is the 40 CFR 141 value for drinking water samples. If no drinking water pathway exists, a value of 30,000 may be used.
[b] If no drinking water pathway exists, a value of 20 pCi/l may be used.

In accordance with ODCM 4.1.1.2.1, deviations from the required sampling schedule were permitted, if samples were unobtainable due to hazardous conditions, unavailability, inclement weather, equipment malfunction or other just reasons. Deviations from conducting the REMP sampling (as described in Table 2-1) are summarized in Table 3-3 along with their causes and resolutions.

Table 3-3. Anomalies and Deviations from Radiological Environmental Monitoring Program

Collection Period	Affected Samples	Anomaly (A)* or Deviation (D)**	Cause	Resolution
04/10/18 - 04/18/18	PI-1101/II-1101 0.9 mile - WSW	Non-representative sample of airborne iodine and particulates (D)	Lost 51 hours of sample time due to problems with portable generator supplying temporary power to station during maintenance outage.	Station operation satisfactory after normal power restored.
05/15/18 - 05/22/18	PC-1108 8 miles - WSW	Non-representative sample of airborne particulates (D)	Lost 100 hours of sample time due after local breaker on sampler tripped off due to power spike.	Station operation satisfactory after normal power restored.
07/17/18 - 07/24/18	PC-1605 5 mile - N	Non-representative sample of airborne particulates (D)	Lost 71 hours of sample time due after local breaker on sampler tripped off due to power spike.	Station operation satisfactory after normal power restored.
07/17/18 - 07/24/18	PI-1601/II-1601 0.8 miles - N	Non-representative sample of airborne iodine and particulates (D)	Lost 77 hours of sample time due to blown fuse on transformer pole supplying power to station.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PI-1601/II-1601 0.8 miles - N	Non-representative sample of airborne iodine and particulates (D)	Lost 25 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PI-0701/II-0701 1.0 miles - SSE	Non-representative sample of airborne iodine and particulates (D)	Lost 49 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PC-1108 8 miles - WSW	Non-representative sample of airborne particulates (D)	Lost 26 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PC-1605 5 miles - N	Non-representative sample of airborne particulates (D)	Lost 27 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PB-1218/IB-1218 18 miles - W	Non-representative sample of airborne iodine and particulates (D)	Lost 20 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PC-0703/IC-0703 3 miles - SSE	Non-representative sample of airborne iodine and particulates (D)	Lost 139 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Station operation satisfactory after normal power restored.
10/09/18 – 10/16/18	PB-0215/IB-0215 15 miles - NE	Non-representative sample of airborne iodine and particulates (D)	Lost 140 hours of sample time after power supplied to station became unavailable during Hurricane Michael.	Unable to immediately return station to service due to damaged power lines and electrical equipment.
10/16/18 -- end of 2018	PB-0215/IB-0215 15 miles - NE	Loss of continuous sampling for airborne iodine and particulates(D)	No air samples collected from station. Station remained without electrical power due to damage sustained from Hurricane Michael.	Repairs to reestablish normal power to station and resume sample collection not completed until January 2019
10/30/18 -- 11/06/18	PC-0703/IC-0703 3 miles - SSE	Non-representative sample of airborne particulates (A)	Lost 102 hours of sample time after local breaker on sampler tripped off due to power spike.	Station operation satisfactory after normal power restored.

* An anomaly is considered a non-standard sample that still meets sampling criteria outlined in SNC and Georgia Power Labs procedures.
** A deviation is a sample result that is not recorded due to not meeting scheduling and/or procedural requirements as outlined by SNC and Georgia Power Labs

3.1 Airborne Particulates

As specified in Table 2-1, airborne particulate filters and charcoal canisters were collected weekly at three indicator stations (Stations 0701, 1101, and 1601) which encircle the plant at the site periphery, at three community station (0703, 1108, and 1605) approximately three to eight miles from the plant, and at two control stations (0215 and 1218) which range from approximately 15 to 18 miles from the plant. At each sampling location containing a filter and cartridge series, air was continuously drawn through a glass fiber filter to retain airborne particulate and an activated charcoal canister was also placed in series with the particulate filter in order to adsorb radioiodine at each indicator/control station and at community station 0703 in Cedar Springs, GA for comparison purposes with the Georgia Environmental Protection Division (EPD).

3.1.1 Gross Beta

As provided in Table 3-1, the 2018 annual average weekly gross beta activity was 18.1 fCi/m3 for the indicator stations. It was 1.2 fCi/m3 greater than the control station average of 16.9 fCi/m3 for the year. The difference was less than the calculated MDD of 2.3 fCi/L, so the difference was not statistically discernible.

The 2018 annual average weekly gross beta activity at the community stations was 18.3 fCi/m3 which was 1.4 fCi/m3 more than the control station average. This difference was less than the MDD calculated at 2.4 fCi/m3.

Average Air Gross Beta historical data (Table 3-4) is graphed to show trends associated with a prevalent exposure pathway (Figure 3-1). In general, there was a close agreement between the results for the indicator, control and community stations. This close agreement supports the position that the plant was not contributing significantly to the gross beta concentrations in air.

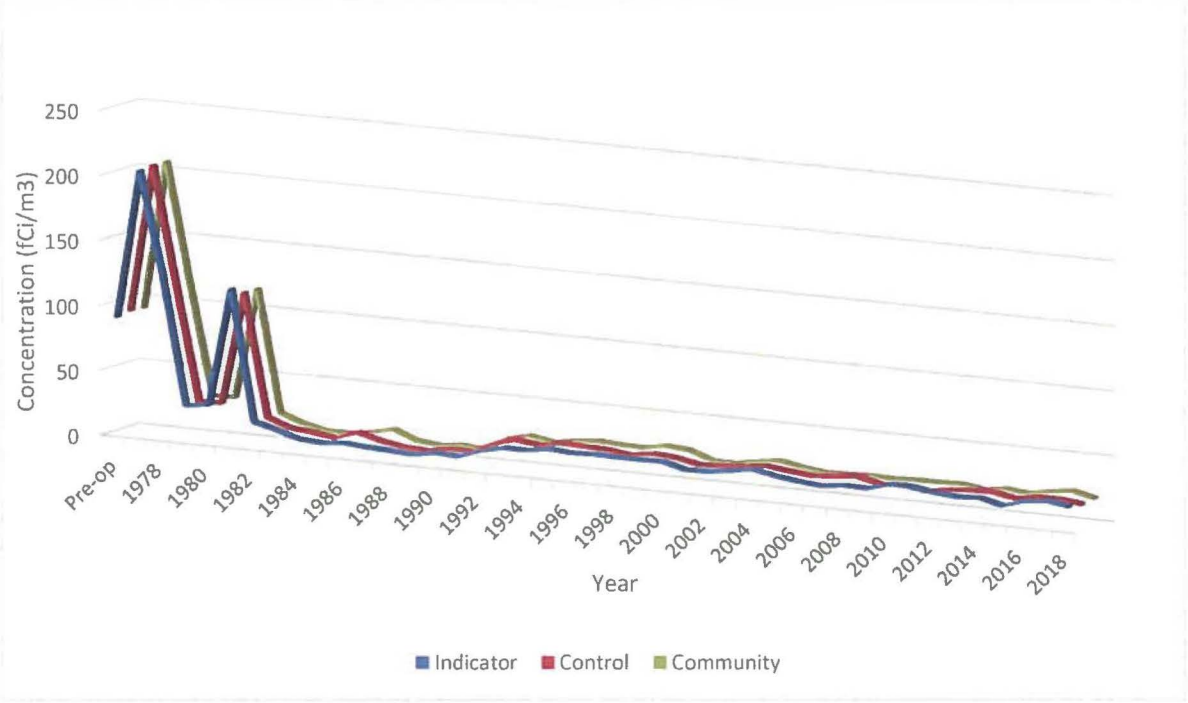
Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)
Pre-op	90	92	91		1998	20.6	19.3	22.0
1977	205	206	206		1999	20.5	22.1	25.2
1978	125	115	115		2000	20.9	20.8	23.6
1979	27.3	27.3	28.7		2001	16.3	17.2	17.3
1980	29.7	28.1	29.2		2002	16.8	18	16.8
1981	121	115	115		2003	19.1	19.3	19.9
1982	20.0	20.4	21.0		2004	22.0	21.3	22.4
1983	15.5	14.1	14.5		2005	18.4	19.3	19.0
1984	10.2	12.6	10.5		2006	16.1	17.5	16.8
1985	9.0	9.6	10.3		2007	14.5	18.9	17.3
1986	10.5	15.8	12.5		2008	16.7	20.6	18.0
1987	9.0	11.0	17.0		2009	16.2	16.3	17.3

Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)
1988	8	8	10		2010	21.2	17.5	18.2
1989	7	7	8		2011	20.9	14.5	18.2
1990	10	10	10		2012	18.0	17.3	18.9
1991	9	10	8		2013	16.7	18.7	16.1
1992	15	17.9	18.5		2014	17.7	19.1	18.5
1993	19.1	22.3	22.4		2015	13.4	15.9	16.8
1994	19.0	20.0	19.0		2016	18.7	18.8	19.9
1995	21.7	22.9	21.6		2017	20.7	18.9	22.1
1996	20.3	22.3	23.5		2018	18.1	16.9	18.3
1997	21.1	21.6	22.4					

Figure 3-1. Average Weekly Gross Beta Air Concentration



3.1.2 Gamma Particulates and Airborne Radioiodine

During 2018, no man-made radionuclides were detected from the gamma isotopic analysis of the quarterly composites of the air particulate filters other than Be-7. While there was a Be-7 detection in plant releases during two quarters, the indicator, control and community stations all

consistently show levels of Be-7 throughout the 2018 year. The indicator average in air particulate filter composites was 76.4 fCi/ m3, while the control and community averages were 83.9 fCi/ m3 and 84.6 fCi/m3, respectively. The MDD was not calculated because the indicator average was below the control average.

I-131 was not detected in the air cartridges at either the indicator or control stations in 2018. Historically, gamma isotopes have been detected as a result of offsite events. During pre-operation, Cs-137 was occasionally detected.

3.2 Direct Radiation

In 2018, direct (external) radiation was measured with Optically Stimulated Luminescent (OSL) dosimeters by placing two OSL badges at each station. The gamma dose at each station was reported as the average reading of the two badges. The badges were analyzed on a quarterly basis. An inspection was performed near mid-quarter for offsite badges to ensure that the badges were on-station and to replace any missing or damaged badges.

Two direct radiation stations were established in each of the 16 compass sectors, to form two concentric rings. The inner ring (Stations 0101 through 1601) was located near the plant perimeter as shown in Map A-1 in Appendix A and the outer ring (Stations 0104 through 1605) was located at approximately 5 miles (varying distances) from the plant as shown in Map A-2 in Appendix A. The 16 stations forming the inner ring were designated as the indicator stations. The two-ring configuration of stations was established in accordance with NRC Branch Technical Position "An Acceptable Radiological Environmental Monitoring Program", Revision 1, November 1979. The six control stations (Stations 0215, 0718, 1215, 1218, 1311 and 1612) were located at varying distances greater than 10 miles from the plant as shown in Map A-3 in Appendix A. Monitored special interest areas consist of the following: Station 1001 which was the nearest residence to the plant, and Station 1108 in the town of Ashford, Alabama. The mean and range values presented in the "Other" column in Table 3-1 includes the outer ring stations (stations 0104 through 1605) as well as stations 1001 and 1108.

As provided in Table 3-1, the 2018 average quarterly exposure at the indicator stations (inner ring) was 16.3 mR with a range of 12.2 to 25.4 mR. The indicator station average was less than the control station average (16.7 mR; range 11.3-25.1 mR). The MDD was not calculated because the control average was higher. These values are consistent with historical readings, where the indicator and control are closely correlated.

The quarterly exposures acquired at the community/other (outer ring) stations during 2018 ranged from 10.8-16.2 mR with an average of 13.7 mR which was 3.0 mR less than that of the control stations (16.9 mR). Again, the MDD does not apply since the average is less than that of the control average.

Average Direct Radiation historical data (Table 3-5) is graphed to show trends associated with a prevalent exposure pathway (Figure 3-2). The decrease between 1991 and 1992 values was attributed to a change in Thermoluminescent Dosimeters (TLDs) from Teledyne to Panasonic. It should be noted however that the differences between indicator and control and outer ring values did not change. The increase shown in 2010 reflected issues with the aging Panasonic TLD reader. The close agreement between the station groups has supported the position that the plant was not contributing significantly to direct radiation in the environment.

Figure 3-3 provides a more detailed view of the 2018 values. The values for the indicator and special interest areas detailed below indicate that Plant Farley did not significantly contribute to direct radiation at those areas.

Table 3-5. Average Quarterly Exposure from Direct Radiation (Historical)

Period	Indicator (mR)	Control (mR)	Outer Ring (mR)		Period	Indicator (mR)	Control (mR)	Outer Ring (mR)
Pre-op	12.6	11.4	10.1		1998	16.2	14.6	13.9
1977	10.6	12.2	10.6		1999	14.7	13.4	12.6
1978	15	13.5	12		2000	15.5	14.1	13.5
1979	20.3	18.7	15.2		2001	14.9	13.4	12.7
1980	21.9	21.6	18.5		2002	14.1	12.6	11.9
1981	16.5	14.9	14.5		2003	15.2	13.6	12.9
1982	15.5	14.7	13		2004	14.3	12.9	12.1
1983	20.2	20.2	17.4		2005	14.7	13.4	12.5
1984	18.3	16.9	15.3		2006	15.2	13.6	12.9
1985	21.9	22	18		2007	14.6	13.3	12.5
1986	17.8	17.7	15.1		2008	15.0	13.7	12.9
1987	20.8	20.0	18.0		2009	15.2	13.6	12.8
1988	21.5	19.9	18.5		2010	17.8	16.7	15.5
1989	18.0	16.2	15.3		2011	21.0	19.9	18.4
1990	18.9	16.4	15.8		2012	17.4	15.8	14.7
1991	18.4	16.1	16.1		2013	16.5	15.1	13.8
1992	16.1	13.6	13.5		2014	16.7	15.7	14.1
1993	17.4	15.9	15.6		2015	17.1	15.6	14.4
1994	15.0	13.0	12.0		2016	16.3	15.2	13.9
1995	14.0	12.5	11.8		2017	16.9	16.9	14.2
1996	14.2	12.7	11.9		2018	16.3	16.7	13.7
1997	15.3	13.9	11.9					

Figure 3-2. Average Quarterly Exposure from Direct Radiation

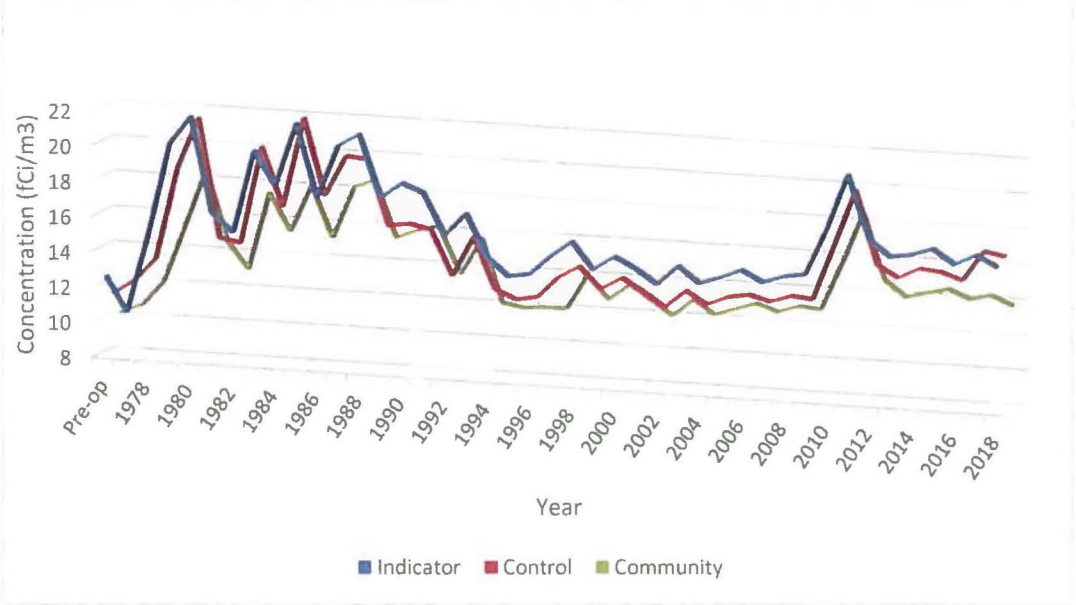
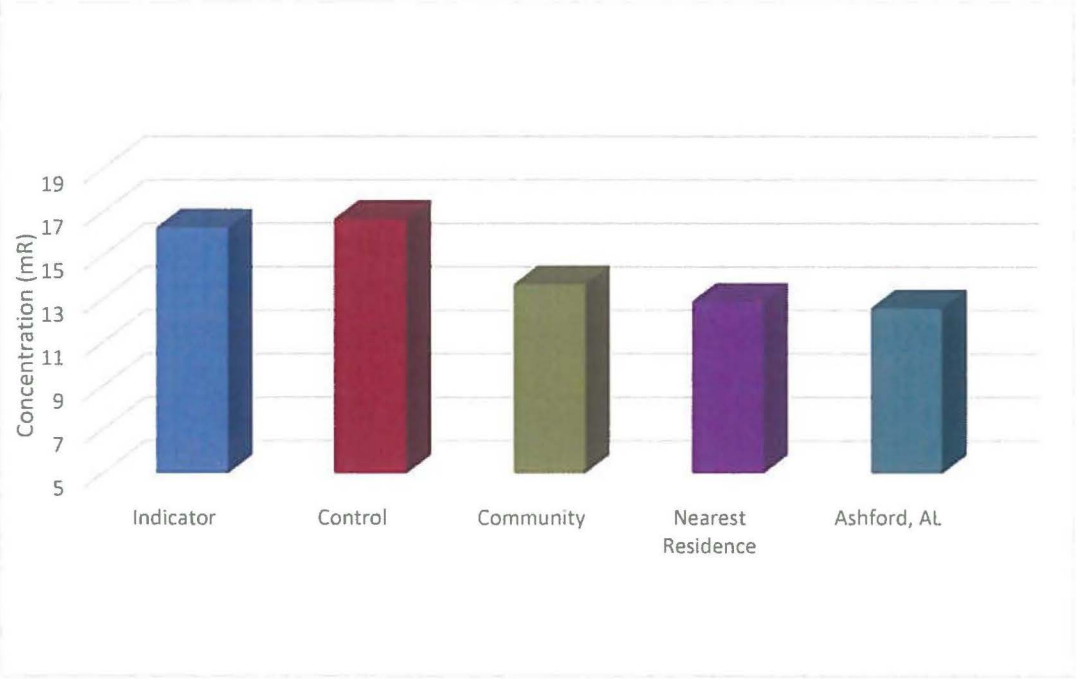


Figure 3-3. 2018 Average Exposure from Direct Radiation in Select Locations



3.3 Biological Media

Cs-137 was the only radionuclide detected in two of the three biological media. As indicated in Figure 3-4, the Cs-137 activity levels were below the respective MDCs and well below that of the respective RLs for each sample media for both the indicator and control stations.

3.3.1 Milk

Milk samples had been collected biweekly from a control location until the end of 2009 when the dairy would no longer provide samples. No indicator station (a location within five miles of the plant) has been available for milk sampling since 1987. As discussed in Section 4.0, no milk animals were found within five miles of the plant during the 2018 land use census and no milk sampling was performed during the reporting year.

3.3.2 Vegetation

In accordance with Table 2-1 and 2-2, forage (vegetation) samples were collected every four weeks at two indicator stations on the plant perimeter, and at one control station located approximately 18 miles west of the plant in Dothan, Alabama. The man-made radionuclide Cs-137 were periodically identified in vegetation samples and was generally attributed to offsite sources (such as weapons testing, Chernobyl, and Fukushima).

During 2018, Cs-137 was identified in two samples at the control station, FB-1218-M1 (Dothan, Alabama). The control station average was 31.2 pCi/L (with a range of 22.4-39.9 pCi/L). This average was based only on the detectable values; all other results were below detection limits. No environmental concerns were noted since the results were well below the RL of 2,000 pCi/L for Cs-137 in vegetation.

Be-7 was also detected in vegetation during 2018. The indicator station average was 1634.3 pCi/kg-wet. The control average was 1985.9 pCi/kg-wet. The MDD was not calculated because the control station average was higher than the indicator station average. This further illustrates the abundance of naturally-occurring Be-7 present in the surrounding environment.

3.3.3 Fish

In accordance with Table 2-1, two types of fish (bottom-feeding and game) were collected on a semiannually basis from the Chattahoochee River at a control station several miles upstream of the plant intake structure and at an indicator station a few miles downstream of the plant discharge structure. These locations are shown in Map A-3 in Appendix A.

3.3.3.1 Bottom Feeding Species

Cs-137 was identified in one sample during a single sampling event with a value of 17.9 pCi/kg. While the control samples did not contain Cs-137, the indicator value was below the MDC (50 pCi/kg) and the RL (2,000 pCi/kg). This was consistent with past sample results and was not considered attributable to plant activity.

3.3.3.2 Game Species

Cs-127 was identified in two samples from location FGI-S5 (indicator) at an average value of 25.4 pCi/kg. The control location upstream of the discharge did not contain Cs-137 in the samples. Additionally, the detected indicator values were below the MDC (50 pCi/kg) and the RL (2,000 pCi/kg). This was consistent with past sample results and was not considered attributable to plant activity.

3.3.4 Biological Media Summary

There were no statistical differences, trends, or anomalies associated with the 2018 biological media samples when compared to historical data. Cs-137 was occasionally present in biological media, as with previous sample results; however, the detections were consistently below both the MDC or RL. No other reportable radionuclides were found from the gamma isotopic analysis of biological media samples in 2018.

3.4 Off-site Groundwater

There were no true indicator sources of offsite ground water near Plant Farley. A well, located approximately four miles south-southeast of the plant on the east bank of the Chattahoochee River, serves Georgia Pacific Paper Company as a source of potable water. This well was designated as the indicator station. A deep well located about 1.2 miles southwest of the plant supplies water to the Whatley residence. This well was designated as the control station. Samples were collected quarterly and analyzed for gamma isotopic, I-131 and tritium as specified in Table 2-1. In 2018, there were no radionuclides detected in any of the ground water samples from either sample station, apart from tritium.

Since 2004, tritium has been identified at very low concentrations (near the instrument detection level) and close to environmental background levels in off-site groundwater. In 2018, tritium was detected in indicator station WGI-07 at an average of -69.2 pCi/L (range of -181 to 39.3 pCi/L). It was also detected in two of the four quarterly samples at the control station at an average of -32 pCi/L (range of -101-88.5 pCi/L). These results were very close to the instrument detection limitations and were at concentrations well below the MDC and RL for tritium in drinking water (2,000 and 20,000 pCi/l, respectively). These values represent background conditions for tritium in drinking water and were not attributable to plant activity. Also, note that negative values in

radionuclide activity represent contamination factors (e.g. laboratory equipment) subtracted from the laboratory result.

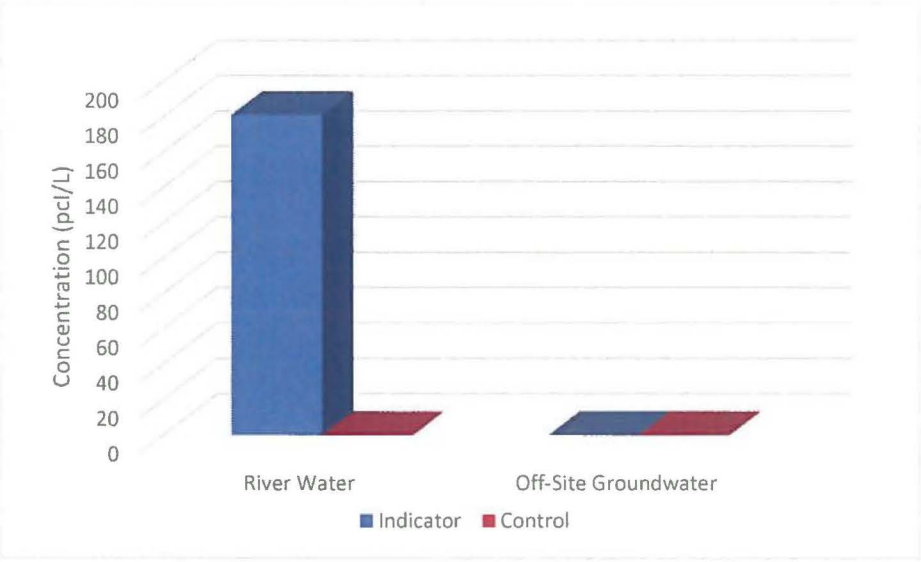
3.5 River (Surface) Water

Composite river water samples were collected monthly at one upstream control location and one downstream indicator location (shown on Map A-2). The details of the sampling protocols are outlined in Tables 2-1 and Table 2-2. A gamma isotopic analysis was conducted on each monthly sample. The monthly aliquots were combined in the lab to form quarterly composite samples in order to be analyzed for tritium.

As provided in Table 3-1, there were no positive results during 2018 from the gamma isotopic analysis of the river water samples. Tritium was detected in each of the quarterly composites at the indicator station, with an average of 181 pCi/L (range of 32-379). Tritium in the control station in each of the composites had an average value of -4.2 pCi/L (range -201 to 106 pCi/L). The positive tritium results for both the indicator and control were all less than the MDC and RL limits (2,000 pCi/l and 20,000 pCi/l, respectively) for tritium in a drinking water supply source. No MDD was calculated because of the level of negative values. These values represent background conditions for tritium in drinking water and were not attributable to plant activity. Also, note that negative values in radionuclide activity represent contamination factors (e.g. laboratory equipment) subtracted from the laboratory result.

Figure 3-4 below details the 2018 average tritium concentrations across both water mediums.

Figure 3-4. 2018 Average Tritium Concentrations in River and Off-site Groundwater



3.6 Sediment

Sediment was collected along the shoreline of the Chattahoochee River in the spring and fall at a control station that was approximately four miles upstream of the intake structure and at an indicator station that was approximately two miles downstream of the discharge structure as shown in Map A-3. A gamma isotopic analysis was performed on each sample. There were no reportable radionuclides detected in sediment samples in 2018.

3.7 Interlaboratory Comparison Program

In accordance with ODCM 4.1.3, GPCEL participated in an Interlaboratory Comparison Program (ICP) which satisfied the requirements of Regulatory Guide 4.15, Revision 1, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment", February 1979. The ICP included the required determinations (sample medium/radionuclide combinations) included in the REMP.

The ICP was conducted by Eckert & Ziegler Analytics, Inc. (EZA) of Atlanta, Georgia. EZA has a documented Quality Assurance (QA) program and the capability to prepare Quality Control (QC) materials traceable to the National Institute of Standards and Technology. The ICP is a third-party blind testing program which provided a means to ensure independent checks were performed on the accuracy and precision of the measurements of radioactive materials in environmental sample matrices. EZA supplied the crosscheck samples to GPCEL which performed routine laboratory analyses. Each of the specified analyses was performed three times.

The accuracy of each result was measured by the normalized deviation, which is the ratio of the reported average less the known value to the total error. An investigation was undertaken whenever the absolute value of the normalized deviation was greater than three or whenever the coefficient of variation was greater than 15% for all radionuclides other than Cr-51 and Fe-59. For Cr-51 and Fe-59, an investigation was undertaken when the coefficient of variation exceeded the values shown on Table 3-6 below:

Table 3-6. Interlaboratory Comparison Limits

Nuclide	Concentration *	Total Sample Activity (pCi)	Percent Coefficient of Variation
Cr-51	<300	NA	25
	NA	>1000	25
	>300	<1000	15
Fe-59	<80	NA	25
	>80	NA	15
* For air filters, concentration units are pCi/filter. For all other media, concentration units are pCi/liter (pCi/l).			

As required by ODCM 4.1.3.3 and 7.1.2.3, a summary of the results of the GPCEL's participation in the ICP is provided in Table 3-7 for:

- gross beta and gamma isotopic analyses of an air filter
- gamma isotopic analyses of milk samples
- gross beta, tritium and gamma isotopic analyses of water samples

The 2018 analyses included tritium, gross beta and gamma emitting radio-nuclides in different matrices. The attached results for all analyses were within acceptable limits for accuracy (less than 15% coefficient of variation and less than 3.0 normalized deviations, except for Cr-51 and Fe-59, which are outlined in Table 3-6).

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
I-131 ANALYSIS OF AN AIR CARTRIDGE (pCi/cartridge)							
I-131	4/16/2018	94.21	94.50	3.17	1.58	5.95	-0.05
GAMMA ISOTOPIC ANALYSIS OF AN AIR FILTER (pCi/filter)							
Ce-141	9/13/2018	84.01	80.4	4.01	1.34	7.17	0.60
Co-58		95.10	90.2	0.99	1.51	5.08	1.02
Co-60		118.20	119	1.18	1.99	4.33	-0.16
Cr-51		174.69	166	10.2	2.77	11.5	0.43
Cs-134		71.58	77	3.84	1.29	7.49	-1.10
Cs-137		97.82	92.6	2.22	1.55	5.22	1.02
Fe-59		79.52	74.9	4.09	1.25	7.46	0.68
Mn-54		115.77	105	2.64	1.75	5.13	1.81
Zn-65		146.42	126	6.06	2.11	6.54	2.13
GROSS BETA ANALYSIS OF AN AIR FILTER (PCI/FILTER)							
Gross Beta	6/7/2018	184.56	214	4.77	3.58	5.16	-3.09
	9/13/2018	122.7	131	1.75	2.18	3.33	-2.02
GAMMA ISOTOPIC ANALYSIS OF A MILK SAMPLE (PCI/LITER)							
Co-58	9/13/2018	158.87	144	7.24	2.4	7.23	1.29
Co-60		208.82	190	5.4	3.17	5.14	1.75
Cr-51		294.41	265	26.1	4.42	14.17	0.7
Cs-134		135.2	123	1.24	2.05	4.73	1.91
Cs-137		165.33	147	5.34	2.46	6.31	1.76
Fe-59		132.2	119	5.27	1.99	7.99	1.25
I-131		61.23	58.2	3.39	0.97	10.42	0.47
Mn-54		194.37	167	7.87	2.79	6.51	2.16
Zn-65		229.73	201	11.9	3.35	8.07	1.55
GROSS BETA ANALYSIS OF WATER SAMPLE (PCI/LITER)							
Gross Beta	6/7/2018	255.8	226	12.79	3.77	6.62	1.76

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
GAMMA ISOTOPIC ANALYSIS OF WATER SAMPLES (PCI/LITER)							
Ce-141	6/7/2018	90.5	85.8	8.86	1.43	12.70	0.41
Co-58		100.41	92.9	5.34	1.55	8.46	0.88
Co-60		123.32	118	3.52	1.98	5.77	0.75
Cr-51		261.85	249	26.1	4.16	16.22	0.30
Cs-134		123.39	119	2.48	1.98	5.08	0.70
Cs-137		111.95	103	1.56	1.72	6.42	1.24
Fe-59		91.37	89.7	7.81	1.50	12.13	0.15
I-131		84.47	74.4	5.03	1.24	11.02	1.08
Mn-54		145.02	135	4.33	2.26	6.40	1.08
Zn-65		186.81	164	8.20	2.74	7.87	1.55
TRITIUM ANALYSIS OF WATER SAMPLES (PCI/LITER)							
H-3	9/13/2018	12564	12960	68.89	215	2.17	-1.23
GAMMA ISOTOPIC ANALYSIS OF VEGETATION SAMPLES (PCI/LITER)							
Co-58	6/7/2018	155.39	148	7.69	2.46	9.74	0.49
Co-60		190.43	188	14.24	3.14	9.65	0.13
Cr-51		400.88	396	50.74	6.61	21.64	0.06
Cs-134		204.33	188	14.05	3.15	8.60	0.93
Cs-137		164.48	164	6.50	2.73	8.58	0.03
Fe-59		154.07	143	21.09	2.38	18.36	0.39
Mn-54		208.63	215	14.16	3.59	9.57	-0.32
Zn-65		276.46	261	23.11	4.36	12.76	0.44
Ce-141		148.26	136	11.58	2.28	12.67	0.65

3.8 Groundwater

To ensure compliance with NEI 07-07 (Industry Ground Water Protection Initiative – Final Guidance Document), Southern Nuclear developed the Nuclear Management Procedure, Radiological Groundwater Protection Program. The procedure contains detailed site-specific monitoring plans, program technical bases, and communications protocol (to ensure that radioactive leaks and spills are addressed and communicated appropriately). In an effort to prevent future leaks of radioactive material to groundwater, SNC plants have established buried piping and tanks inspection programs. No changes were made to the Groundwater Protection Program in 2018.

Plant Farley maintained the following wells (Table 3-8), which were sampled at a frequency that satisfied the requirements of NEI 07-07. The analytical results for 2018 were all within regulatory limits specified within this report. Table 3-9 contains the results of the Groundwater Protection Program results for tritium (in pCi/L). See Map A-4 in Appendix A for well locations

Table 3-8. Groundwater Protection Program Locations

Well	Aquifer	Monitoring Purpose
R1	Major Shallow aquifer	Dilution line
R2	Major Shallow aquifer	Dilution line
R3	Major Shallow aquifer	Unit 2 RWST
R4	Major Shallow aquifer	Unit 1 RWST
R5	Major Shallow aquifer	Dilution line
R6	Major Shallow aquifer	Dilution line
R7	Major Shallow aquifer	Dilution line
R8	Major Shallow aquifer	Dilution line
R9	Major Shallow aquifer	Dilution line
R10	Major Shallow aquifer	Dilution line
R11	Major Shallow aquifer	Background 1
R13	Major Shallow aquifer	Dilution line
R14	Major Shallow aquifer	Background 2
PW#2	Drinking water	Production Well #2 Supply
PW#3	Drinking water	Production Well #3 Supply
PW#4	Drinking water	Production Well #4 Supply
CW West	Drinking water	Construction Well West Supply
CW East	Drinking water	Construction Well East Supply
FRW	Drinking water	Firing Range Well Supply
SW-1	N/A	Background 3, Service Water Pond

Table 3-9. Groundwater Protection Program Results

Well	June 2018	October 2018
R1	NDM	NDM
R2	NDM	NDM
R3	1,040	722
R4	NDM	NDM
R5	171	NDM
R6	NDM	NDM
R7	NDM	NDM
R8	NDM	NDM
R9	NDM	NDM
R10	NDM	NDM
R11	NDM	NDM
R13	NDM	NDM
R14	NDM	NDM
PW#2	NDM	NDM
PW#3	NS – Out of Service	NS – Out of Service
PW#4	NDM	NDM
CW West	NDM	NDM
CW East	198	NDM
FRW	NDM	NDM
SW-1	NDM	NDM

NDM – No Detectable Measurements
NS – Not Sampled

4 SURVEY SUMMARIES

4.1 Land Use Census

In accordance with ODCM 4.1.2, a land use census was conducted on December 21, 2018 that circumscribed each of the 16 compass sectors within a five mile radius in order to verify the locations of the nearest radiological receptor. A milk animal is a cow or goat producing milk for human consumption. The census results are tabulated in Table 4.1. The 2018 land use census indicated that there were no changes to the nearest location for any of the categories in any of the sectors when compared to the 2017 census, nor were any milk animals located within a five-mile radius.

Table 4-1. Land Use Census Results

Sector	Residence	Milk Animal
Distance in Miles to the Nearest Location in Each Sector		
N	2.6	None
NNE	2.5	None
NE	2.4	None
ENE	2.4	None
E	2.8	None
ESE	3.0	None
SE	3.4	None
SSE	None (>5.0)	None
S	4.3	None
SSW	2.9	None
SW	1.2	None
WSW	2.4	None
W	1.3	None
WNW	2.1	None
NW	1.5	None
NNW	3.4	None

4.2 Chattahoochee River Survey

A previous river survey performed for Plant Farley identified a potential use of water from the Chattahoochee River, downstream of the plant discharge at approximately 2 miles. In July 2013, the Georgia Department of Natural Resources issued a farm use permit to withdraw from the Chattahoochee River to the Nature Conservancy of Georgia. The Nature Conservancy of Georgia leases property along the river for agricultural and grazing purposes to a private farm family, and water from the river could potentially be used for crop irrigation. At the time of this report, no water has been withdrawn and used for crop irrigation by the landowners.

In the fall of 2018, the Georgia Environmental Protection Division (EPD), Alabama Department of Environmental Management (ADEM) and Alabama Department of Economic and Community Affairs (ADECA) was contacted to request any information about river use permits that had been issued in the area near the plant. No additional withdrawal permits or intake locations had been added at the time of the survey.

5 CONCLUSIONS

This report has confirmed SNCs conformance with the requirements of Chapter 4 of the ODCM and the objectives were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs; and

2) Assess the radiological impact (if any) to the environment due to the operation of the FNP.

Based on the 2018 activities associated with the REMP, SNC offers the following conclusions:

- Samples were collected and there were no deviations or anomalies that negatively affected the quality of the REMP
- Land use census and river survey did not reveal any changes
- Analytical results were below reporting levels
- These values were consistent with historical results which indicate no adverse radiological environmental impacts associated with the operation of FNP

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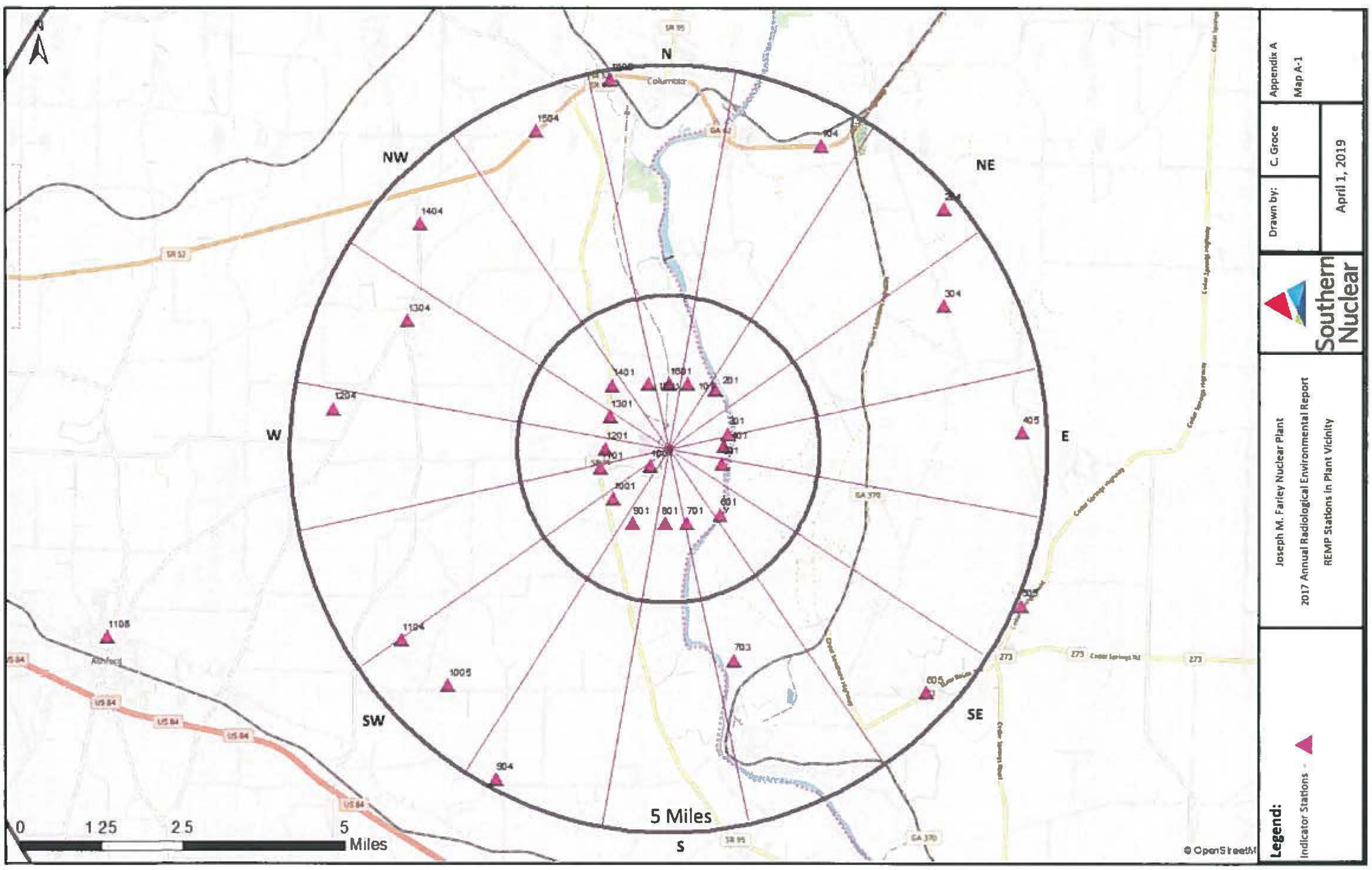
APPENDIX A

Maps



Appendix A
Map A-1
Drawn by:
C. Groce
April 1, 2019
Southern Nuclear
Joseph M. Farley Nuclear Plant
2017 Annual Radiological Environmental Report
REMP Stations in Plant Vicinity
Legend:
Indicator Stations -
N
NE
E
SE
S
SW
W
NW
5 Miles
0
1.25
2.5
5
Miles
1504
1404
1304
1204
1104
1108
1005
904
104
204
304
405
505
605
703
1401
1301
1201
1601
201
301
901
801
701
601
1001
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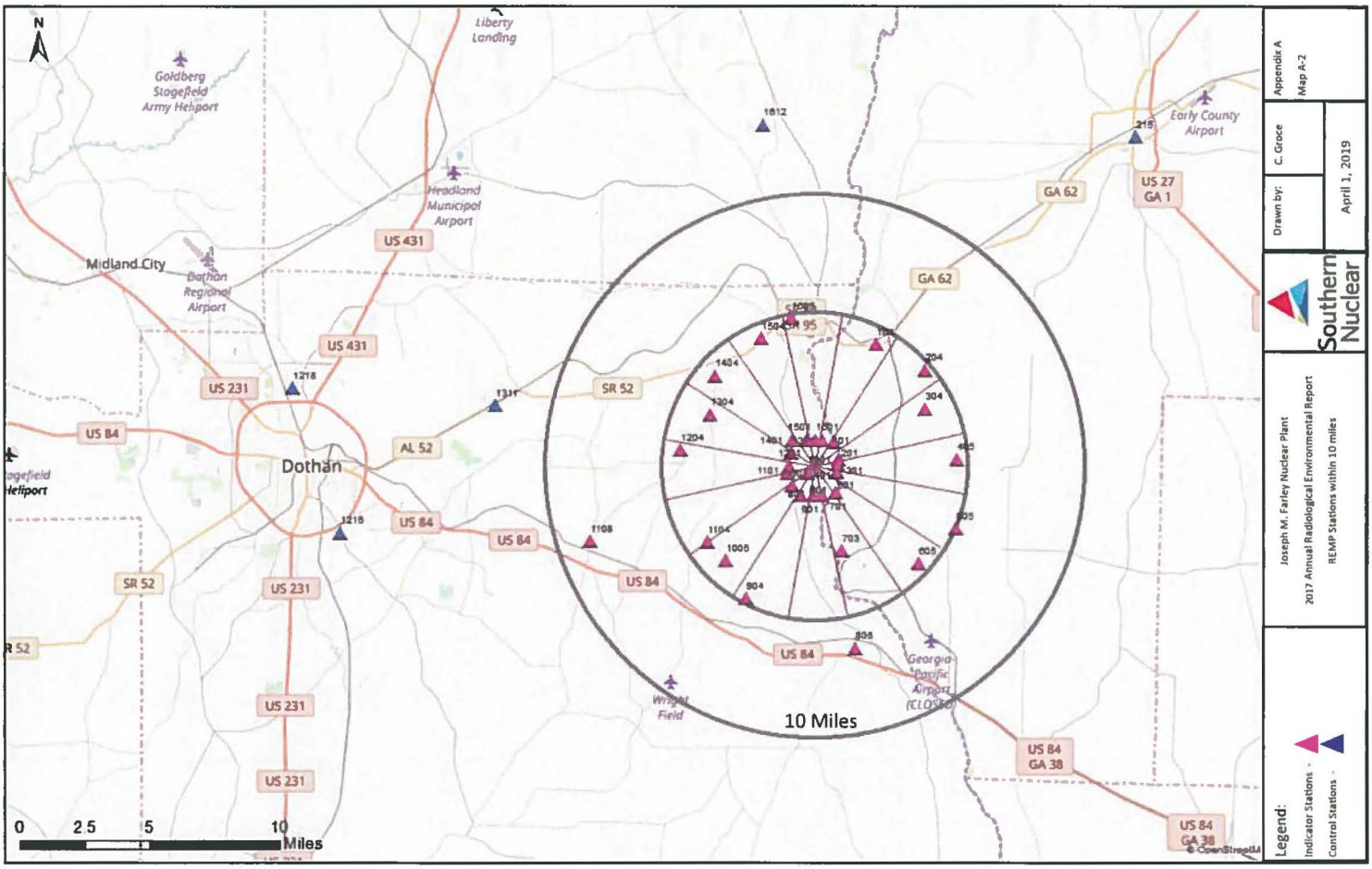
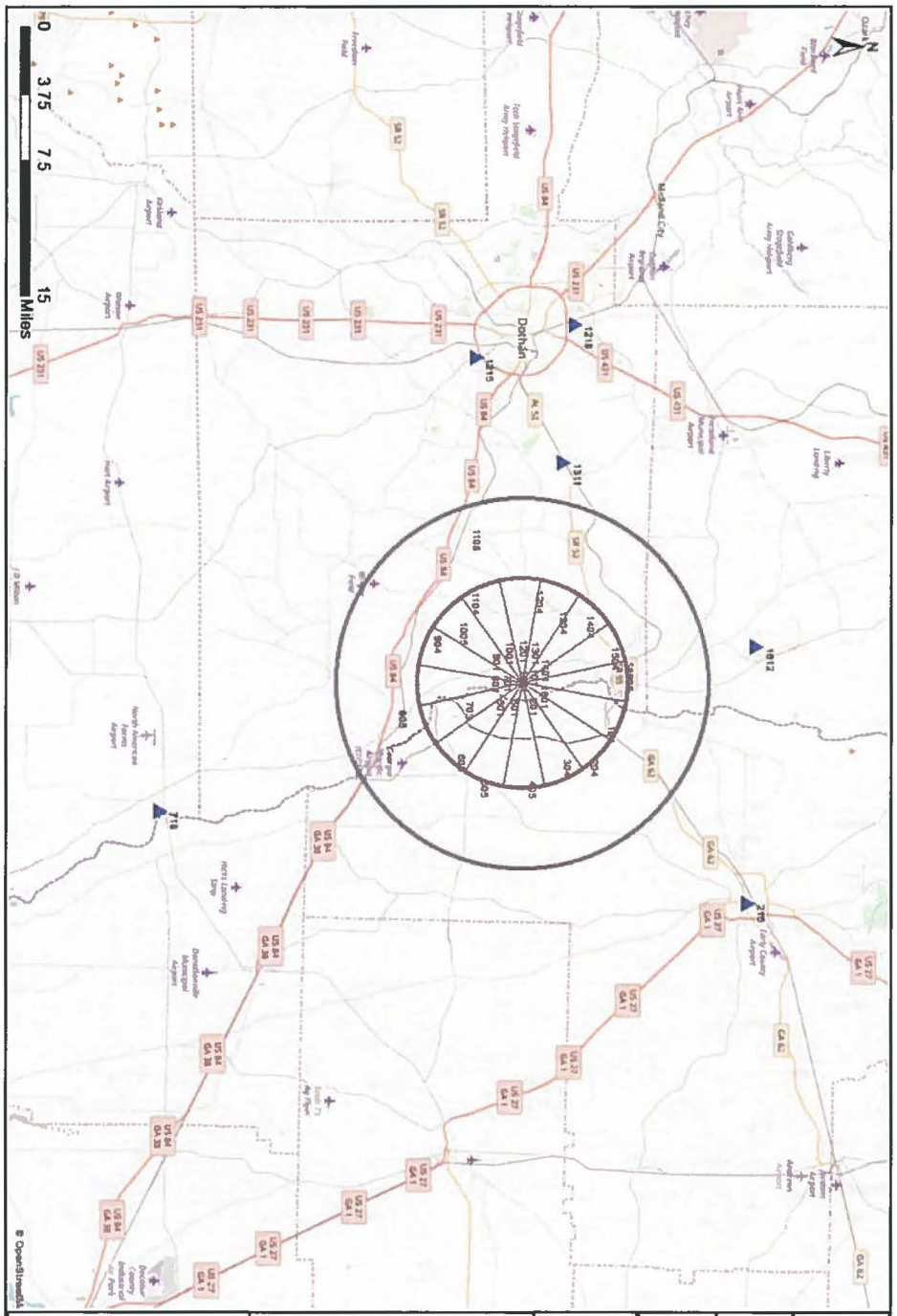
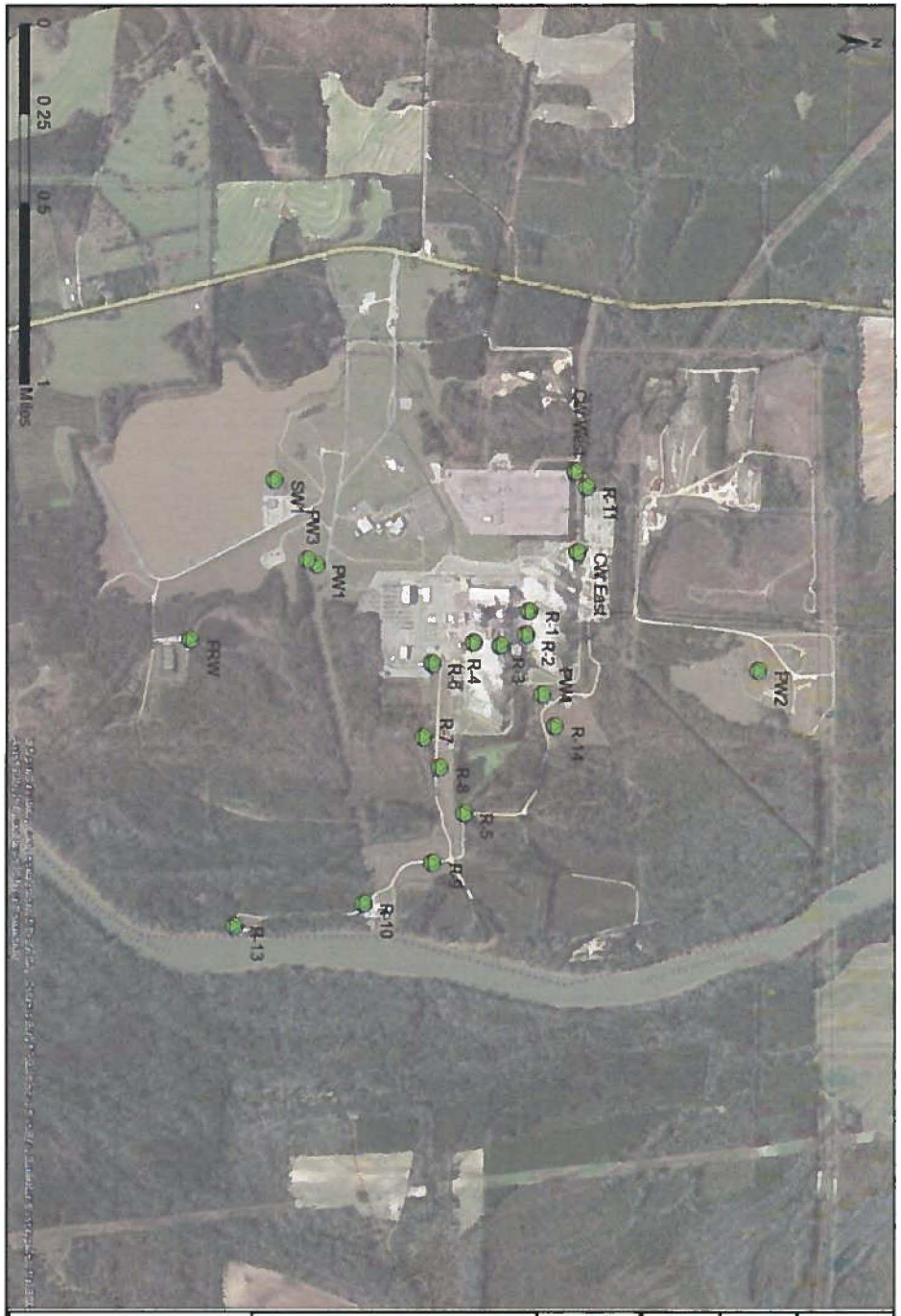

N
Liberty Landing
Goldberg Stagefield Army Heliport
Headland Municipal Airport
Early County Airport
Midland City
Dothan Regional Airport
Dothan
US 431
US 231
US 84
AL 52
SR 52
GA 62
US 27
GA 1
GA 95
US 84 GA 38
Wright Field
Georgia-Pacific Airport (CLOSED)
10 Miles
0 2.5 5 10 Miles
© OpenStreetM
Appendix A
Map A-2
Drawn by:
C. Groce
April 1, 2019
Southern Nuclear
Joseph M. Farley Nuclear Plant
2017 Annual Radiological Environmental Report
REMP Stations within 10 miles
Legend:
Indicator Stations -
Control Stations -



Legend:	Joseph M. Farley Nuclear Plant	Southern Nuclear	Drawn by: C. Groce	Appendix A
Control Stations ▲	2017 Annual Radiological Environmental Report			Map A-3
	Extended REMP Stations		April 1, 2019	



Legend:	Joseph M. Farley Nuclear Plant	Southern Nuclear	Drawn by: C. Groce	Appendix A
Groundwater Wells -	2017 Annual Radiological Environmental Report		April 1, 2019	Map A-4
	Facility Groundwater Wells			

APPENDIX B

Errata

There are no errata for the 2018 reporting year.

Edwin I. Hatch Nuclear Plant – Units 1 & 2
Joseph M. Farley Nuclear Plant– Units 1 & 2
Vogtle Electric Generating Plant– Units 1 & 2
Annual Radiological Environmental Operating Reports for 2018

Enclosure 3

Vogtle Annual Radiological Environmental Operating Report for 2018

VOGTLE ELECTRIC GENERATING PLANT
2018 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Southern Nuclear

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Appendix A – Maps

Appendix B – Errata

Appendix C – Data

LIST OF ACRONYMS

EPA	Environmental Protection Agency
GPC	Georgia Power Company
GPCEL	Georgia Power Company Environmental Laboratory
ICP	Interlaboratory Comparison Program
MDC	Minimum Detectable Concentration
MDD	Minimum Detectable Difference
MWt	MegaWatts Thermal
NA	Not Applicable
NDM	No Detectable Measurement(s)
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSL	Optically Stimulated Luminescence
PWR	Pressurized Water Reactor
REMP	Radiological Environmental Monitoring Program
RL	Reporting Level
RM	River Mile
SNC	Southern Nuclear Operating Company
SRS	Savannah River Site
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
VEGP	Alvin W. Vogtle Electric Generating Plant

1 INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) was conducted in accordance with Chapter 4 of the Offsite Dose Calculation Manual (ODCM). The REMP activities for 2018 were reported herein in accordance with Technical Specification (TS) 5.6.2 and ODCM 7.1.

The objectives of the REMP were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs and;
2) Assess the radiological impact (if any) to the environment due to the operation of the Alvin W. Vogtle Electric Generating Plant (VEGP).

The assessments included comparisons between results of analyses of samples obtained at locations where radiological levels were not expected to be affected by plant operation (control stations), areas of higher population (community stations), and at locations where radiological levels were more likely to be affected by plant operation (indicator stations), as well as comparisons between preoperational and operational sample results.

VEGP is owned by Georgia Power Company (GPC), Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia, and the City of Dalton, Georgia. It is located on the southwest side of the Savannah River approximately 23 river miles upstream from the intersection of the Savannah River and U.S. Highway 301. The site is in the eastern sector of Burke County, Georgia,across the river from Barnwell County, South Carolina. The VEGP site is directly across the Savannah River from the Department of Energy Savannah River Site (SRS). Unit 1, a Westinghouse Electric Corporation Pressurized Water Reactor (PWR), with a licensed core thermal power of 3,626 MegaWatts (MWt), received its operating license on January 16, 1987 and commercial operation started on May 31, 1987. Unit 2, also a Westinghouse PWR rated for 3,626 MWt, received its operating license on February 9, 1989 and began commercial operation on May 19, 1989. Both units were relicensed on June 3, 2009.

The pre-operational stage of the REMP began with initial sample collections in August of 1981. The transition from the pre-operational to the operational stage of the REMP occurred as Unit 1 reached initial criticality on March 9, 1987.

- A description of the REMP is provided in Section 2 of this report
- Section 3 provides a summary of the results, an assessment of any radiological impacts to the environment, and the results from the interlaboratory comparison
- A summary of the land use census and the river survey are included in Section 4
- Conclusions are included in Section 5

2 REMP DESCRIPTION

The following section provides a description of the sampling and laboratory protocols associated with the REMP. Table 2-1 provides a summary of the sample types to be collected and the analyses to be performed in order to monitor the airborne, direct radiation, waterborne and ingestion pathways, and also summarizes the collection and analysis frequencies (in accordance with ODCM Section 4.2). Table 2-2 provides specific information regarding the station locations, their proximity to the plant, and exposure pathways. Additionally, Appendix A of this report provides Maps A-1 through A-4 that depict the georeferenced location of sampling stations are. Any Errata from previous reports are provided in Appendix B. All data points resulting from REMP sampling are provided in Appendix C.

From January 2017 to October 2018, the Georgia Power Company Environmental Lab (GPCEL) in Atlanta, Georgia, performed the collection of all Plant Vogtle REMP samples. Beginning in October, a contractor through Southern Nuclear Operating Company (SNC) provided services for the collection of most of the REMP samples. After October, only fish samples were collected the GPCEL. The GPCEL analyzed all REMP samples.

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Direct Radiation	40 routine monitoring stations with two or more dosimeters placed as follows: An inner ring of stations, one in each compass sector in the general area of the site boundary; An outer ring of stations, one in each compass sector at approximately five miles from the site; and Special interest areas, such as population centers, nearby recreation areas, and control stations	Quarterly	Gamma dose/Quarterly
Airborne Radioiodine and Particulates	Samples from seven locations: Five locations close to the site boundary in different sectors; A community having the highest calculated annual average ground level D/Q; A control location near a population center at a distance of about 14 miles	Continuous sampler operation with sample collection weekly, or more frequently if required by dust loading	Radioiodine canister: I-131 analysis, weekly Particulate sampler: Gross beta analysis[1] following filter change and gamma isotopic analysis[2] of composite (by location) /Quarterly
Waterborne			
Surface[3]	One sample upriver Two samples downriver	Composite sample over one month period[4]	Gamma isotopic analysis[2], monthly Composite for tritium analysis/Quarterly

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Drinking	Two samples at each of the three nearest water treatment plants that could be affected by plant discharges Two samples at a control location	Composite sample of river water near the intake of each water treatment plant over two week period[4] when I-131 analysis is required for each sample; monthly composite otherwise; and grab sample of finished water at each water treatment plant every two weeks or monthly, as appropriate	I-131 analysis on each sample when the dose calculated for the consumption of the water is greater than 1 mrem per year[5]. Composite for gross beta and gamma isotopic analysis[2] on raw water/Monthly. Gross beta, gamma isotopic and I-131 analyses on grab sample of finished water/Monthly. Composite for tritium analysis on raw and finished water/Quarterly
Groundwater	See Table 3-8 and Map A-4 for well locations. These are part of the GWPP (NEI 07-07).	Frequency based on GWPP.	Tritium, gamma isotopic, and field parameters of each sample; hard-to-detects based on tritium and gamma results
Shoreline Sediment	One sample from downriver area with existing or potential recreational value One sample from upriver area with existing or potential recreational value	Semiannually	Gamma isotopic analysis[2]/Semiannually
Ingestion			
Milk	Two samples from milking animals[6] at control locations at a distance of about 10 miles or more	Bimonthly	Gamma isotopic analysis[2,7]/Bimonthly

Table 2-1. Summary Description of Radiological Environmental Monitoring Program

Exposure Pathway and/or	Number of Representative Samples and Sample Locations	Sampling/Collection Frequency	Type/Frequency of Analysis
Fish	At least one sample of any commercially or recreationally important species near the plant discharge At least one sample of any commercially or recreationally important species in an area not influenced by plant discharges At least one sample of any anadromous species near the plant discharge	Semiannually During spring spawning season	Gamma isotopic analysis[2] on edible portions/Semiannually Gamma isotopic analysis[2] on edible portions/Annually.
Grass or Leafy Vegetation	One sample from two onsite locations near the site boundary in different sectors One sample from a control location at a distance of about 17 miles	Monthly during growing season	Gamma isotopic analysis[2,7]Monthly

Notes:
[1]Airborne particulate sample filters were analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air particulate samples was greater than 10 times the yearly mean of control samples, gamma isotopic analysis was performed on the individual samples.
[2]Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
[3]Upriver sample was taken at a distance beyond significant influence of the discharge. Downriver samples were taken beyond but near the mixing zone.
[4]Composite sample aliquots were collected at time intervals that were very short (e.g., hourly) relative to the compositing period (e.g., monthly) to ensure obtaining a representative sample.
[5]The dose was calculated for the maximum organ and age group, using the methodology and parameters in the ODCM.
[6]A milking animal is a cow or goat producing milk for human consumption.
[7]If the gamma isotopic analysis is not sensitive enough to meet the Minimum Detectable Concentration (MDC) for I-131, a separate analysis for I-131 may be performed.

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
1	Indicator	River Bank	N	1.1	Direct
2	Indicator	River Bank	NNE	0.8	Direct
3	Indicator	Discharge Area	NE	0.6	Airborne
3	Indicator	River Bank	NE	0.7	Direct
4	Indicator	River Bank	ENE	0.8	Direct
5	Indicator	River Bank	E	1.0	Direct
6	Indicator	Plant Wilson	ESE	1.1	Direct
7	Indicator	Simulator Building	SE	1.7	Airborne, Direct, Vegetation
8	Indicator	River Road	SSE	1.1	Direct
9	Indicator	River Road	S	1.1	Direct
10	Indicator	Met Tower	SSW	0.9	Airborne
10	Indicator	River Road	SSW	1.1	Direct
11	Indicator	River Road	SW	1.2	Direct
12	Indicator	River Road	WSW	1.2	Airborne, Direct
13	Indicator	River Road	W	1.3	Direct
14	Indicator	River Road	WNW	1.8	Direct
15	Indicator	Hancock Landing Road	NW	1.5	Direct, Vegetation
16	Indicator	Hancock Landing Road	NNW	1.4	Airborne, Direct
17	Other	Sav. River Site (SRS), River Road	N	5.4	Direct
18	Other	SRS, D Area	NNE	5.0	Direct
19	Other	SRS, Road A.13	NE	4.6	Direct
20	Other	SRS, Road A.13.1	ENE	4.8	Direct
21	Other	SRS, Road A.17	E	5.3	Direct
22	Other	River Bank	ESE	5.2	Direct

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
23	Other	River Road	SE	4.6	Direct
24	Other	Chance Road	SSE	4.9	Direct
25	Other	Chance Road near Highway 23	S	5.2	Direct
26	Other	Highway 23 and Ebenezer Church Road	SSW	4.6	Direct
27	Other	Highway 23 opposite Boll Weevil Road	SW	4.7	Direct
28	Other	Thomas Road	WSW	5.0	Direct
29	Other	Claxton-Lively Road	W	5.1	Direct
30	Other	Nathaniel Howard Road	WNW	5.0	Direct
31	Other	River Road at Allen's Chapel Fork	NW	5.0	Direct
32	Other	River Bank	NNW	4.7	Direct
35	Other	Girard	SSE	6.6	Airborne, Direct
36	Control	GPC Waynesboro Op. HQ	WSW	13.9	Airborne, Direct
37	Control	Substation, Waynesboro, GA	WSW	16.7	Direct, Vegetation
43	Other	Employee's Rec. Center	SW	2.2	Direct
47	Control	Oak Grove Church	SE	10.4	Direct
48	Control	McBean Cemetery	NW	10.2	Direct
51	Control	SGA School, Sardis, GA	S	11.0	Direct
52	Control	Oglethorpe Substation; Alexander, GA	SW	10.7	Direct
80	Control	Augusta Water Treatment Plant	NNW	29.0	Drinking Water[2]
81	Control	Sav. River	N	2.5	Fish[3] Sediment[4]
82	Control	Sav. River (RM 151.2)	NNE	0.8	River Water
83	Indicator	Sav. River (RM 150.4)	ENE	0.8	River Water Sediment[4]
84	Other	Sav. River (RM 149.5)	ESE	1.6	River Water
85	Indicator	Sav. River	ESE	4.3	Fish[3]
87	Indicator	Beaufort-Jasper County Water Treatment Plant	SE	76	Drinking Water[5]

Table 2-2. Radiological Environmental Sampling Locations

Station Number	Station Type	Descriptive Location	Direction[1]	Distance (miles)[1]	Radiation Sample Type
88	Indicator	Cherokee Hill Water Treatment Plant, Port Wentworth, GA	SSE	72	Drinking Water[6]
89	Indicator	Purrysburg Water Treatment Plant; Purrysburg, SC	SSE	76	Drinking Water[7]
98	Control	W.C. Dixon Dairy	SE	9.8	Milk[8]
101	Indicator	Girard Dairy	S	5.5	Milk[8]
102	Control	Seven Oaks Dairy/Milky Way Dairy	W	7.5/16.0	Milk[8]

Notes:

[1]Direction and distance were determined from a point midway between the two reactors.

[2]The intake for the Augusta Water Treatment Plant was located on the Augusta Canal. The entrance to the canal was at River Mile (RM) 207 on the Savannah River. The canal effectively parallels the river. The intake to the pumping station was about 4 miles down the canal.

[3]A 5-mile stretch of the river was generally needed to obtain adequate fish samples. Samples were normally gathered between RM 153 and 158 for upriver collections and between RM 144 and 149.4 for downriver collections.

[4]Sediment was collected at locations with existing or potential recreational value. Because high water, shifting of the river bottom, or other reasons could cause a suitable location for sediment collections to become unavailable or unsuitable, a stretch of the river between RM 148.5 and 150.5 was designated for downriver collections while a stretch between RM 153 and 154 was designated for upriver collections. In practice, collections were normally made at RM 150.2 for downriver collections and RM 153.3 for upriver collections.

5 DELETED THIS SAMPLE LOCATION IN 2014 (LDCR 2014004) The intake for the Beaufort-Jasper County Water Treatment Plant was located at the end of canal that began at RM 39.3 on the Savannah River. This intake was about 16 miles by line of sight down the canal from its beginning on the Savannah River.

[6]The intake for the Cherokee Hill Water Treatment Plant was located on Abercorn Creek which is about one and a quarter creek miles from its mouth on the Savannah River at RM 29.

[7]The intake for the Purrysburg Water Treatment Plant was located on the same canal as the Beaufort-Jasper Water Treatment Plant. The Purrysburg intake was closer to the Savannah River at the beginning of the canal.

[8]Girard Dairy was considered an indicator station since it is the closest dairy to the plant (~5.5 miles). Dixon Dairy went out of business in June 2009 and Seven Oaks Dairy (~7.5 miles) was added as a replacement and was considered a control station even though a control station is typically 10 miles or greater. Milky Way Dairy was identified and added to the ODCM in 2015 to replace Seven Oaks since it is at 16.0 miles from the plant.

3 RESULTS SUMMARY

Included in this section are statistical evaluations of the laboratory results, comparison of the results by media, and a summary of the anomalies and deviations. Overall, 1,203 analyses were performed across nine exposure pathways. Tables and figures are provided throughout this section to provide an enhanced presentation of the information.

In recent history, man-made nuclides have been released into the environment and have resulted in wide spread distribution of radionuclides across the globe. For example, atmospheric nuclear weapons tests from the mid-1940s through 1980 distributed man-made nuclides around the world. The most recent atmospheric tests in the 1970s and in 1980 have had a significant impact upon the radiological concentrations found in the environment prior to and during pre-operation, and through early operation. Some long-lived radionuclides, such as Cs-137, continue to be detected and a portion of these detections are believed to be attributed to the nuclear weapons tests.

Additionally, data associated with certain radiological effects created by off-site events have been removed from the historical evaluation, this includes: the nuclear atmospheric weapon test in the fall of 1980; the Chernobyl incident in the spring of 1986; abnormal releases from the Savannah River Site (SRS) during 1987 and 1991; and the Fukushima event in the spring of 2011.

As indicated in ODCM 7.1.2.1, the results for naturally occurring radionuclides that are also found in plant effluents must be reported along with man-made radionuclides. Historically, the radionuclide Be-7, which occurs abundantly in nature, is often detected in REMP samples, and occasionally detected in the plant's liquid and gaseous effluents. When it is detected in effluents and REMP samples, it is also included in the REMP results. In 2018, Be-7 was not detected in any plant effluents and therefore it was not included in this report. The Be-7 detected in select REMP samples likely represents naturally occurring and/or background conditions.

As part of the data evaluation process, SNC considered the impact of the non-plant associated nuclides along with a statistical evaluation of the REMP data. The statistical evaluations included within this report include the Minimum Detectable Concentration (MDC), the Minimum Detectable Difference (MDD), and Chauvenet's Criterion as described below.

Minimum Detectable Concentration

The minimum detectable concentration is defined as an estimate of the true concentration of an analyte required to give a specified high probability that the measured response will be greater than the critical value.

Minimum Detectable Difference

The Minimum Detectable Difference (MDD) compares the lowest significant difference (between the means) of a control station, versus an indicator station or a community station, that can be determined statistically at the 99% Confidence Level. A difference in mean values which was less than the MDD was considered to be statistically indiscernible. The MDD is used to evaluate the statistical proximity between the indicator/community and control sample results, but generally, any results that are less than the MDC and/or Reporting Levels (RL) are considered to have minimal impact on the surrounding environs.

Chauvenet's Criterion

All results were tested for conformance with Chauvenet's Criterion (G. D. Chase and J. L. Rabinowitz, Principles of Radioisotope Methodology, Burgess Publishing Company, 1962, pages 87-90) to identify values which differed from the mean of a set by a statistically significant amount. Identified outliers were investigated to determine the reason(s) for the difference. If equipment malfunction or other valid physical reasons were identified as causing the variation, the anomalous result was excluded from the data set as non-representative.

Table 3-1 summarizes and evaluates the annual results for the indicator stations against the control and community stations (where applicable) and as appropriate, results were evaluated against the MDCs (listed in Table 3-1) and RLs (listed in Table 3-2). The required MDCs were achieved during laboratory sample analysis. The 2018 results were compared with previous results, including those obtained during pre-operation. No data points were excluded for violating Chauvenet's Criterion.

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Airborne Particulates (fCi/m3)	Gross Beta 357	10	21.4 5.3-42 (258/258)	River Road WSW 1.2 mi.	22.7 3.2-42.8 (52/52)	19.2 3.2-42.8 (51/51)	21.7 4.8-38.3 (52/52)
	Gamma Isotopic 28						
	I-131	70	NDM(c)		NDM	NDM	NDM
	Cs-134	50	NDM		NDM	NDM	NDM
	Cs-137	60	NDM		NDM	NDM	NDM
Airborne Radioiodine (fCi/m3)	I-131 364	70	NDM		NDM	NDM	NDM
Direct Radiation (mR/91 days)	Gamma Dose 158		10.1 5.8-16.2 (64/64)	SRS, Road A.13.1 ENE 4.8 mi.	15.2 13.1-16.5 (4/4)	10.7 4.7-17 (72/72)	10.6 6.8-14.7 (24/24)
Milk (pCi/l)	Gamma Isotopic 50						
	I-131	1	NDM		NDM		NDM
	Cs-134	15	NDM		NDM		NDM
	Cs-137	18	1 0.6-1.5 (19/25)	Girard Dairy S 5.5 mi	1 0.6-1.5 (19/25)		0.9 0.5-1.2 (12/25)
	Ba-140	60	NDM		NDM		NDM
	La-140	15	NDM		NDM		NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Vegetation (pCi/kg-wet)	Gamma Isotopic 36						
	I-131	60	NDM		NDM		NDM
	Cs-134	60	NDM		NDM		NDM
	Cs-137	80	16.3 0-16.3 (1/24)	Substation Waynesboro, GA WSW 16.7 mi.	70.6 0-70.6 (1/12)		70.6 0-70.6 (1/12)
River Water (pCi/l)	Gamma Isotopic 36						
	Be-7	124(d)	NDM		NDM	NDM	NDM
	Mn-54	15	NDM		NDM	NDM	NDM
	Fe-59	30	NDM		NDM	NDM	NDM
	Co-58	15	NDM		NDM	NDM	NDM
	Co-60	15	NDM		NDM	NDM	NDM
	Zn-65	30	NDM		NDM	NDM	NDM
	Zr-95	30	NDM		NDM	NDM	NDM
	Nb-95	15	NDM		NDM	NDM	NDM
	I-131	1	NDM		NDM	NDM	NDM
	Cs-134	15	NDM		NDM	NDM	NDM
	Cs-137	18	NDM		NDM	NDM	NDM
	Ba-140	60	NDM		NDM	NDM	NDM
	La-140	15	NDM		NDM	NDM	NDM
	Tritium 9	2000	1286 164-2850 (3/3)	Savannah River (RM 150.4) ENE 0.8 mi	1286 164-2850 (3/3)	519 197-1040 (3/3)	223 172-300 (3/3)

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
Raw Water Near Intakes to Water Treatment Plants (pCi/l)	Gross Beta 34	4	2.1 -0.4-3.9 (20/22)	Cherokee Hill Water Treatment Plant, Port Wentworth, GA SSE 72 mi.	2.3 -0.2-3.7 (10/11)		2.1 0-3.4 (10/11)
	Gamma Isotopic 36						
	Be-7	124(d)	NDM		NDM		NDM
	Mn-54	15	NDM		NDM		NDM
	Fe-59	30	NDM		NDM		NDM
	Co-58	15	NDM		NDM		NDM
	Co-60	15	NDM		NDM		NDM
	Zn-65	30	NDM		NDM		NDM
	Zr-95	30	NDM		NDM		NDM
	Nb-95	15	NDM		NDM		NDM
	I-131	1	NDM		NDM		NDM
	Cs-134	15	NDM		NDM		NDM
	Cs-137	18	NDM		NDM		NDM
	Ba-140	60	NDM		NDM		NDM
	La-140	15	NDM		NDM		NDM
	Tritium 12	2000	492 247-942 (8/8)	Purrysburg Water Treatment Plant, Purrysburg, SC, SSE, 76 miles	543 71.8-1310 (4/4)		194 36.1-534 (4/4)
Finished Water at Water Treatment Plants (pCi/l)	Gross Beta 33	4	2.3 0-8.8 (21/24)	Purrysburg Water Treatment Plant, Purrysburg, SC, SSE, 76 miles	2.8 0-8.8 (10/12)		1.5 0-2.2 (12/12)

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
	Gamma Isotopic 36						
	Be-7	124(d)	NDM		NDM		NDM
	Mn-54	15	NDM		NDM		NDM
	Fe-59	30	NDM		NDM		NDM
	Co-58	15	NDM		NDM		NDM
	Co-60	15	NDM		NDM		NDM
	Zn-65	30	NDM		NDM		NDM
	Zr-95	30	NDM		NDM		NDM
	Nb-95	15	NDM		NDM		NDM
	I-131	1	NDM		NDM		NDM
	Cs-134	15	NDM		NDM		NDM
	Cs-137	18	NDM		NDM		NDM
	Ba-140	60	NDM		NDM		NDM
	La-140	15	NDM		NDM		NDM
	Tritium 12	2000	345 172-672 (8/8)	Cherokee Hill Water Treatment Plant, Port Wentworth, GA SSE 72 mi.	347 172-672 (4/4)		197 97-425 (4/4)
Anadromous Fish (pCi/kg-wet)	Gamma Isotopic 1						
	Be-7	655(d)			NA		NDM
	Mn-54	130			NA		NDM
	Fe-59	260			NA		NDM
	Co-58	130			NA		NDM
	Co-60	130			NA		NDM
	Zn-65	260			NA		NDM

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		
	Cs-134	130			NA		NDM
	Cs-137	150			NA		NDM
Fish (pCi/kg-wet)	Gamma Isotopic 7						
	Be-7	655(d)	NDM				NDM
	Mn-54	130	NDM				NDM
	Fe-59	260	NDM				NDM
	Co-58	130	NDM				NDM
	Co-60	130	NDM				NDM
	Zn-65	260	NDM				NDM
	Cs-134	130	NDM				NDM
	Cs-137	150	41.7 0-41.7 (1/3)	Savannah River, ESE, 4.3 mi.	41.7 0-41.7 (1/3)		29.7 20-38.4 (4/4)
Sediment (pCi/kg-dry)	Gamma Isotopic 4						
	Co-58	N/A	NDM				NDM
	Co-60	N/A	NDM				NDM
	Cs-134	150	NDM				NDM
	Cs-137	180	NDM	Savannah River N 2.5 miles	47.4 0-47.4 (1/2)		47.4 0-47.4 (1/2)

Table 3-1. Radiological Environmental Monitoring Program Annual Summary

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Minimum Detectable Concentration (MDC) (a)	Indicator Location Mean (b), Range (Fraction)	Location with the Highest Annual Mean		Other Stations (f) Mean (b), Range (Fraction)	Control Locations Mean (b), Range (Fraction)
				Name Distance and Direction	Mean (b), Range (Fraction)		

Notes:

(a)The MDC is defined in ODCM 10.1. Except as noted otherwise, the values listed in this column are the detection capabilities required by ODCM Table 4-3. The values listed in this column are a priori (before the fact) MDCs. In practice, the a posteriori (after the fact) MDCs are generally lower than the values listed.

(b) Mean and range were based upon detectable measurements only. The fraction of all measurements at a specified location that are detectable is placed in parenthesis.

(c) No Detectable Measurement(s) (NDM).

(d) The Georgia Power Company Environmental Laboratory has determined that this value may be routinely attained under normal conditions. No value is provided in ODCM Table 4-3.

(e) Item 3 of ODCM Table 4-1 implies that an I-131 analysis was not required to be performed on water samples when the dose calculated from the consumption of water was less than 1 mrem per year. However, I-131 analyses were performed on the finished drinking water samples.

(f) "Other" stations, as identified in the "Station Type" column of Table 2-2, are "Community" and/or "Special" stations.

Not Applicable (NA) (sample or analysis not required)

Table 3-2. Reporting Levels (RL)

Analysis	Water (pCi/l)	Airborne Particulate or Gases (fCi/m3)	Fish (pCi/kg-wet)	Milk (pCi/l)	Grass or Leafy Vegetation (pCi/kg-wet)
H-3	20,000[a]				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-95	400				
Nb-95	700				
I-131	2[b]	900		3	100
Cs-134	30	10,000	1,000	60	1,000
Cs-137	50	20,000	2,000	70	2,000
Ba-140	200			300	
La-140	100			400	

[a] This is the 40 CFR 141 value for drinking water samples. If no drinking water pathway exists, a value of 30,000 may be used.
[b] If no drinking water pathway exists, a value of 20 pCi/l may be used.

In accordance with ODCM 4.1.1.2.1, deviations from the required sampling schedule were permitted, if samples were unobtainable due to hazardous conditions, unavailability, inclement weather, equipment malfunction or other just reasons. Deviations from conducting the REMP sampling (as described in Table 2-1) are summarized in Table 3-3 along with their causes and resolution.

Table 3-3. Anomalies and Deviations from Radiological Environmental Monitoring Program

Collection Period	Affected Samples	Anomaly (A)* or Deviation (D)**	Cause	Resolution
12/18/18	Gross Beta Station GIR	(D) Low volume sample	Power supply was interrupted.	Air station was returned to service
3Q18	OSLD V04	(D) No sample collected	Cartridge damaged by animal	OSLD returned to service
4Q18	OSLD V05	(D) No sample collected	Cartridge missing	OSLD returned to service
1/9/18	Air Sample (MET) (RIV)	(D) Non-representative sample collected	Particulate filter did not completely cover the sample area.	Additional oversight of personnel conducting sample collection.
2/6/18	Air Sample (SIM)	(D) Non-representative sample collected	Particulate filter did not completely cover the sample area.	Additional oversight of personnel conducting sample collection.
10/2018	Vegetation	(D) Non-representative sample collected	Inadequate volume of sample collected.	Additional oversight of personnel conducting sample collection.

* An anomaly is considered a non-standard sample that still meets sampling criteria outlined in SNC and Georgia Power Labs procedures.
** A deviation is a sample result that is not recorded due to not meeting scheduling and/or procedural requirements as outlined by SNC and Georgia Power Labs

3.1 Airborne Particulates

As specified in Table 2-1, airborne particulate filters and charcoal canisters were collected weekly at five indicator stations (Stations 3, 7, 10, 12 and 16) which encircle the plant at the site periphery, at a nearby community station (Station 35) approximately seven miles from the plant, and at a control station (Station 36) approximately 14 miles from the plant. At each sampling location containing a filter and cartridge series, air was continuously drawn through a glass fiber filter to retain airborne particulate and an activated charcoal canister was placed in series with the particulate filter to adsorb radioiodine.

3.1.1 Gross Beta

As provided in Table 3-1, the 2018 annual average weekly gross beta activity at the indicator stations was 21.4 fCi/m3. It was 0.3 fCi/m3 less than the control station average of 21.7 fCi/m3.

The 2018 annual average weekly gross beta activity at the Girard community station was 19.2fCi/m3 which was below the control station average (21.7 fCi/m3). No MDD was applied since the community station average was lower than the control average.

Average Air Gross Beta historical data (Table 3-4) is graphed to show trends associated with a prevalent exposure pathway (Figure 3-1). In general, there was close agreement between the results for the indicator, control and community stations. This close agreement supports the position that the plant was not contributing significantly to the gross beta concentrations in air.

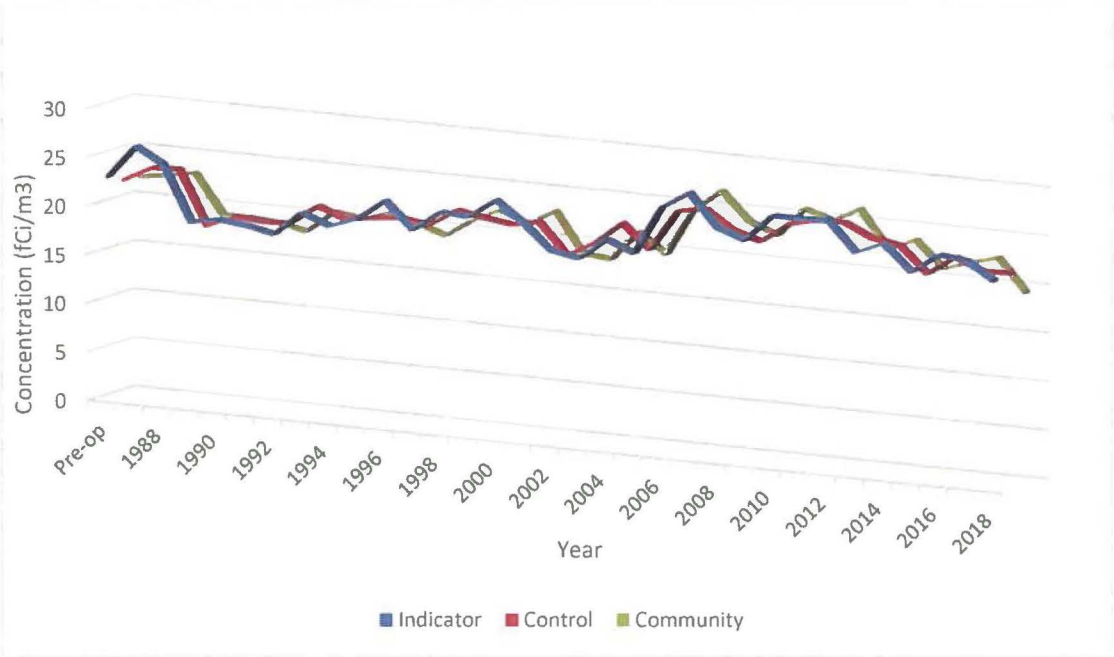
Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)
Pre-op	22.9	22.1	21.9		2003	19.4	20.5	18.3
1987	26.3	23.6	22.3		2004	21.6	22.8	21.4
1988	24.7	23.7	22.8		2005	20.5	20.4	19.4
1989	19.1	18.2	18.8		2006	25.5	24.6	24.3
1990	19.6	19.4	18.8		2007	27.3	25.1	26.5
1991	19.3	19.2	18.6		2008	24.0	23.2	23.7
1992	18.7	19.3	18.0		2009	23.0	22.4	22.5
1993	21.2	21.4	20.3		2010	25.8	24.4	25.5
1994	20.1	20.3	19.8		2011	25.8	25.1	24.6
1995	21.1	20.7	20.7		2012	25.9	25.2	26.1
1996	23.3	21.0	20.0		2013	22.9	23.9	22.2
1997	20.6	20.6	19.0		2014	24.1	23.4	23.5
1998	22.7	22.4	20.9		2015	21.5	20.8	20.8
1999	22.5	21.9	22.2		2016	23.5	22.8	21.7
2000	24.5	21.5	21.1		2017	23.2	21.6	22.5
2001	22.4	22.0	22.7		2018	21.4	21.7	19.2

Table 3-4. Average Weekly Gross Beta Air Concentration

Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)		Period	Indicator (fCi/m3)	Control (fCi/m3)	Community (fCi/m3)
2002	19.9	18.9	18.6					

Figure 3-1. Historic Average Weekly Gross Beta Air Concentration



3.1.2 Gamma Particulates and Airborne Radioiodine

During 2018, no man-made radionuclides were detected from the gamma isotopic analysis of the quarterly composites of the air particulate filters. Historically, gamma isotopes were detected as a result of offsite events. During pre-operation, Cs-134, Cs-137 and I-131 were occasionally detected. In 1987, Cs-137 was found in one indicator composite at a concentration of 1.7 fCi/m3.

Additionally, I-131 was also detected after the Fukushima incident in 2011, the highest I-131 result in 2011 was 93.8 fCi/m3, which was approximately 10% of the RL. During 2018, no I-131 was detected in the air cartridges at either the indicator or control stations.

3.2 Direct Radiation

In 2018, direct (external) radiation was measured with Optically Stimulated Luminescent dosimeters (OSLD) by placing two OSLD badges at each station. The gamma dose at each station was reported as the average reading of the two badges. The badges were analyzed on a quarterly

basis. An inspection was performed near mid-quarter for offsite badges to ensure that the badges were on-station and to replace any missing or damaged badges.

Two direct radiation stations were established in each of the 16 compass sectors, to form two concentric rings. The inner ring (Stations 1 through 16) was located near the plant perimeter as shown in Map A-1 in Appendix A and the outer ring (Stations 17 through 32) was located at a distance of approximately five miles from the plant as shown in Map A-2 in Appendix A. The 16 stations forming the inner ring were designated as the indicator stations. The two ring configuration of stations was established in accordance with NRC Branch Technical Position "An Acceptable Radiological Environmental Monitoring Program", Revision 1, November 1979. The six control stations (Stations 36, 37, 47, 48, 51 and 52) were located at distances greater than 10 miles from the plant as shown in Map A-3 in Appendix A. Monitored special interest areas include Station 35 at the town of Girard and Station 43 at the employee recreational area (Rec Center). The mean and range values presented in the "Other" column in Table 3-1 includes the outer ring stations (stations 17 through 32) as well as stations 35 and 43.

As provided in Table 3-1, the 2018 average quarterly exposure at the indicator stations (inner ring) was 10.1 mR with a range of 5.8 to 16.2 mR. The indicator station average was 0.5 mR less than the control station average. No MDD was applied because the indicator was less than the control. Over the operational history, the annual average quarterly exposures have shown little variation between the indicator and control stations.

The quarterly exposures acquired at the community/other (outer ring) stations during 2018 ranged from 6.8 to 14.7 mR with an average of 10.7 mR which was 0.1 mR higher than the control station average. The calculated MDD was 0.8 mR, which indicated that there was no discernible statistical difference between the two data sets.

Average Direct Radiation historical data (Table 3-5) is graphed to show trends associated with this exposure pathway (Figure 3-2). The decrease between 1991 and 1992 values is attributed to a change in Thermoluminescent Dosimeters (TLDs) from Teledyne to Panasonic. It should be noted however that the differences between indicator and control and outer ring values did not change. The increase shown in 2010 reflected issues with the aging Panasonic TLD reader. The close agreement between the station groups has supported the position that the plant was not contributing significantly to direct radiation in the environment.

Figure 3-3 below provides a more detailed view of the 2018 values. The values for the special interest areas (Girard and the Rec Center) detailed below indicate that Plant Vogtle did not significantly contribute to direct radiation at those areas.

Table 3-5. Average Quarterly Exposure from Direct Radiation

Period	Indicator (mR)	Control (mR)	Outer Ring (mR)		Period	Indicator (mR)	Control (mR)	Outer Ring (mR)
Pre-op	15.3	16.5	14.7		2003	12.2	12.5	12.4
1987	17.6	17.9	16.7		2004	12.4	12.2	12.3
1988	16.8	16.1	16.0		2005	12.5	13.2	12.9
1989	17.9	18.4	17.2		2006	13.1	12.9	13.0
1990	16.9	16.6	16.3		2007	13.0	12.5	12.7
1991	16.9	17.1	16.7		2008	13.3	13.0	13.1
1992	12.3	12.5	12.1		2009	13.1	13.6	13.3
1993	12.4	12.4	12.1		2010	16.2	16.7	16.6
1994	12.3	12.1	11.9		2011	13.9	13.9	14.0
1995	12.0	12.5	12.3		2012	14.4	14.3	14.2
1996	12.3	12.2	12.3		2013	13.1	13.2	13.6
1997	13.0	13.0	13.1		2014	11.6	12.3	12.0
1998	12.3	12.7	12.4		2015	12.5	12.3	12.6
1999	13.6	13.5	13.4		2016	11.5	11.5	11.5
2000	13.5	13.6	13.5		2017	11.4	11.4	11.9
2001	12.9	13.0	12.9		2018	10.1	10.6	10.7
2002	12.8	12.9	12.6					

Figure 3-2. Average Quarterly Exposure from Direct Radiation

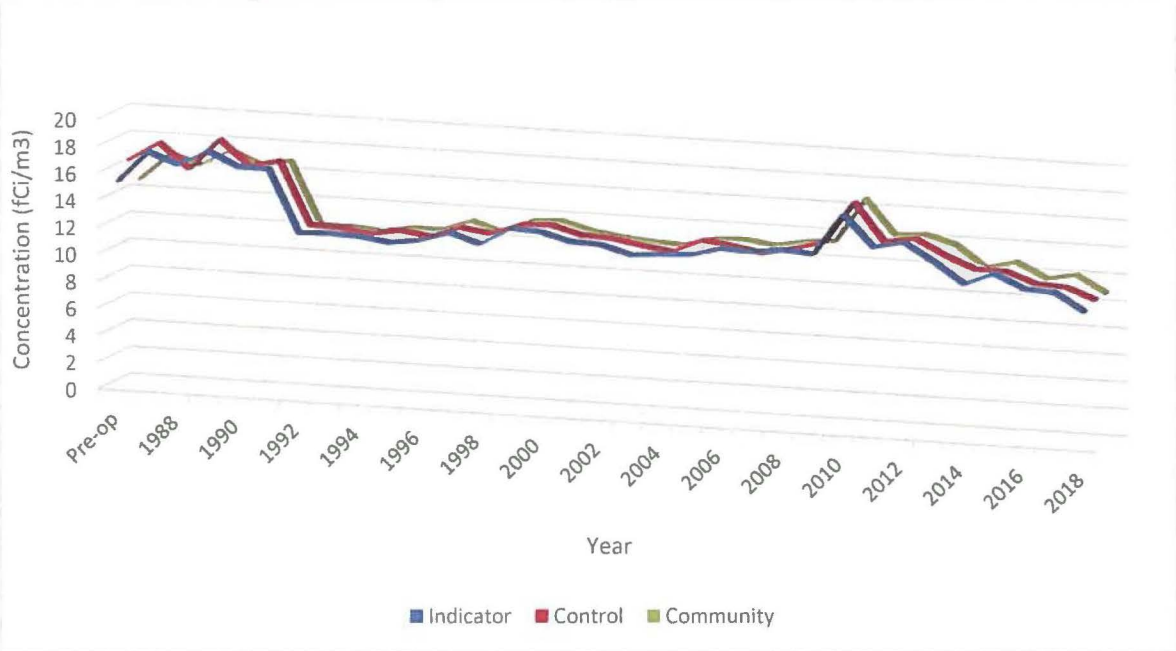
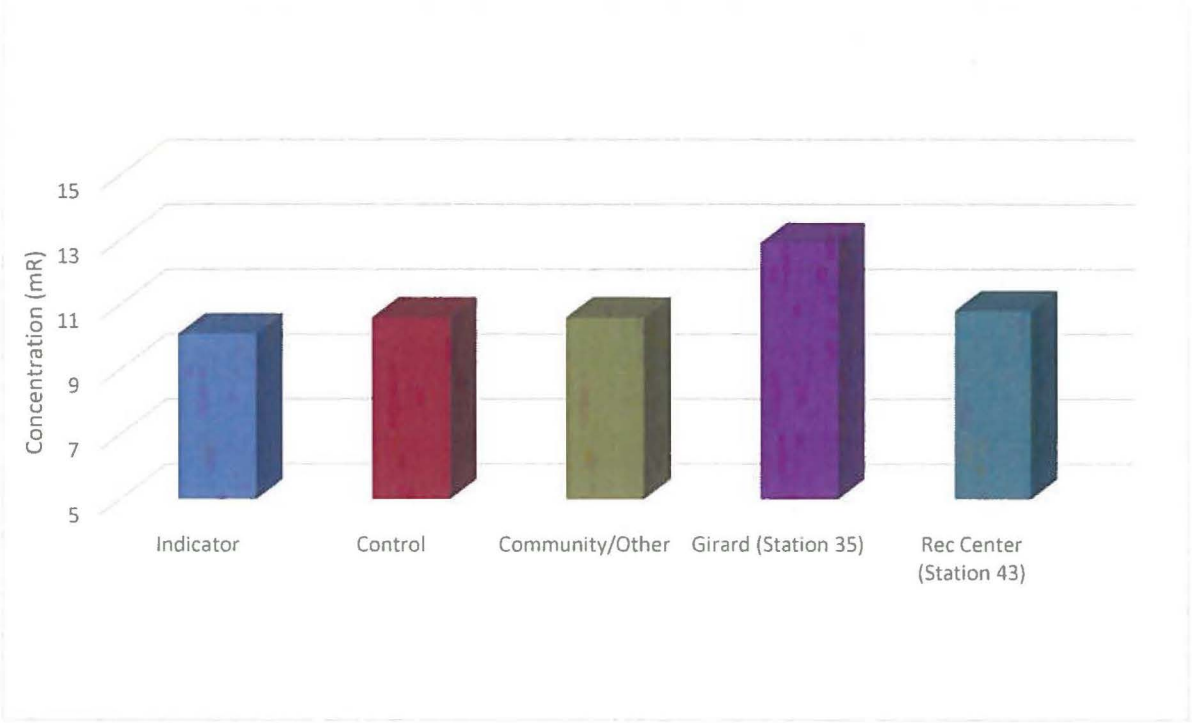


Figure 3-3. 2018 Average Exposure from Direct Radiation



3.3 Biological Media

Cs-137 was the only radionuclide detected in two of the three biological media. As indicated in Figure 3-4, the Cs-137 activity levels were below the respective MDCs and well below that of the respective RLs for each sample media for both the indicator and control stations.

3.3.1 Milk

In accordance with Tables 2-1 and 2-2, milk samples were collected semi-monthly from two locations: the Girard Dairy (Station 101) which was considered an indicator station because it is approximately 5.5 miles from Vogtle (ideally, a milk indicator station would be less than 5 miles from the plant); and the Milky Way Dairy (Station 102, at 16.0 miles from the plant) is the control location. No milk animal was found within five miles of Plant Vogtle during the 2018 land use census.

Gamma isotopic (including I-131 and Cs-137) analyses were performed on each collected milk sample and there were no detectable results for gamma isotopes other than Cs-137, which was detected in 19 of 25 indicator samples (1.0 pCi/l average) and 12 of 25 control samples (0.9 pCi/l average). The difference was equal to the MDD of 0.1 pCi/l, therefore, there was a statistically significant difference between the indicator and control. Both the indicator and control values were well under the MDC of 18 pCi/L, and these results were consistent with past milk samples,

so no further investigation was conducted. Figure 3-4 provides the 2018 Cs-137 concentration in milk.

3.3.2 Vegetation

In accordance with Tables 2-1 and 2-2, vegetation samples were collected monthly for gamma isotopic analyses at two indicator locations near the site boundary (Stations 7 and 15) and at one control station located about 17 miles WSW from the plant (Station 37). The man-made radionuclide Cs-137 was periodically identified in vegetation samples, and was generally attributed to offsite sources (such as weapons testing, Chernobyl, and Fukushima). Cs-137 was detected in one of the samples collected in 2018 at the indicator and control station. The single indicator sample had a value of 16.3 pCi/kg-wet and the control station had a value of 70.6 pCi/kg-wet.

While Cs-137 and I-131 were periodically found and Co-60 was discovered once in vegetation samples during pre-operation, the historical trends and the relationship between the indicator and control stations have demonstrated that plant operations were having no adverse impact to the environment. The sample results were consistently well below the MDC and the RL for Cs-137 (80 and 2000 pCi/kg-wet, respectively).

During 2018, no other gamma isotopes were detected in any Vogtle REMP vegetation samples.

3.3.3 Fish

Fish samples were collected in accordance with the ODCM (as indicated in Table 2-1). For the semiannual collections, the control location (Station 81) extends from approximately two to seven miles upriver of the plant intake structure, and the indicator location (Station 85) extends from about 1.4 to seven miles downriver of the plant discharge structure.

3.3.3.1 Anadromous Species

In accordance with Table 2-1, for anadromous species, all fish sampled were considered indicator stations. Anadromous fish were sampled once during 2018, on April 3. No radionuclides were detected in the 2018 anadromous fish sample.

3.3.3.2 Commercially or Recreationally Important Species

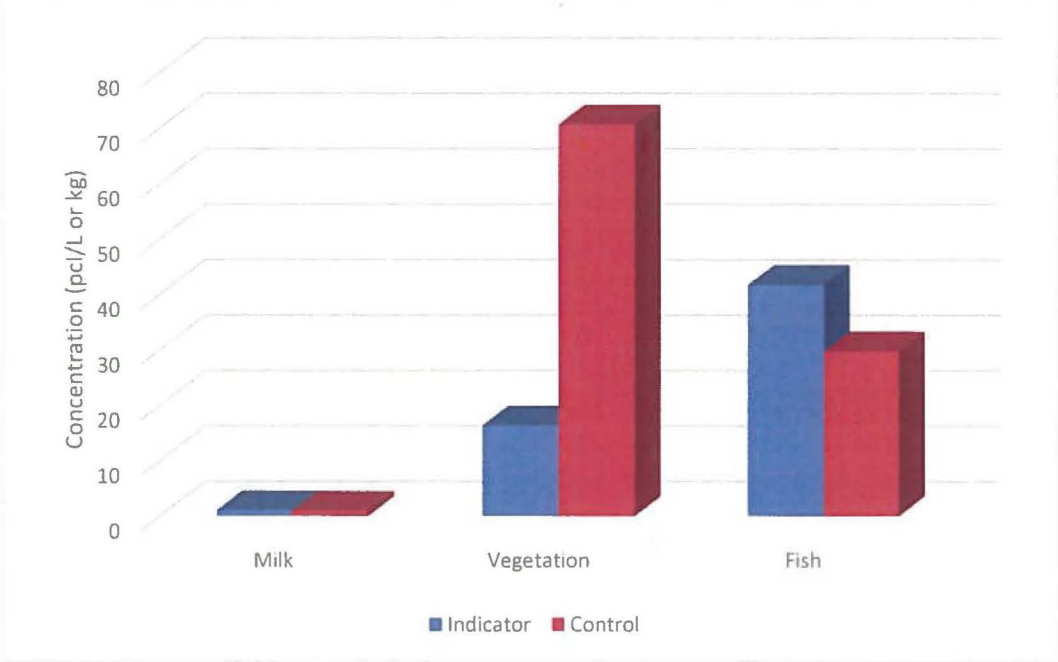
As provided in Table 3-1, Cs-137 was found in the semiannual collections of commercially or recreationally important species of fish (for both indicator and control). The indicator station averaged a Cs-137 concentration of 41.7 pCi/kg-wet (detected in one of three samples, with a range of 0 to 41.7 pCi/kg-wet), and 29.7 pCi/kg-wet at the control station (detected in each of four samples, with a range of 20.0 to 38.4 pCi/kg-wet). There was no statistically discernible difference between the two since the difference of 12.0 is less than the MDD of 40.1. All detected

values were well below the MDC for Cs-137 in fish (150 pCi/kg-wet). No other gamma nuclides were discovered in 2018.

3.3.4 Biological Media Summary

There were no statistical differences, trends, or anomalies associated with the 2018 biological media samples when compared to historical data. Figure 3-4 below, details the 2018 Cs-137 concentrations in the three media types.

Figure 3-4. 2018 Biological Media Average Cs-137 Concentrations



3.4 Drinking Water

Samples were collected at an upstream control location and at three downstream indicator locations (shown on Map A-3) and further described in Table 2-2.

Monthly water samples were taken near the intake of each water treatment plant (raw drinking water) using automatic composite samplers. Additionally, monthly grab samples of the processed water effluent from the treatment plants (finished drinking water) were collected. Monthly aliquots from the raw and processed drinking water were analyzed for gross beta and gamma isotopic activity. The monthly aliquots were also combined to form quarterly composites in order to be analyzed for tritium.

For 2018, the indicator station average gross beta concentration in the *raw* drinking water was 2.1 pCi/l which was equal to the average gross beta concentration at the control station (2.1

pCi/l). Historically, the close agreement between the gross beta values of the indicator stations and the control station has supported that there was no significant gross beta contribution from the plant effluents. The required MDC for gross beta in water was 4.0 pCi/l; there was no RL for gross beta in water.

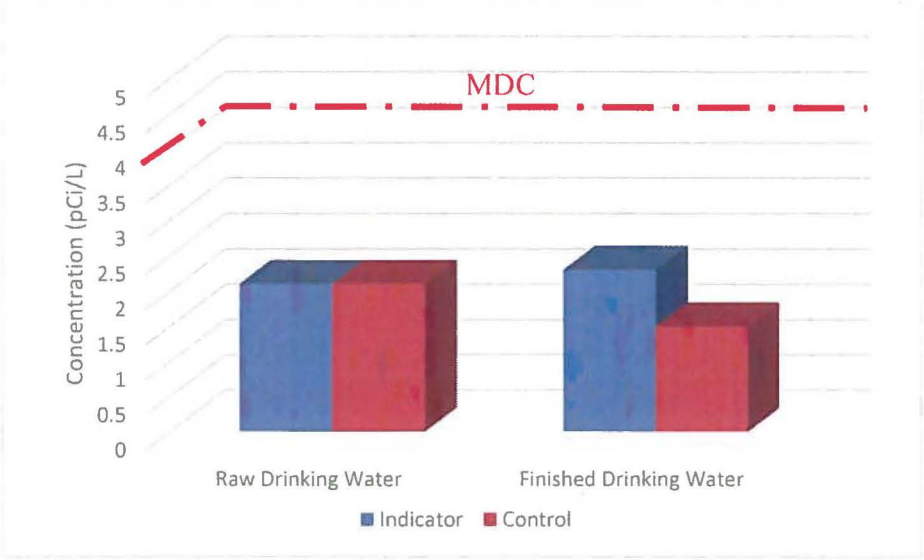
For 2018, the indicator station average gross beta concentration in the *finished* drinking water was 2.3 pCi/l which was 0.8 pCi/l more than the average gross beta concentration at the control station (1.5 pCi/l). The difference between the respective indicator and control average was equal to the MDD of 0.8 pCi/l; therefore, no discernible difference exists. Figure 3-5 show the relationship between the average indicator station and average control station for 2018 in comparison to the MDC.

As provided in Table 3-1, there were no positive results during 2018 from the gamma isotopic analysis of the raw and finished drinking water samples.

Regarding tritium, the average raw drinking water indicator concentration was 492 pCi/l which was 298 pCi/l greater than the average concentration found at the control station (194 pCi/l). This difference does not exceed the MDD of 338 pCi/L, which would indicate a difference that is not statistically discernible, additionally all detected values were less than the MDC for drinking water of 2,000 pCi/L, and these values were consistent with past results.

The finished drinking water average tritium concentration at the indicator stations during 2018 was 345 pCi/l which was 148 pCi/l greater than the average concentration found at the control station (197 pCi/l). The MDD was calculated at 162 pCi/l between the indicator and control stations, indicating a statistical similarity between the data sets. Figure 3-6 shows the tritium values in the drinking water compared to river water.

Figure 3-5. 2018 Average Gross Beta Concentration in Raw and Finished Drinking Water



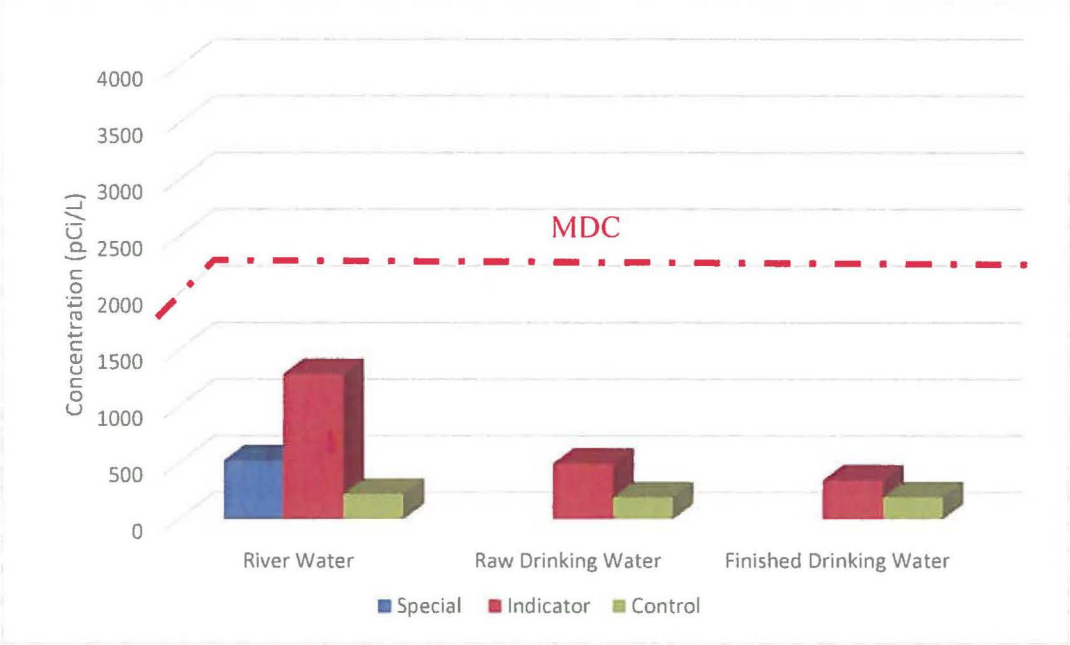
3.5 River Water

Composite river water samples were collected monthly at an upstream control location and at two downstream indicator locations (shown on Map A-3). The details of the sampling protocols are outlined in Tables 2-1 and Table 2-2. A gamma isotopic analysis was conducted on each monthly sample. The monthly aliquots were combined to form quarterly composite samples in order to be analyzed for tritium.

As provided in Table 3-1, there were no positive results during 2018 from the gamma isotopic analysis of the river water samples. Also indicated in Table 3-1, the average tritium concentration found at the indicator station was 1,286 pCi/l which was 1,063 pCi/l greater than the average at the control station (223 pCi/l). The river water tritium MDD was calculated to be 1,057 pCi/l, so the difference was statistically discernible. This increased tritium could likely be attributed to plant activity from Vogtle and other upstream dischargers. Tritium was released regularly from the plant during normal operations, but always at levels that would not impact the MDC or RL.

At the "Other" river water sampling station (Station 84), the results ranged from 197 pCi/l to 1,040 pCi/l with an average of 519 pCi/l. The difference between the Station 84 and the control station was 296 pCi/l. The MDD was calculated to be 349 pCi/l, which would indicate a difference that was not statistically discernible. Historically, the relationship between the indicator/control stations and Station 84 has remained consistent. Figure 3-6 below details the 2018 average tritium concentrations across the three water sample types.

Figure 3-6. 2018 Average Tritium Concentrations in River, Raw Drinking, and Finished Drinking Water



3.6 Sediment

Sediment was collected along the shoreline of the Savannah River in the spring and fall at Stations 81 and 83. Station 81 was a control station located about 2.5 miles upriver of the plant intake structure while Station 83 was an indicator station located about 0.6 miles downriver of the plant discharge structure. A gamma isotopic analysis was performed on each sample. The radionuclides detected in 2018 samples were Be-7 and Cs-137. Though Be-7 was detected in sediment, it will not be discussed within this report, because it was not detected in plant effluents and likely represents naturally occurring and/or background conditions.

For Cs-137, the control station was the only sample that identified Cs-137 (47.4 pCi/kg-dry), therefore no impact to the environment was indicated.

There were no other radionuclides detected in the 2018 sediment samples.

3.7 Interlaboratory Comparison Program

In accordance with ODCM 4.1.3, GPCEL participated in an Interlaboratory Comparison Program (ICP) which satisfied the requirements of Regulatory Guide 4.15, Revision 1, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment", February 1979. The ICP included the required determinations (sample medium/radionuclide combinations) included in the REMP.

The ICP was conducted by Eckert & Ziegler Analytics, Inc. (EZA) of Atlanta, Georgia. EZA has a documented Quality Assurance (QA) program and the capability to prepare Quality Control (QC) materials traceable to the National Institute of Standards and Technology. The ICP is a third-party blind testing program which provided a means to ensure independent checks were performed on the accuracy and precision of the measurements of radioactive materials in environmental sample matrices. EZA supplied the crosscheck samples to GPCEL which performed routine laboratory analyses. Each of the specified analyses was performed three times.

The accuracy of each result was measured by the normalized deviation, which is the ratio of the reported average less the known value to the total error. An investigation was undertaken whenever the absolute value of the normalized deviation is greater than three or whenever the coefficient of variation was greater than 15% for all radionuclides other than Cr-51 and Fe-59. For Cr-51 and Fe-59, an investigation is undertaken when the coefficient of variation exceeded the values shown on Table 3-6 below:

Table 3-6. Interlaboratory Comparison Limits

Nuclide	Concentration *	Total Sample Activity (pCi)	Percent Coefficient of Variation
Cr-51	<300	NA	25
	NA	>1000	25
	>300	<1000	15
Fe-59	<80	NA	25
	>80	NA	15
* For air filters, concentration units are pCi/filter. For all other media, concentration units are pCi/liter (pCi/l).			

As required by ODCM 4.1.3.3 and 7.1.2.3, a summary of the results of the GPCEL's participation in the ICP is provided in Table 3-7 for:

- gross beta and gamma isotopic analyses of an air filter
- gamma isotopic analyses of milk samples
- gross beta, tritium and gamma isotopic analyses of water samples

The 2018 analyses included tritium, gross beta and gamma emitting radio-nuclides in different matrices. The attached results for all analyses were within acceptable limits for accuracy (less than 15% coefficient of variation and less than 3.0 normalized deviations, except for Cr-51 and Fe-59, which are outlined in Table 3-6).

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
I-131 ANALYSIS OF AN AIR CARTRIDGE (pCi/cartridge)							
I-131	4/16/2018	94.21	94.50	3.17	1.58	5.95	-0.05
GAMMA ISOTOPIC ANALYSIS OF AN AIR FILTER (pCi/filter)							
Ce-141	9/13/2018	84.01	80.4	4.01	1.34	7.17	0.60
Co-58		95.10	90.2	0.99	1.51	5.08	1.02
Co-60		118.20	119	1.18	1.99	4.33	-0.16
Cr-51		174.69	166	10.2	2.77	11.5	0.43
Cs-134		71.58	77	3.84	1.29	7.49	-1.10
Cs-137		97.82	92.6	2.22	1.55	5.22	1.02
Fe-59		79.52	74.9	4.09	1.25	7.46	0.68
Mn-54		115.77	105	2.64	1.75	5.13	1.81
Zn-65		146.42	126	6.06	2.11	6.54	2.13
GROSS BETA ANALYSIS OF AN AIR FILTER (PCI/FILTER)							
Gross Beta	6/7/2018	184.56	214	4.77	3.58	5.16	-3.09
	9/13/2018	122.7	131	1.75	2.18	3.33	-2.02
GAMMA ISOTOPIC ANALYSIS OF A MILK SAMPLE (PCI/LITER)							
Co-58	9/13/2018	158.87	144	7.24	2.4	7.23	1.29
Co-60		208.82	190	5.4	3.17	5.14	1.75
Cr-51		294.41	265	26.1	4.42	14.17	0.7
Cs-134		135.2	123	1.24	2.05	4.73	1.91
Cs-137		165.33	147	5.34	2.46	6.31	1.76
Fe-59		132.2	119	5.27	1.99	7.99	1.25
I-131		61.23	58.2	3.39	0.97	10.42	0.47
Mn-54		194.37	167	7.87	2.79	6.51	2.16
Zn-65		229.73	201	11.9	3.35	8.07	1.55
GROSS BETA ANALYSIS OF WATER SAMPLE (PCI/LITER)							
Gross Beta	6/7/2018	255.8	226	12.79	3.77	6.62	1.76

Table 3-7. Interlaboratory Comparison Summary

Analysis or Radionuclide	Date Prepared	Reported Average	Known Value	Standard Deviation EL	Uncertainty Analytics (3S)	Percent Coefficient of Variation	Normalized Deviation
GAMMA ISOTOPIC ANALYSIS OF WATER SAMPLES (PCI/LITER)							
Ce-141	6/7/2018	90.5	85.8	8.86	1.43	12.70	0.41
Co-58		100.41	92.9	5.34	1.55	8.46	0.88
Co-60		123.32	118	3.52	1.98	5.77	0.75
Cr-51		261.85	249	26.1	4.16	16.22	0.30
Cs-134		123.39	119	2.48	1.98	5.08	0.70
Cs-137		111.95	103	1.56	1.72	6.42	1.24
Fe-59		91.37	89.7	7.81	1.50	12.13	0.15
I-131		84.47	74.4	5.03	1.24	11.02	1.08
Mn-54		145.02	135	4.33	2.26	6.40	1.08
Zn-65		186.81	164	8.20	2.74	7.87	1.55
TRITIUM ANALYSIS OF WATER SAMPLES (PCI/LITER)							
H-3	9/13/2018	12564	12960	68.89	215	2.17	-1.23
GAMMA ISOTOPIC ANALYSIS OF VEGETATION SAMPLES (PCI/LITER)							
Co-58	6/7/2018	155.39	148	7.69	2.46	9.74	0.49
Co-60		190.43	188	14.24	3.14	9.65	0.13
Cr-51		400.88	396	50.74	6.61	21.64	0.06
Cs-134		204.33	188	14.05	3.15	8.60	0.93
Cs-137		164.48	164	6.50	2.73	8.58	0.03
Fe-59		154.07	143	21.09	2.38	18.36	0.39
Mn-54		208.63	215	14.16	3.59	9.57	-0.32
Zn-65		276.46	261	23.11	4.36	12.76	0.44
Ce-141		148.26	136	11.58	2.28	12.67	0.65

3.8 Groundwater

To ensure compliance with NEI 07-07 (Industry Ground Water Protection Initiative – Final Guidance Document), Southern Nuclear developed the Nuclear Management Procedure, Radiological Groundwater Protection Program. The procedure contains detailed site-specific monitoring plans, program technical bases, and communications protocol (to ensure that radioactive leaks and spills are addressed and communicated appropriately). In an effort to prevent future leaks of radioactive material to groundwater, SNC plants have established buried piping and tanks inspection programs. No changes were made to the Groundwater Protection Program in 2018.

Plant Vogtle maintained the following wells (Table 3-8), which were sampled at a frequency that satisfied the requirements of NEI 07-07. The analytical results for 2018 were all within regulatory limits specified within this report. Table 3-9 contains the results of the Groundwater Protection Program tritium results (in pCi/L).

Table 3-8. Groundwater Protection Program Locations

Well	Aquifer	Monitoring Purpose
LT-1B	Water Table	NSCW related tank
LT-7A	Water Table	NSCW related tank
LT-12	Water Table	NSCW related tank
LT-13	Water Table	NSCW related tank
802A	Water Table	Southeastern potential leakage
806B	Water Table	Dilution line
808	Water Table	Up gradient; along Pen Branch Fault
R1	Water Table	NSCW related tank; western potential leakage
R2	Water Table	Southern potential leakage
R3	Water Table	Eastern potential leakage
R4	Water Table	Dilution line
R5	Water Table	Dilution line
R6	Water Table	Dilution line
R7	Water Table	Dilution line
R8	Water Table within Sav. River sediments	Dilution line
1014	Tertiary	Up gradient
1015	Water Table	Vertically up gradient
MU-1	Tertiary/Cretaceous	Facility water supply
River	N/A	Surface water

NSCW – Nuclear service cooling water

Table 3-9. Groundwater Protection Program Tritium Results (pCi/L)

Well	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
LT-1B	NS	652	NS	235
LT-7A	NS	900	NS	426
LT-12	1720	2110	1870	1940
LT-13	NS	407	NS	389
802A	NS	612	NS	295
806B	NS	530	NS	185
808	NS	299	NS	263
R1	NS	455	NS	NS
R2	NS	410	NS	188
R3	NS	529	NS	NDM
R4	NS	323	NS	NDM
R5	NS	278	NS	260
R6	NS	NDM	NS	162
R7	NS	NDM	NS	NDM
R8	NS	NDM	NS	NDM
1014	NS	201	NS	NDM
1015	NS	345	NS	178
MU-1	NS	NDM	NS	NS
River	NS	NDM	NS	153

NDM – No Detectable Measurement
NS – Not Sampled

4 SURVEY SUMMARIES

4.1 Land Use Census

In accordance with ODCM 4.1.2, a land use census was conducted in November 2018 to verify the locations of the nearest radiological receptor within five miles. The census results, shown in Table 4-1, indicated no major changes from 2017, therefore, a revision to the ODCM will not be required.

Table 4-1. Land Use Census Results

Sector	Residence	Milk Animal*	Beef Cattle	Garden**
Distance in Miles to the Nearest Location in Each Sector				
N	1.4	None	None	None
NNE	None	None	None	None
NE	None	None	None	None
ENE	None	None	None	None
E	None	None	None	None
ESE	4.2	None	None	None
SE	4.3	None	4.9	None
SSE	4.7	None	4.7	None
S	4.4	None	None	None
SSW	4.7	None	4.7	None
SW	3.1	None	4.4	None
WSW	2.6	None	2.7	None
W	3.4	None	4.7	4.1
WNW	1.9	None	None	None
NW	1.5	None	1.8	None
NNW	1.5	None	None	None

*A milk animal is a cow or goat producing milk for human consumption.
**A garden of greater than 500 square feet producing broad leaf vegetation.
Note: Land within SRS was excluded from the census.

4.2 Savannah River Survey

A survey of the Savannah River downstream of the plant for approximately 100 miles (approximately river miles 44.7 to 151.2) was conducted on October 23, 2018 to identify any new withdrawal of water from the river for drinking, irrigation, or construction purposes. No new usage was visually identified. These results were verified with both the Georgia Department of

Natural Resources and the South Carolina Department of Health and Environmental Control (SC DEHEC) on October 1 and September 26, 2018, respectively. Each of these agencies confirmed that no water withdrawal permits for drinking, irrigation, or construction purposes had been issued for this stretch of the Savannah River.

5 CONCLUSIONS

This report has confirmed SNCs conformance with the requirements of Chapter 4 of the ODCM and the objectives were to:

1) Determine the levels of radiation and the concentrations of radioactivity in the environs and;

2) Assess the radiological impact (if any) to the environment due to the operation of the VEGP.

Based on the 2018 activities associated with the REMP, SNC offers the following conclusions:

- Samples were collected and there were no deviations or anomalies that negatively affected the quality of the REMP
- Land use census and river survey did not reveal any significant changes
- Analytical results were below reporting levels
- These values were consistent with historical results, which indicate no adverse radiological environmental impacts associated with the operation of VEGP

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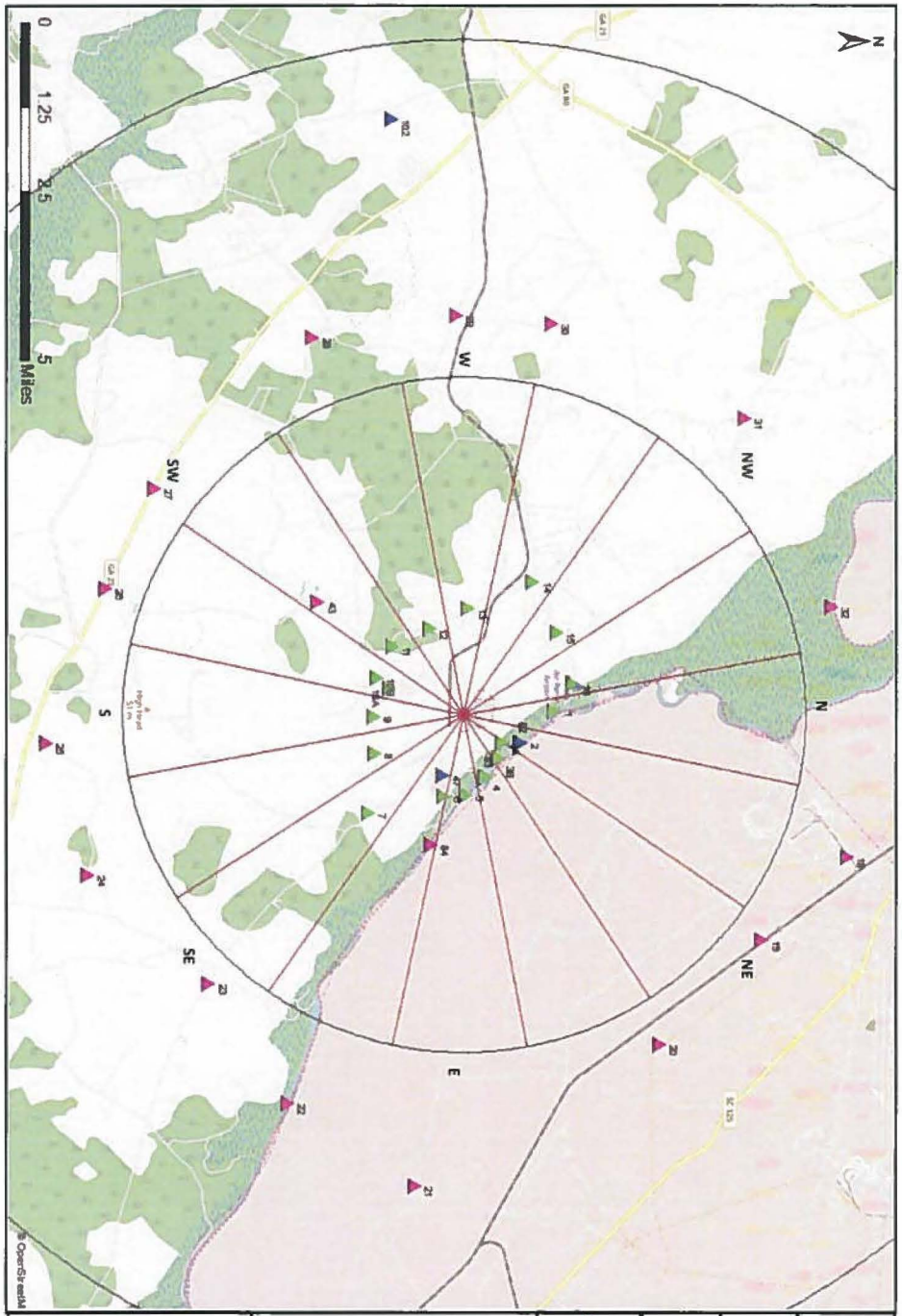
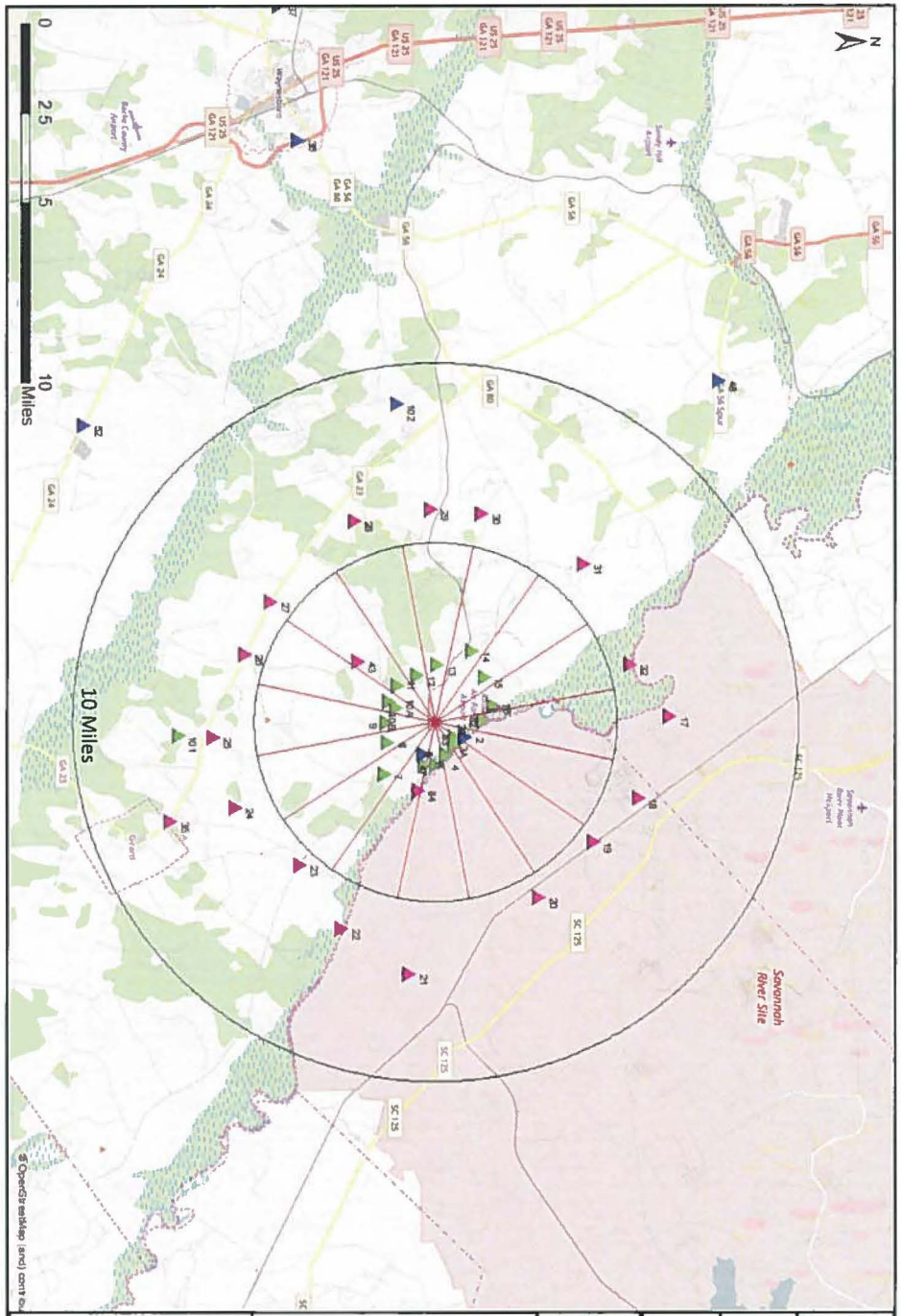
APPENDIX A

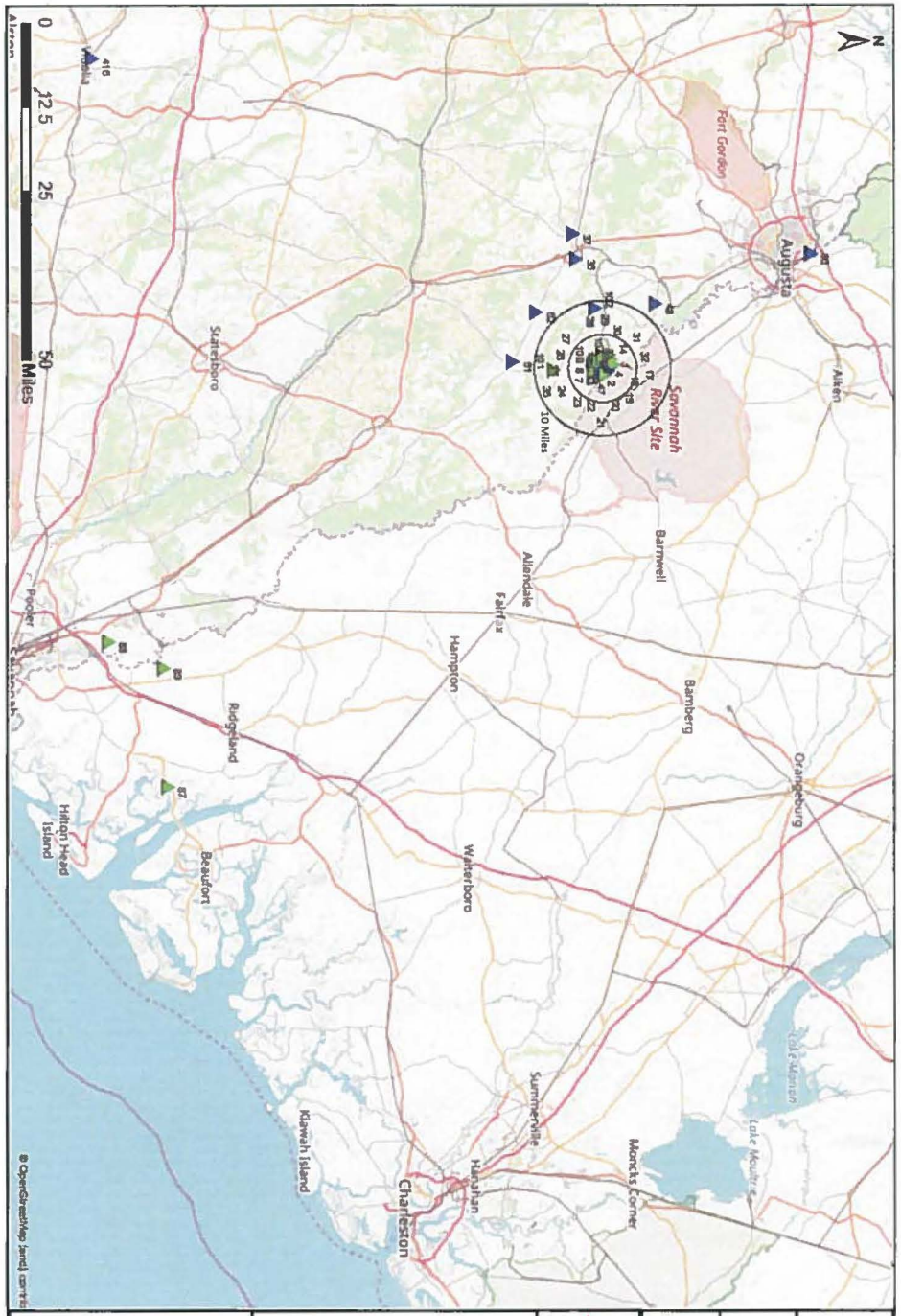
Maps



Legend: Indicator Stations - Control Stations - Other Stations -	Vogtle Electric Generating Plant 2017 Annual Radiological Environmental Report REMP Stations in Plant Vicinity	Southern Nuclear	Drawn by: C. Groce March 28, 2019	Appendix A Map A-1



	Vogtle Electric Generating Plant 2017 Annual Radiological Environmental Report REMP Stations within 10 miles	Southern Nuclear	Drawn by: C. Groce March 28, 2019	Appendix A Map A-2



Legend:
- Indicator Stations
- Control Stations
- Other Stations

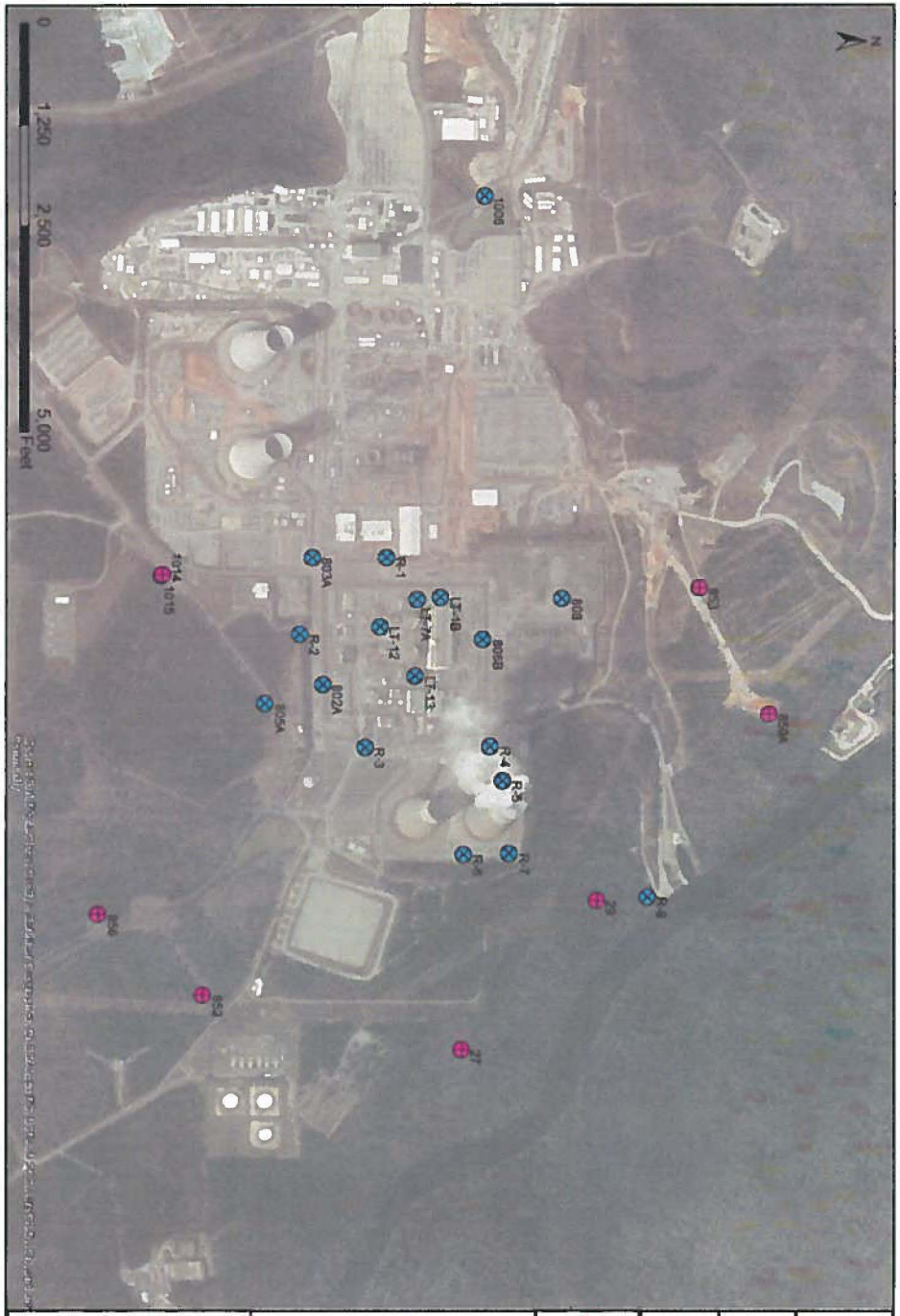
Vogtle Electric Generating Plant
2017 Annual Radiological Environmental Report
Extended REMP Stations

Southern Nuclear

Drawn by: C. Groce

March 28, 2019

Appendix A
Map A-3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Legend:
Surficial Aquifer -
Tertiary Aquifer -
Vogtle Electric Generating Plant
2017 Annual Radiological Environmental Report
Facility Groundwater Wells
Southern Nuclear
Drawn by:
C. Groce
March 28, 2019
Appendix A
Map A-4

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APPENDIX B

Errata

There are no errata for the 2018 reporting year.

APPENDIX C

Data

The following pages contain the individual data points from the 2018 reporting year. The units for the data points varies by media, as follows:

- Airborne Radioiodine and Particulates/Water/Milk – picocuries/liter (pCi/l)
- Sediment/Vegetation/Fish – picocuries/kilogram (pCi/kg)
- Direct Radiation – millirem (mR)

Matrix	Nuclide	Loc ID	Collect Date	Result	Sample ID
DW - Gamma	Zr-95	FAUC	1/1/2018	0	113642002
DW - Gamma	I-131	FAUC	1/1/2018	0	113642002
DW - Gamma	Cs-134	FAUC	1/1/2018	0	113642002
DW - Gamma	Cs-137	FAUC	1/1/2018	0	113642002
DW - Gamma	Ba-140	FAUC	1/1/2018	0	113642002
DW - Gamma	La-140	FAUC	1/1/2018	0	113642002
DW - Gamma	Be-7	FAUC	1/1/2018	0	113642002
Water H-3	Tritium	FAUC	1/1/2018	97	113801002
DW - Gamma	Mn-54	FAUC	1/1/2018	0	113642002
DW - Gamma	Fe-59	FAUC	1/1/2018	0	113642002
DW - Gamma	Gross Beta	FAUC	1/1/2018	1.343	113643002
DW - Gamma	Gross Alpha	FAUC	1/1/2018	0	113643002
DW - Gamma	Co-58	FAUC	1/1/2018	0	113642002
DW - Gamma	Co-60	FAUC	1/1/2018	0	113642002
DW - Gamma	Zn-65	FAUC	1/1/2018	0	113642002
DW - Gamma	Fe-59	RAUC	1/1/2018	0	113642001
DW - Gamma	Co-58	RAUC	1/1/2018	0	113642001
DW - Gamma	Co-60	RAUC	1/1/2018	0	113642001
DW - Gamma	Zn-65	RAUC	1/1/2018	0	113642001
DW - Gamma	Zr-95	RAUC	1/1/2018	0	113642001
DW - Gamma	I-131	RAUC	1/1/2018	0	113642001
DW - Gamma	Cs-134	RAUC	1/1/2018	0	113642001
DW - Gamma	Cs-137	RAUC	1/1/2018	0	113642001
DW - Gamma	Ba-140	RAUC	1/1/2018	0	113642001
DW - Gamma	La-140	RAUC	1/1/2018	0	113642001
DW - Gamma	Be-7	RAUC	1/1/2018	0	113642001
Water H-3	Tritium	RAUC	1/1/2018	90.1	113801001
DW - Gamma	Gross Beta	RAUC	1/1/2018	-.09412	113643001
DW - Gamma	Gross Alpha	RAUC	1/1/2018	0	113643001
DW - Gamma	Mn-54	RAUC	1/1/2018	0	113642001
DW - Gamma	Cs-134	RPUR	1/2/2018	0	113642003
DW - Gamma	I-131	RPUR	1/2/2018	0	113642003
DW - Gamma	Mn-54	RPUR	1/2/2018	0	113642003
DW - Gamma	Fe-59	RPUR	1/2/2018	0	113642003
DW - Gamma	Co-58	RPUR	1/2/2018	0	113642003
DW - Gamma	Co-60	RPUR	1/2/2018	0	113642003
DW - Gamma	Zn-65	RPUR	1/2/2018	0	113642003
DW - Gamma	Zr-95	RPUR	1/2/2018	0	113642003
DW - Gamma	Gross Beta	RPUR	1/2/2018	.2877	113643003
DW - Gamma	Gross Alpha	RPUR	1/2/2018	0	113643003
DW - Gamma	Cs-137	RPUR	1/2/2018	0	113642003
DW - Gamma	Ba-140	RPUR	1/2/2018	0	113642003
DW - Gamma	La-140	RPUR	1/2/2018	0	113642003
DW - Gamma	Be-7	RPUR	1/2/2018	0	113642003
Water H-3	Tritium	RPUR	1/2/2018	315	113801003
DW - Gamma	Ba-140	FPUR	1/2/2018	0	113642004
DW - Gamma	La-140	FPUR	1/2/2018	0	113642004
DW - Gamma	Be-7	FPUR	1/2/2018	0	113642004
DW - Gamma	Mn-54	FPUR	1/2/2018	0	113642004
DW - Gamma	Fe-59	FPUR	1/2/2018	0	113642004
DW - Gamma	Co-58	FPUR	1/2/2018	0	113642004
DW - Gamma	Co-60	FPUR	1/2/2018	0	113642004
DW - Gamma	Zn-65	FPUR	1/2/2018	0	113642004
DW - Gamma	Zr-95	FPUR	1/2/2018	0	113642004
DW - Gamma	I-131	FPUR	1/2/2018	0	113642004
DW - Gamma	Gross Beta	FPUR	1/2/2018	.641	113643004
DW - Gamma	Gross Alpha	FPUR	1/2/2018	0	113643004
Water H-3	Tritium	FPUR	1/2/2018	263	113801004

DW - Gamma	Cs-134	FPUR	1/2/2018	0	113642004
DW - Gamma	Cs-137	FPUR	1/2/2018	0	113642004
DW - Gamma	Gross Beta	FPOR	1/2/2018	.7383	113643006
DW - Gamma	Gross Alpha	FPOR	1/2/2018	0	113643006
DW - Gamma	Mn-54	FPOR	1/2/2018	0	113642006
DW - Gamma	Fe-59	FPOR	1/2/2018	0	113642006
DW - Gamma	Co-58	FPOR	1/2/2018	0	113642006
DW - Gamma	Co-60	FPOR	1/2/2018	0	113642006
DW - Gamma	Zn-65	FPOR	1/2/2018	0	113642006
DW - Gamma	Zr-95	FPOR	1/2/2018	0	113642006
DW - Gamma	I-131	FPOR	1/2/2018	0	113642006
DW - Gamma	Cs-134	FPOR	1/2/2018	0	113642006
DW - Gamma	Cs-137	FPOR	1/2/2018	0	113642006
DW - Gamma	Ba-140	FPOR	1/2/2018	0	113642006
DW - Gamma	La-140	FPOR	1/2/2018	0	113642006
DW - Gamma	Be-7	FPOR	1/2/2018	0	113642006
Water H-3	Tritium	FPOR	1/2/2018	333	113801006
DW - Gamma	I-131	RPOR	1/2/2018	0	113642005
DW - Gamma	Cs-134	RPOR	1/2/2018	0	113642005
DW - Gamma	Cs-137	RPOR	1/2/2018	0	113642005
DW - Gamma	Ba-140	RPOR	1/2/2018	0	113642005
DW - Gamma	La-140	RPOR	1/2/2018	0	113642005
DW - Gamma	Be-7	RPOR	1/2/2018	0	113642005
DW - Gamma	Gross Beta	RPOR	1/2/2018	1.706	113643005
DW - Gamma	Gross Alpha	RPOR	1/2/2018	0	113643005
DW - Gamma	Mn-54	RPOR	1/2/2018	0	113642005
DW - Gamma	Fe-59	RPOR	1/2/2018	0	113642005
DW - Gamma	Co-58	RPOR	1/2/2018	0	113642005
DW - Gamma	Co-60	RPOR	1/2/2018	0	113642005
DW - Gamma	Zn-65	RPOR	1/2/2018	0	113642005
DW - Gamma	Zr-95	RPOR	1/2/2018	0	113642005
Water H-3	Tritium	RPOR	1/2/2018	401	113801005
Air Filters	Gross Beta	GIR	1/2/2018	.04043	113640002
Air Filters	Gross Beta	WAY	1/2/2018	.004777	113640001
Air Filters	Gross Beta	HAN	1/2/2018	.03426	113640007
Air Filters	Gross Beta	RRD	1/2/2018	.03825	113640006
Air Filters	Gross Beta	SIM	1/2/2018	.04141	113640003
Air Filters	Gross Beta	MET	1/2/2018	.03816	113640005
Air Filters	Gross Beta	DIS	1/2/2018	.04198	113640004
Milk Gamma	Ba-140	GIR	1/9/2018	0	113762001
Milk Gamma	I-131	GIR	1/9/2018	0	113762001
Milk Gamma	Cs-134	GIR	1/9/2018	0	113762001
Milk Gamma	Cs-137	GIR	1/9/2018	0	113762001
Milk Gamma	Be-7	GIR	1/9/2018	0	113762001
Milk Gamma	La-140	GIR	1/9/2018	0	113762001
Air Filters	Gross Beta	WAY	1/9/2018	.03826	113766001
Milk Gamma	Be-7	Milky Way	1/9/2018	0	113762002
Milk Gamma	La-140	Milky Way	1/9/2018	0	113762002
Milk Gamma	Ba-140	Milky Way	1/9/2018	0	113762002
Milk Gamma	Cs-137	Milky Way	1/9/2018	0	113762002
Milk Gamma	Cs-134	Milky Way	1/9/2018	0	113762002
Milk Gamma	I-131	Milky Way	1/9/2018	0	113762002
Air Filters	Gross Beta	GIR	1/9/2018	.04282	113766002
Air Filters	Gross Beta	SIM	1/9/2018	.03858	113766003
Air Filters	Gross Beta	RRD	1/9/2018	.005306	113766006
Air Filters	Gross Beta	HAN	1/9/2018	.03638	113766007
Air Filters	Gross Beta	MET	1/9/2018	.005693	113766005
Air Filters	Gross Beta	DIS	1/9/2018	.03936	113766004
River Water	La-140	1512	1/9/2018	0	113765001

River Water	Be-7	1512	1/9/2018	0	113765001
River Water	Mn-54	1512	1/9/2018	0	113765001
River Water	Fe-59	1512	1/9/2018	0	113765001
River Water	Co-58	1512	1/9/2018	0	113765001
River Water	Ba-140	1512	1/9/2018	0	113765001
River Water	Co-60	1512	1/9/2018	0	113765001
River Water	Zn-65	1512	1/9/2018	0	113765001
River Water	Zr-95	1512	1/9/2018	0	113765001
River Water	I-131	1512	1/9/2018	0	113765001
River Water	Cs-134	1512	1/9/2018	0	113765001
River Water	Cs-137	1512	1/9/2018	0	113765001
River Water	Mn-54	1504	1/9/2018	0	113765002
River Water	Fe-59	1504	1/9/2018	0	113765002
River Water	Co-58	1504	1/9/2018	0	113765002
River Water	Co-60	1504	1/9/2018	0	113765002
River Water	Zn-65	1504	1/9/2018	0	113765002
River Water	Zr-95	1504	1/9/2018	0	113765002
River Water	I-131	1504	1/9/2018	0	113765002
River Water	Cs-134	1504	1/9/2018	0	113765002
River Water	Cs-137	1504	1/9/2018	0	113765002
River Water	Ba-140	1504	1/9/2018	0	113765002
River Water	La-140	1504	1/9/2018	0	113765002
River Water	Be-7	1504	1/9/2018	0	113765002
River Water	Co-60	1495	1/9/2018	0	113765003
River Water	Zn-65	1495	1/9/2018	0	113765003
River Water	Zr-95	1495	1/9/2018	0	113765003
River Water	I-131	1495	1/9/2018	0	113765003
River Water	Cs-134	1495	1/9/2018	0	113765003
River Water	Cs-137	1495	1/9/2018	0	113765003
River Water	Ba-140	1495	1/9/2018	0	113765003
River Water	La-140	1495	1/9/2018	0	113765003
River Water	Be-7	1495	1/9/2018	0	113765003
River Water	Co-58	1495	1/9/2018	0	113765003
River Water	Fe-59	1495	1/9/2018	0	113765003
River Water	Mn-54	1495	1/9/2018	0	113765003
Air Filters	Gross Beta	WAY	1/16/2018	.02177	113904001
Air Filters	Gross Beta	GIR	1/16/2018	.01975	113904002
Air Filters	Gross Beta	SIM	1/16/2018	.0178	113904003
Air Filters	Gross Beta	HAN	1/16/2018	.01768	113904007
Air Filters	Gross Beta	RRD	1/16/2018	.0201	113904006
Air Filters	Gross Beta	MET	1/16/2018	.01964	113904005
Air Filters	Gross Beta	DIS	1/16/2018	.01927	113904004
Milk Gamma	Ba-140	GIR	1/23/2018	0	114029001
Milk Gamma	La-140	GIR	1/23/2018	0	114029001
Milk Gamma	Be-7	GIR	1/23/2018	0	114029001
Milk Gamma	I-131	GIR	1/23/2018	0	114029001
Milk Gamma	Cs-134	GIR	1/23/2018	0	114029001
Milk Gamma	Cs-137	GIR	1/23/2018	0	114029001
Milk Gamma	Be-7	Milky Way	1/23/2018	0	114029002
Milk Gamma	La-140	Milky Way	1/23/2018	0	114029002
Milk Gamma	Ba-140	Milky Way	1/23/2018	0	114029002
Milk Gamma	Cs-137	Milky Way	1/23/2018	0	114029002
Milk Gamma	Cs-134	Milky Way	1/23/2018	0	114029002
Milk Gamma	I-131	Milky Way	1/23/2018	0	114029002
Air Filters	Gross Beta	WAY	1/23/2018	.03355	114030001
Air Filters	Gross Beta	GIR	1/23/2018	.03365	114030002
Air Filters	Gross Beta	SIM	1/23/2018	.03484	114030003
Air Filters	Gross Beta	HAN	1/23/2018	.03352	114030007
Air Filters	Gross Beta	RRD	1/23/2018	.0351	114030006

Air Filters	Gross Beta	MET	1/23/2018	.03577	114030005
Air Filters	Gross Beta	DIS	1/23/2018	.0359	114030004
Air Filters	Gross Beta	WAY	1/30/2018	.01773	114147001
Vegetation	Cs-134	Waynesboro	1/30/2018	0	114149003
Vegetation	I-131	Waynesboro	1/30/2018	0	114149003
Vegetation	Cs-137	Waynesboro	1/30/2018	0	114149003
Vegetation	Be-7	Waynesboro	1/30/2018	3731.48	114149003
Air Filters	Gross Beta	GIR	1/30/2018	.01525	114147002
Air Filters	Gross Beta	SIM	1/30/2018	.0192	114147003
Vegetation	I-131	Simulator	1/30/2018	0	114149001
Vegetation	Cs-134	Simulator	1/30/2018	0	114149001
Vegetation	Cs-137	Simulator	1/30/2018	0	114149001
Vegetation	Be-7	Simulator	1/30/2018	2724.66	114149001
Air Filters	Gross Beta	MET	1/30/2018	.0167	114147005
Air Filters	Gross Beta	DIS	1/30/2018	.01909	114147004
Vegetation	Cs-134	Hancock Landi	1/30/2018	0	114149002
Vegetation	I-131	Hancock Landi	1/30/2018	0	114149002
Vegetation	Be-7	Hancock Landi	1/30/2018	2243.06	114149002
Vegetation	Cs-137	Hancock Landi	1/30/2018	0	114149002
Air Filters	Gross Beta	HAN	1/30/2018	.01614	114147007
Air Filters	Gross Beta	RRD	1/30/2018	.01595	114147006
DW - Gamma	Be-7	RPOR	2/5/2018	0	114229003
DW - Gamma	Mn-54	RPOR	2/5/2018	0	114229003
DW - Gamma	Fe-59	RPOR	2/5/2018	0	114229003
DW - Gamma	Co-58	RPOR	2/5/2018	0	114229003
DW - Gamma	Co-60	RPOR	2/5/2018	0	114229003
DW - Gamma	Zn-65	RPOR	2/5/2018	0	114229003
DW - Gamma	Zr-95	RPOR	2/5/2018	0	114229003
DW - Gamma	I-131	RPOR	2/5/2018	0	114229003
DW - Gamma	Cs-134	RPOR	2/5/2018	0	114229003
DW - Gamma	Cs-137	RPOR	2/5/2018	0	114229003
DW - Gamma	Ba-140	RPOR	2/5/2018	0	114229003
DW - Gamma	La-140	RPOR	2/5/2018	0	114229003
DW - Gamma	Gross Alpha	RPOR	2/5/2018	0	114230003
DW - Gamma	Gross Beta	RPOR	2/5/2018	1.576	114230003
DW - Gamma	I-131	FPOR	2/5/2018	0	114229004
DW - Gamma	Cs-134	FPOR	2/5/2018	0	114229004
DW - Gamma	Cs-137	FPOR	2/5/2018	0	114229004
DW - Gamma	Ba-140	FPOR	2/5/2018	0	114229004
DW - Gamma	La-140	FPOR	2/5/2018	0	114229004
DW - Gamma	Be-7	FPOR	2/5/2018	0	114229004
DW - Gamma	Mn-54	FPOR	2/5/2018	0	114229004
DW - Gamma	Fe-59	FPOR	2/5/2018	0	114229004
DW - Gamma	Co-58	FPOR	2/5/2018	0	114229004
DW - Gamma	Co-60	FPOR	2/5/2018	0	114229004
DW - Gamma	Zn-65	FPOR	2/5/2018	0	114229004
DW - Gamma	Gross Beta	FPOR	2/5/2018	1.527	114230004
DW - Gamma	Gross Alpha	FPOR	2/5/2018	0	114230004
DW - Gamma	Zr-95	FPOR	2/5/2018	0	114229004
DW - Gamma	Gross Alpha	FPUR	2/5/2018	0	114230006
DW - Gamma	Mn-54	FPUR	2/5/2018	0	114229006
DW - Gamma	Fe-59	FPUR	2/5/2018	0	114229006
DW - Gamma	Co-58	FPUR	2/5/2018	0	114229006
DW - Gamma	Co-60	FPUR	2/5/2018	0	114229006
DW - Gamma	Zn-65	FPUR	2/5/2018	0	114229006
DW - Gamma	Zr-95	FPUR	2/5/2018	0	114229006
DW - Gamma	I-131	FPUR	2/5/2018	0	114229006
DW - Gamma	Cs-134	FPUR	2/5/2018	0	114229006
DW - Gamma	Cs-137	FPUR	2/5/2018	0	114229006

DW - Gamma	Ba-140	FPUR	2/5/2018	0	114229006
DW - Gamma	La-140	FPUR	2/5/2018	0	114229006
DW - Gamma	Be-7	FPUR	2/5/2018	0	114229006
DW - Gamma	Gross Beta	FPUR	2/5/2018	1.534	114230006
DW - Gamma	Zn-65	RPUR	2/5/2018	0	114229005
DW - Gamma	Zr-95	RPUR	2/5/2018	0	114229005
DW - Gamma	I-131	RPUR	2/5/2018	0	114229005
DW - Gamma	Cs-134	RPUR	2/5/2018	0	114229005
DW - Gamma	Cs-137	RPUR	2/5/2018	0	114229005
DW - Gamma	Gross Beta	RPUR	2/5/2018	1.014	114230005
DW - Gamma	Gross Alpha	RPUR	2/5/2018	0	114230005
DW - Gamma	Ba-140	RPUR	2/5/2018	0	114229005
DW - Gamma	La-140	RPUR	2/5/2018	0	114229005
DW - Gamma	Be-7	RPUR	2/5/2018	0	114229005
DW - Gamma	Mn-54	RPUR	2/5/2018	0	114229005
DW - Gamma	Fe-59	RPUR	2/5/2018	0	114229005
DW - Gamma	Co-58	RPUR	2/5/2018	0	114229005
DW - Gamma	Co-60	RPUR	2/5/2018	0	114229005
Air Filters	Gross Beta	WAY	2/6/2018	.02357	114232001
Air Filters	Gross Beta	GIR	2/6/2018	.02151	114232002
DW - Gamma	Gross Alpha	FAUC	2/6/2018	0	114230002
DW - Gamma	Zr-95	FAUC	2/6/2018	0	114229002
DW - Gamma	I-131	FAUC	2/6/2018	0	114229002
DW - Gamma	Cs-134	FAUC	2/6/2018	0	114229002
DW - Gamma	Cs-137	FAUC	2/6/2018	0	114229002
DW - Gamma	Ba-140	FAUC	2/6/2018	0	114229002
DW - Gamma	La-140	FAUC	2/6/2018	0	114229002
DW - Gamma	Be-7	FAUC	2/6/2018	0	114229002
DW - Gamma	Mn-54	FAUC	2/6/2018	0	114229002
DW - Gamma	Fe-59	FAUC	2/6/2018	0	114229002
DW - Gamma	Co-58	FAUC	2/6/2018	0	114229002
DW - Gamma	Co-60	FAUC	2/6/2018	0	114229002
DW - Gamma	Zn-65	FAUC	2/6/2018	0	114229002
DW - Gamma	Gross Beta	FAUC	2/6/2018	1.91	114230002
DW - Gamma	Be-7	RAUC	2/6/2018	0	114229001
DW - Gamma	Mn-54	RAUC	2/6/2018	0	114229001
DW - Gamma	Fe-59	RAUC	2/6/2018	0	114229001
DW - Gamma	Co-58	RAUC	2/6/2018	0	114229001
DW - Gamma	Co-60	RAUC	2/6/2018	0	114229001
DW - Gamma	Zn-65	RAUC	2/6/2018	0	114229001
DW - Gamma	Zr-95	RAUC	2/6/2018	0	114229001
DW - Gamma	I-131	RAUC	2/6/2018	0	114229001
DW - Gamma	Cs-134	RAUC	2/6/2018	0	114229001
DW - Gamma	Cs-137	RAUC	2/6/2018	0	114229001
DW - Gamma	Ba-140	RAUC	2/6/2018	0	114229001
DW - Gamma	La-140	RAUC	2/6/2018	0	114229001
DW - Gamma	Gross Beta	RAUC	2/6/2018	.9938	114230001
DW - Gamma	Gross Alpha	RAUC	2/6/2018	0	114230001
Air Filters	Gross Beta	SIM	2/6/2018	.007326	114232003
Air Filters	Gross Beta	HAN	2/6/2018	.01888	114232007
Air Filters	Gross Beta	RRD	2/6/2018	.02409	114232006
Air Filters	Gross Beta	MET	2/6/2018	.01806	114232005
Air Filters	Gross Beta	DIS	2/6/2018	.02481	114232004
River Water	Cs-134	1512	2/6/2018	0	114231001
River Water	Cs-137	1512	2/6/2018	0	114231001
River Water	Ba-140	1512	2/6/2018	0	114231001
River Water	La-140	1512	2/6/2018	0	114231001
River Water	Be-7	1512	2/6/2018	0	114231001
River Water	Zr-95	1512	2/6/2018	0	114231001

River Water	I-131	1512	2/6/2018	0	114231001
River Water	Mn-54	1512	2/6/2018	0	114231001
River Water	Fe-59	1512	2/6/2018	0	114231001
River Water	Co-58	1512	2/6/2018	0	114231001
River Water	Co-60	1512	2/6/2018	0	114231001
River Water	Zn-65	1512	2/6/2018	0	114231001
River Water	La-140	1504	2/6/2018	0	114231002
River Water	Zr-95	1504	2/6/2018	0	114231002
River Water	I-131	1504	2/6/2018	0	114231002
River Water	Cs-134	1504	2/6/2018	0	114231002
River Water	Cs-137	1504	2/6/2018	0	114231002
River Water	Be-7	1504	2/6/2018	0	114231002
River Water	Mn-54	1504	2/6/2018	0	114231002
River Water	Fe-59	1504	2/6/2018	0	114231002
River Water	Co-58	1504	2/6/2018	0	114231002
River Water	Co-60	1504	2/6/2018	0	114231002
River Water	Zn-65	1504	2/6/2018	0	114231002
River Water	Ba-140	1504	2/6/2018	0	114231002
River Water	Mn-54	1495	2/6/2018	0	114231003
River Water	Fe-59	1495	2/6/2018	0	114231003
River Water	Co-58	1495	2/6/2018	0	114231003
River Water	Co-60	1495	2/6/2018	0	114231003
River Water	Zn-65	1495	2/6/2018	0	114231003
River Water	Zr-95	1495	2/6/2018	0	114231003
River Water	I-131	1495	2/6/2018	0	114231003
River Water	Cs-134	1495	2/6/2018	0	114231003
River Water	Cs-137	1495	2/6/2018	0	114231003
River Water	Ba-140	1495	2/6/2018	0	114231003
River Water	La-140	1495	2/6/2018	0	114231003
River Water	Be-7	1495	2/6/2018	0	114231003
Milk Gamma	Cs-134	Milky Way	2/13/2018	0	114296002
Milk Gamma	Cs-137	Milky Way	2/13/2018	0	114296002
Milk Gamma	Ba-140	Milky Way	2/13/2018	0	114296002
Milk Gamma	La-140	Milky Way	2/13/2018	0	114296002
Milk Gamma	Be-7	Milky Way	2/13/2018	0	114296002
Milk Gamma	I-131	Milky Way	2/13/2018	0	114296002
Milk Gamma	Ba-140	GIR	2/13/2018	0	114296001
Milk Gamma	Cs-137	GIR	2/13/2018	0	114296001
Milk Gamma	Cs-134	GIR	2/13/2018	0	114296001
Milk Gamma	I-131	GIR	2/13/2018	0	114296001
Milk Gamma	La-140	GIR	2/13/2018	0	114296001
Milk Gamma	Be-7	GIR	2/13/2018	0	114296001
Air Filters	Gross Beta	WAY	2/13/2018	.01479	114297001
Air Filters	Gross Beta	GIR	2/13/2018	.01669	114297002
Air Filters	Gross Beta	SIM	2/13/2018	.01822	114297003
Air Filters	Gross Beta	RRD	2/13/2018	.01681	114297006
Air Filters	Gross Beta	HAN	2/13/2018	.01606	114297007
Air Filters	Gross Beta	MET	2/13/2018	.01342	114297005
Air Filters	Gross Beta	DIS	2/13/2018	.01941	114297004
Air Filters	Gross Beta	WAY	2/20/2018	.01939	114359001
Air Filters	Gross Beta	GIR	2/20/2018	.01692	114359002
Air Filters	Gross Beta	SIM	2/20/2018	.01892	114359003
Air Filters	Gross Beta	HAN	2/20/2018	.02033	114359007
Air Filters	Gross Beta	RRD	2/20/2018	.01842	114359006
Air Filters	Gross Beta	MET	2/20/2018	.02086	114359005
Air Filters	Gross Beta	DIS	2/20/2018	.01637	114359004
Milk Gamma	Cs-137	Milky Way	2/27/2018	0	114446002
Milk Gamma	Ba-140	Milky Way	2/27/2018	0	114446002
Milk Gamma	La-140	Milky Way	2/27/2018	0	114446002

Milk Gamma	Be-7	Milky Way	2/27/2018	0	114446002
Milk Gamma	I-131	Milky Way	2/27/2018	0	114446002
Milk Gamma	Cs-134	Milky Way	2/27/2018	0	114446002
Air Filters	Gross Beta	WAY	2/27/2018	.01743	114448001
Vegetation	Be-7	Waynesboro	2/27/2018	672.129	114447003
Vegetation	Cs-137	Waynesboro	2/27/2018	0	114447003
Vegetation	Cs-134	Waynesboro	2/27/2018	0	114447003
Vegetation	I-131	Waynesboro	2/27/2018	0	114447003
Milk Gamma	Be-7	GIR	2/27/2018	0	114446001
Milk Gamma	I-131	GIR	2/27/2018	0	114446001
Milk Gamma	Cs-134	GIR	2/27/2018	0	114446001
Milk Gamma	Cs-137	GIR	2/27/2018	0	114446001
Milk Gamma	Ba-140	GIR	2/27/2018	0	114446001
Milk Gamma	La-140	GIR	2/27/2018	0	114446001
Air Filters	Gross Beta	GIR	2/27/2018	.01206	114448002
Air Filters	Gross Beta	SIM	2/27/2018	.01757	114448003
Vegetation	Be-7	Simulator	2/27/2018	3435.59	114447001
Vegetation	I-131	Simulator	2/27/2018	0	114447001
Vegetation	Cs-134	Simulator	2/27/2018	0	114447001
Vegetation	Cs-137	Simulator	2/27/2018	0	114447001
Vegetation	Cs-137	Hancock Landi	2/27/2018	0	114447002
Vegetation	Be-7	Hancock Landi	2/27/2018	2988.44	114447002
Vegetation	Cs-134	Hancock Landi	2/27/2018	0	114447002
Vegetation	I-131	Hancock Landi	2/27/2018	0	114447002
Air Filters	Gross Beta	HAN	2/27/2018	.01373	114448007
Air Filters	Gross Beta	RRD	2/27/2018	.01589	114448006
Air Filters	Gross Beta	MET	2/27/2018	.01388	114448005
Air Filters	Gross Beta	DIS	2/27/2018	.01617	114448004
DW - Gamma	Zn-65	FAUC	3/5/2018	0	114589002
DW - Gamma	Zr-95	FAUC	3/5/2018	0	114589002
DW - Gamma	I-131	FAUC	3/5/2018	0	114589002
DW - Gamma	Cs-134	FAUC	3/5/2018	0	114589002
DW - Gamma	Cs-137	FAUC	3/5/2018	0	114589002
DW - Gamma	Ba-140	FAUC	3/5/2018	0	114589002
DW - Gamma	La-140	FAUC	3/5/2018	0	114589002
DW - Gamma	Be-7	FAUC	3/5/2018	0	114589002
DW - Gamma	Gross Beta	FAUC	3/5/2018	2.111	114795002
DW - Gamma	Gross Alpha	FAUC	3/5/2018	0	114795002
DW - Gamma	Mn-54	FAUC	3/5/2018	0	114589002
DW - Gamma	Fe-59	FAUC	3/5/2018	0	114589002
DW - Gamma	Gross Alpha	FAUC	3/5/2018	0	114592002
DW - Gamma	Gross Beta	FAUC	3/5/2018	2.111	114592002
DW - Gamma	Co-58	FAUC	3/5/2018	0	114589002
DW - Gamma	Co-60	FAUC	3/5/2018	0	114589002
DW - Gamma	Gross Beta	RAUC	3/5/2018	3.418	114592001
DW - Gamma	Gross Beta	RAUC	3/5/2018	3.418	114795001
DW - Gamma	Gross Alpha	RAUC	3/5/2018	0	114795001
DW - Gamma	Mn-54	RAUC	3/5/2018	0	114589001
DW - Gamma	Fe-59	RAUC	3/5/2018	0	114589001
DW - Gamma	Co-58	RAUC	3/5/2018	0	114589001
DW - Gamma	Co-60	RAUC	3/5/2018	0	114589001
DW - Gamma	Zn-65	RAUC	3/5/2018	0	114589001
DW - Gamma	Zr-95	RAUC	3/5/2018	0	114589001
DW - Gamma	I-131	RAUC	3/5/2018	0	114589001
DW - Gamma	Cs-134	RAUC	3/5/2018	0	114589001
DW - Gamma	Cs-137	RAUC	3/5/2018	0	114589001
DW - Gamma	Ba-140	RAUC	3/5/2018	0	114589001
DW - Gamma	La-140	RAUC	3/5/2018	0	114589001
DW - Gamma	Gross Alpha	RAUC	3/5/2018	0	114592001

DW - Gamma	Be-7	RAUC	3/5/2018	0	114589001
DW - Gamma	Gross Beta	FPUR	3/6/2018	8.812	114592006
DW - Gamma	Gross Alpha	FPUR	3/6/2018	0	114592006
DW - Gamma	Mn-54	FPUR	3/6/2018	0	114589006
DW - Gamma	Fe-59	FPUR	3/6/2018	0	114589006
DW - Gamma	Co-58	FPUR	3/6/2018	0	114589006
DW - Gamma	Co-60	FPUR	3/6/2018	0	114589006
DW - Gamma	Zn-65	FPUR	3/6/2018	0	114589006
DW - Gamma	Zr-95	FPUR	3/6/2018	0	114589006
DW - Gamma	I-131	FPUR	3/6/2018	0	114589006
DW - Gamma	Cs-134	FPUR	3/6/2018	0	114589006
DW - Gamma	Cs-137	FPUR	3/6/2018	0	114589006
DW - Gamma	Ba-140	FPUR	3/6/2018	0	114589006
DW - Gamma	La-140	FPUR	3/6/2018	0	114589006
DW - Gamma	Be-7	FPUR	3/6/2018	0	114589006
DW - Gamma	Gross Beta	FPUR	3/6/2018	8.812	114795006
DW - Gamma	Gross Alpha	FPUR	3/6/2018	0	114795006
DW - Gamma	Gross Beta	RPUR	3/6/2018	2.821	114795005
DW - Gamma	Gross Alpha	RPUR	3/6/2018	0	114795005
DW - Gamma	Mn-54	RPUR	3/6/2018	0	114589005
DW - Gamma	Zr-95	RPUR	3/6/2018	0	114589005
DW - Gamma	I-131	RPUR	3/6/2018	0	114589005
DW - Gamma	Cs-134	RPUR	3/6/2018	0	114589005
DW - Gamma	Cs-137	RPUR	3/6/2018	0	114589005
DW - Gamma	Ba-140	RPUR	3/6/2018	0	114589005
DW - Gamma	La-140	RPUR	3/6/2018	0	114589005
DW - Gamma	Be-7	RPUR	3/6/2018	0	114589005
DW - Gamma	Gross Beta	RPUR	3/6/2018	2.821	114592005
DW - Gamma	Gross Alpha	RPUR	3/6/2018	0	114592005
DW - Gamma	Fe-59	RPUR	3/6/2018	0	114589005
DW - Gamma	Co-58	RPUR	3/6/2018	0	114589005
DW - Gamma	Co-60	RPUR	3/6/2018	0	114589005
DW - Gamma	Zn-65	RPUR	3/6/2018	0	114589005
Air Filters	Gross Beta	WAY	3/6/2018	.02917	114593001
DW - Gamma	Cs-137	FPOR	3/6/2018	0	114589004
DW - Gamma	Ba-140	FPOR	3/6/2018	0	114589004
DW - Gamma	La-140	FPOR	3/6/2018	0	114589004
DW - Gamma	Be-7	FPOR	3/6/2018	0	114589004
DW - Gamma	Mn-54	FPOR	3/6/2018	0	114589004
DW - Gamma	Fe-59	FPOR	3/6/2018	0	114589004
DW - Gamma	Co-58	FPOR	3/6/2018	0	114589004
DW - Gamma	Co-60	FPOR	3/6/2018	0	114589004
DW - Gamma	Zn-65	FPOR	3/6/2018	0	114589004
DW - Gamma	Zr-95	FPOR	3/6/2018	0	114589004
DW - Gamma	I-131	FPOR	3/6/2018	0	114589004
DW - Gamma	Gross Beta	FPOR	3/6/2018	3.191	114592004
DW - Gamma	Gross Alpha	FPOR	3/6/2018	0	114592004
DW - Gamma	Gross Beta	FPOR	3/6/2018	3.191	114795004
DW - Gamma	Gross Alpha	FPOR	3/6/2018	0	114795004
DW - Gamma	Cs-134	FPOR	3/6/2018	0	114589004
Air Filters	Gross Beta	GIR	3/6/2018	.02635	114593002
DW - Gamma	Be-7	RPOR	3/6/2018	0	114589003
DW - Gamma	Mn-54	RPOR	3/6/2018	0	114589003
DW - Gamma	Fe-59	RPOR	3/6/2018	0	114589003
DW - Gamma	Co-58	RPOR	3/6/2018	0	114589003
DW - Gamma	Co-60	RPOR	3/6/2018	0	114589003
DW - Gamma	Zn-65	RPOR	3/6/2018	0	114589003
DW - Gamma	Zr-95	RPOR	3/6/2018	0	114589003
DW - Gamma	I-131	RPOR	3/6/2018	0	114589003

DW - Gamma	Cs-134	RPOR	3/6/2018	0	114589003
DW - Gamma	Cs-137	RPOR	3/6/2018	0	114589003
DW - Gamma	Ba-140	RPOR	3/6/2018	0	114589003
DW - Gamma	La-140	RPOR	3/6/2018	0	114589003
DW - Gamma	Gross Beta	RPOR	3/6/2018	3.68	114592003
DW - Gamma	Gross Alpha	RPOR	3/6/2018	0	114592003
DW - Gamma	Gross Beta	RPOR	3/6/2018	3.68	114795003
DW - Gamma	Gross Alpha	RPOR	3/6/2018	0	114795003
Air Filters	Gross Beta	SIM	3/6/2018	.02805	114593003
Air Filters	Gross Beta	RRD	3/6/2018	.0312	114593006
Air Filters	Gross Beta	HAN	3/6/2018	.02782	114593007
Air Filters	Gross Beta	MET	3/6/2018	.02764	114593005
Air Filters	Gross Beta	DIS	3/6/2018	.03136	114593004
River Water	Co-60	1512	3/7/2018	0	114576001
River Water	Zn-65	1512	3/7/2018	0	114576001
River Water	Zr-95	1512	3/7/2018	0	114576001
River Water	I-131	1512	3/7/2018	0	114576001
River Water	Cs-134	1512	3/7/2018	0	114576001
River Water	Cs-137	1512	3/7/2018	0	114576001
River Water	Ba-140	1512	3/7/2018	0	114576001
River Water	La-140	1512	3/7/2018	0	114576001
River Water	Be-7	1512	3/7/2018	0	114576001
River Water	Co-58	1512	3/7/2018	0	114576001
River Water	Mn-54	1512	3/7/2018	0	114576001
River Water	Fe-59	1512	3/7/2018	0	114576001
River Water	Fe-59	1504	3/7/2018	0	114576002
River Water	Co-58	1504	3/7/2018	0	114576002
River Water	I-131	1504	3/7/2018	0	114576002
River Water	Cs-134	1504	3/7/2018	0	114576002
River Water	Cs-137	1504	3/7/2018	0	114576002
River Water	Ba-140	1504	3/7/2018	0	114576002
River Water	Co-60	1504	3/7/2018	0	114576002
River Water	Zn-65	1504	3/7/2018	0	114576002
River Water	Zr-95	1504	3/7/2018	0	114576002
River Water	La-140	1504	3/7/2018	0	114576002
River Water	Be-7	1504	3/7/2018	0	114576002
River Water	Mn-54	1504	3/7/2018	0	114576002
River Water	Fe-59	1495	3/7/2018	0	114576003
River Water	Co-58	1495	3/7/2018	0	114576003
River Water	Co-60	1495	3/7/2018	0	114576003
River Water	Zn-65	1495	3/7/2018	0	114576003
River Water	Zr-95	1495	3/7/2018	0	114576003
River Water	La-140	1495	3/7/2018	0	114576003
River Water	Be-7	1495	3/7/2018	0	114576003
River Water	I-131	1495	3/7/2018	0	114576003
River Water	Cs-134	1495	3/7/2018	0	114576003
River Water	Cs-137	1495	3/7/2018	0	114576003
River Water	Ba-140	1495	3/7/2018	0	114576003
River Water	Mn-54	1495	3/7/2018	0	114576003
Milk Gamma	La-140	Milky Way	3/13/2018	0	114639002
Milk Gamma	Be-7	Milky Way	3/13/2018	0	114639002
Milk Gamma	I-131	Milky Way	3/13/2018	0	114639002
Milk Gamma	Cs-134	Milky Way	3/13/2018	0	114639002
Milk Gamma	Cs-137	Milky Way	3/13/2018	0	114639002
Milk Gamma	Ba-140	Milky Way	3/13/2018	0	114639002
Air Filters	Gross Beta	WAY	3/13/2018	.02746	114644001
Milk Gamma	Be-7	GIR	3/13/2018	0	114639001
Milk Gamma	Ba-140	GIR	3/13/2018	0	114639001
Milk Gamma	La-140	GIR	3/13/2018	0	114639001

Milk Gamma	I-131	GIR	3/13/2018	0	114639001
Milk Gamma	Cs-134	GIR	3/13/2018	0	114639001
Milk Gamma	Cs-137	GIR	3/13/2018	.684514	114639001
Air Filters	Gross Beta	GIR	3/13/2018	.02679	114644002
Air Filters	Gross Beta	SIM	3/13/2018	.02715	114644003
Air Filters	Gross Beta	HAN	3/13/2018	.02499	114644007
Air Filters	Gross Beta	RRD	3/13/2018	.02721	114644006
Air Filters	Gross Beta	MET	3/13/2018	.02808	114644005
Air Filters	Gross Beta	DIS	3/13/2018	.02664	114644004
Air Filters	Gross Beta	WAY	3/20/2018	.02938	114715001
Air Filters	Gross Beta	GIR	3/20/2018	.03014	114715002
Air Filters	Gross Beta	SIM	3/20/2018	.02881	114715003
Air Filters	Gross Beta	HAN	3/20/2018	.03046	114715007
Air Filters	Gross Beta	RRD	3/20/2018	.03705	114715006
Air Filters	Gross Beta	MET	3/20/2018	.02975	114715005
Air Filters	Gross Beta	DIS	3/20/2018	.02977	114715004
Air Qtr Comp	Cs-134	DIS	3/26/2018	0	114794004
Air Qtr Comp	Cs-137	DIS	3/26/2018	0	114794004
Air Qtr Comp	Be-7	DIS	3/26/2018	.08999	114794004
Air Qtr Comp	I-131	DIS	3/26/2018	0	114794004
Air Qtr Comp	I-131	GIR	3/26/2018	0	114794002
Air Qtr Comp	Cs-134	GIR	3/26/2018	0	114794002
Air Qtr Comp	Cs-137	GIR	3/26/2018	0	114794002
Air Qtr Comp	Be-7	GIR	3/26/2018	.07966	114794002
Air Qtr Comp	I-131	HAN	3/26/2018	0	114794007
Air Qtr Comp	Be-7	HAN	3/26/2018	.08118	114794007
Air Qtr Comp	Cs-137	HAN	3/26/2018	0	114794007
Air Qtr Comp	Cs-134	HAN	3/26/2018	0	114794007
Air Qtr Comp	Cs-134	MET	3/26/2018	0	114794005
Air Qtr Comp	Cs-137	MET	3/26/2018	0	114794005
Air Qtr Comp	Be-7	MET	3/26/2018	.08853	114794005
Air Qtr Comp	I-131	MET	3/26/2018	0	114794005
Air Qtr Comp	Cs-134	RRD	3/26/2018	0	114794006
Air Qtr Comp	Cs-137	RRD	3/26/2018	0	114794006
Air Qtr Comp	Be-7	RRD	3/26/2018	.08785	114794006
Air Qtr Comp	I-131	RRD	3/26/2018	0	114794006
Air Qtr Comp	Cs-137	SIM	3/26/2018	0	114794003
Air Qtr Comp	I-131	SIM	3/26/2018	0	114794003
Air Qtr Comp	Cs-134	SIM	3/26/2018	0	114794003
Air Qtr Comp	Be-7	SIM	3/26/2018	.08588	114794003
Air Qtr Comp	Be-7	WAY	3/26/2018	.1135	114794001
Air Qtr Comp	I-131	WAY	3/26/2018	0	114794001
Air Qtr Comp	Cs-134	WAY	3/26/2018	0	114794001
Air Qtr Comp	Cs-137	WAY	3/26/2018	0	114794001
Milk Gamma	I-131	Milky Way	3/27/2018	0	114742002
Milk Gamma	Cs-134	Milky Way	3/27/2018	0	114742002
Milk Gamma	Cs-137	Milky Way	3/27/2018	0	114742002
Milk Gamma	Ba-140	Milky Way	3/27/2018	0	114742002
Milk Gamma	La-140	Milky Way	3/27/2018	0	114742002
Milk Gamma	Be-7	Milky Way	3/27/2018	0	114742002
Air Filters	Gross Beta	WAY	3/27/2018	.02465	114744001
Vegetation	Be-7	Waynesboro	3/27/2018	794.626	114743003
Vegetation	I-131	Waynesboro	3/27/2018	0	114743003
Vegetation	Cs-134	Waynesboro	3/27/2018	0	114743003
Vegetation	Cs-137	Waynesboro	3/27/2018	0	114743003
Milk Gamma	Be-7	GIR	3/27/2018	0	114742001
Milk Gamma	I-131	GIR	3/27/2018	0	114742001
Milk Gamma	Cs-134	GIR	3/27/2018	0	114742001
Milk Gamma	Cs-137	GIR	3/27/2018	0	114742001

Milk Gamma	Ba-140	GIR	3/27/2018	0	114742001
Milk Gamma	La-140	GIR	3/27/2018	0	114742001
Air Filters	Gross Beta	GIR	3/27/2018	.02219	114744002
Air Filters	Gross Beta	SIM	3/27/2018	.01948	114744003
Vegetation	Cs-137	Simulator	3/27/2018	0	114743001
Vegetation	Be-7	Simulator	3/27/2018	623.038	114743001
Vegetation	I-131	Simulator	3/27/2018	0	114743001
Vegetation	Cs-134	Simulator	3/27/2018	0	114743001
Air Filters	Gross Beta	HAN	3/27/2018	.02383	114744007
Vegetation	Cs-137	Hancock Landi	3/27/2018	0	114743002
Vegetation	I-131	Hancock Landi	3/27/2018	0	114743002
Vegetation	Cs-134	Hancock Landi	3/27/2018	0	114743002
Vegetation	Be-7	Hancock Landi	3/27/2018	3358.12	114743002
Air Filters	Gross Beta	RRD	3/27/2018	.0281	114744006
Air Filters	Gross Beta	MET	3/27/2018	.02591	114744005
Air Filters	Gross Beta	DIS	3/27/2018	.02481	114744004
Water H-3	Tritium	RPOR	4/2/2018	391	114994003
DW - Gamma	Fe-59	RPOR	4/2/2018	0	114837003
DW - Gamma	Co-58	RPOR	4/2/2018	0	114837003
DW - Gamma	Co-60	RPOR	4/2/2018	4.33104	114837003
DW - Gamma	Zn-65	RPOR	4/2/2018	0	114837003
DW - Gamma	Zr-95	RPOR	4/2/2018	0	114837003
DW - Gamma	Mn-54	RPOR	4/2/2018	0	114837003
DW - Gamma	I-131	RPOR	4/2/2018	0	114837003
DW - Gamma	Cs-134	RPOR	4/2/2018	0	114837003
DW - Gamma	Cs-137	RPOR	4/2/2018	0	114837003
DW - Gamma	Ba-140	RPOR	4/2/2018	0	114837003
DW - Gamma	Gross Beta	RPOR	4/2/2018	1.672	114838003
DW - Gamma	Gross Alpha	RPOR	4/2/2018	0	114838003
DW - Gamma	La-140	RPOR	4/2/2018	0	114837003
DW - Gamma	Be-7	RPOR	4/2/2018	0	114837003
Water H-3	Tritium	FPOR	4/2/2018	211	114994004
DW - Gamma	Mn-54	FPOR	4/2/2018	0	114837004
DW - Gamma	Fe-59	FPOR	4/2/2018	0	114837004
DW - Gamma	Co-58	FPOR	4/2/2018	0	114837004
DW - Gamma	Co-60	FPOR	4/2/2018	0	114837004
DW - Gamma	Zn-65	FPOR	4/2/2018	0	114837004
DW - Gamma	Zr-95	FPOR	4/2/2018	0	114837004
DW - Gamma	I-131	FPOR	4/2/2018	0	114837004
DW - Gamma	Cs-134	FPOR	4/2/2018	0	114837004
DW - Gamma	Cs-137	FPOR	4/2/2018	0	114837004
DW - Gamma	Ba-140	FPOR	4/2/2018	0	114837004
DW - Gamma	La-140	FPOR	4/2/2018	0	114837004
DW - Gamma	Gross Beta	FPOR	4/2/2018	1.845	114838004
DW - Gamma	Gross Alpha	FPOR	4/2/2018	0	114838004
DW - Gamma	Be-7	FPOR	4/2/2018	0	114837004
DW - Gamma	Co-60	FPUR	4/2/2018	0	114837006
DW - Gamma	Zn-65	FPUR	4/2/2018	0	114837006
DW - Gamma	Zr-95	FPUR	4/2/2018	0	114837006
DW - Gamma	I-131	FPUR	4/2/2018	0	114837006
DW - Gamma	Cs-134	FPUR	4/2/2018	0	114837006
DW - Gamma	Cs-137	FPUR	4/2/2018	0	114837006
DW - Gamma	Ba-140	FPUR	4/2/2018	0	114837006
DW - Gamma	La-140	FPUR	4/2/2018	0	114837006
DW - Gamma	Be-7	FPUR	4/2/2018	0	114837006
DW - Gamma	Gross Beta	FPUR	4/2/2018	4.398	114838006
DW - Gamma	Gross Alpha	FPUR	4/2/2018	0	114838006
DW - Gamma	Mn-54	FPUR	4/2/2018	0	114837006
DW - Gamma	Fe-59	FPUR	4/2/2018	0	114837006

DW - Gamma	Co-58	FPUR	4/2/2018	0	114837006
Water H-3	Tritium	FPUR	4/2/2018	198	114994006
DW - Gamma	Gross Alpha	RPUR	4/2/2018	0	114838005
DW - Gamma	Zr-95	RPUR	4/2/2018	0	114837005
Water H-3	Tritium	RPUR	4/2/2018	247	114994005
DW - Gamma	I-131	RPUR	4/2/2018	0	114837005
DW - Gamma	Cs-134	RPUR	4/2/2018	0	114837005
DW - Gamma	Cs-137	RPUR	4/2/2018	0	114837005
DW - Gamma	Ba-140	RPUR	4/2/2018	0	114837005
DW - Gamma	La-140	RPUR	4/2/2018	0	114837005
DW - Gamma	Be-7	RPUR	4/2/2018	0	114837005
DW - Gamma	Mn-54	RPUR	4/2/2018	0	114837005
DW - Gamma	Fe-59	RPUR	4/2/2018	0	114837005
DW - Gamma	Co-58	RPUR	4/2/2018	0	114837005
DW - Gamma	Co-60	RPUR	4/2/2018	0	114837005
DW - Gamma	Zn-65	RPUR	4/2/2018	0	114837005
DW - Gamma	Gross Beta	RPUR	4/2/2018	3.921	114838005
Water H-3	Tritium	RAUC	4/3/2018	115	114994001
DW - Gamma	Gross Beta	RAUC	4/3/2018	.9265	114838001
DW - Gamma	Gross Alpha	RAUC	4/3/2018	0	114838001
DW - Gamma	Co-58	RAUC	4/3/2018	0	114837001
DW - Gamma	Co-60	RAUC	4/3/2018	0	114837001
DW - Gamma	Zn-65	RAUC	4/3/2018	0	114837001
DW - Gamma	Zr-95	RAUC	4/3/2018	0	114837001
DW - Gamma	I-131	RAUC	4/3/2018	0	114837001
DW - Gamma	Cs-134	RAUC	4/3/2018	0	114837001
DW - Gamma	Cs-137	RAUC	4/3/2018	0	114837001
DW - Gamma	Ba-140	RAUC	4/3/2018	0	114837001
DW - Gamma	La-140	RAUC	4/3/2018	0	114837001
DW - Gamma	Be-7	RAUC	4/3/2018	0	114837001
DW - Gamma	Mn-54	RAUC	4/3/2018	0	114837001
DW - Gamma	Fe-59	RAUC	4/3/2018	0	114837001
Water H-3	Tritium	FAUC	4/3/2018	140	114994002
DW - Gamma	Gross Beta	FAUC	4/3/2018	1.188	114838002
DW - Gamma	Gross Alpha	FAUC	4/3/2018	0	114838002
DW - Gamma	Mn-54	FAUC	4/3/2018	0	114837002
DW - Gamma	Fe-59	FAUC	4/3/2018	0	114837002
DW - Gamma	Co-58	FAUC	4/3/2018	0	114837002
DW - Gamma	Co-60	FAUC	4/3/2018	0	114837002
DW - Gamma	Zn-65	FAUC	4/3/2018	0	114837002
DW - Gamma	Zr-95	FAUC	4/3/2018	0	114837002
DW - Gamma	I-131	FAUC	4/3/2018	0	114837002
DW - Gamma	Cs-134	FAUC	4/3/2018	0	114837002
DW - Gamma	Cs-137	FAUC	4/3/2018	0	114837002
DW - Gamma	Ba-140	FAUC	4/3/2018	0	114837002
DW - Gamma	La-140	FAUC	4/3/2018	0	114837002
DW - Gamma	Be-7	FAUC	4/3/2018	0	114837002
Air Filters	Gross Beta	WAY	4/3/2018	.01836	114862001
Air Filters	Gross Beta	GIR	4/3/2018	.015	114862002
Air Filters	Gross Beta	SIM	4/3/2018	.01372	114862003
Air Filters	Gross Beta	RRD	4/3/2018	.01801	114862006
Air Filters	Gross Beta	HAN	4/3/2018	.02157	114862007
Air Filters	Gross Beta	MET	4/3/2018	.01759	114862005
Air Filters	Gross Beta	DIS	4/3/2018	.01821	114862004
Fish	Mn-54	1532	4/3/2018	0	114834001
Fish	Fe-59	1532	4/3/2018	0	114834001
Fish	Co-58	1532	4/3/2018	0	114834001
Fish	Co-60	1532	4/3/2018	0	114834001
Fish	Zn-65	1532	4/3/2018	0	114834001

Fish	Cs-134	1532	4/3/2018	0	114834001
Fish	Cs-137	1532	4/3/2018	0	114834001
Fish	Be-7	1532	4/3/2018	0	114834001
Water H-3	Tritium	172	4/3/2018	78.9	114996002
Water H-3	Tritium	170	4/3/2018	-7.48	114996001
Milk Gamma	I-131	Milky Way	4/10/2018	0	114965002
Milk Gamma	Be-7	Milky Way	4/10/2018	0	114965002
Milk Gamma	La-140	Milky Way	4/10/2018	0	114965002
Milk Gamma	Ba-140	Milky Way	4/10/2018	0	114965002
Milk Gamma	Cs-137	Milky Way	4/10/2018	0	114965002
Milk Gamma	Cs-134	Milky Way	4/10/2018	0	114965002
Air Filters	Gross Beta	WAY	4/10/2018	.02145	114959001
Air Filters	Gross Beta	GIR	4/10/2018	.02045	114959002
Milk Gamma	I-131	GIR	4/10/2018	0	114965001
Milk Gamma	Be-7	GIR	4/10/2018	0	114965001
Milk Gamma	Ba-140	GIR	4/10/2018	0	114965001
Milk Gamma	Cs-137	GIR	4/10/2018	.635824	114965001
Milk Gamma	Cs-134	GIR	4/10/2018	0	114965001
Milk Gamma	La-140	GIR	4/10/2018	0	114965001
Air Filters	Gross Beta	SIM	4/10/2018	.02102	114959003
Air Filters	Gross Beta	HAN	4/10/2018	.02104	114959007
Air Filters	Gross Beta	RRD	4/10/2018	.02559	114959006
Air Filters	Gross Beta	MET	4/10/2018	.02055	114959005
Air Filters	Gross Beta	DIS	4/10/2018	.02358	114959004
Water H-3	Tritium	149.5	4/10/2018	197	114995003
River Water	Co-60	1495	4/10/2018	0	114968003
River Water	Zn-65	1495	4/10/2018	0	114968003
River Water	Zr-95	1495	4/10/2018	0	114968003
River Water	Mn-54	1495	4/10/2018	0	114968003
River Water	Fe-59	1495	4/10/2018	0	114968003
River Water	I-131	1495	4/10/2018	0	114968003
River Water	Cs-134	1495	4/10/2018	0	114968003
River Water	Cs-137	1495	4/10/2018	0	114968003
River Water	Ba-140	1495	4/10/2018	0	114968003
River Water	La-140	1495	4/10/2018	0	114968003
River Water	Be-7	1495	4/10/2018	0	114968003
River Water	Co-58	1495	4/10/2018	0	114968003
Sediment	Cs-137	1502	4/10/2018	0	114979001
Sediment	Cs-134	1502	4/10/2018	0	114979001
Sediment	Co-60	1502	4/10/2018	0	114979001
Sediment	Co-58	1502	4/10/2018	0	114979001
Sediment	Be-7	1502	4/10/2018	0	114979001
Water H-3	Tritium	150.4	4/10/2018	164	114995002
River Water	Ba-140	1504	4/10/2018	0	114968002
River Water	La-140	1504	4/10/2018	0	114968002
River Water	Be-7	1504	4/10/2018	0	114968002
River Water	Mn-54	1504	4/10/2018	0	114968002
River Water	Fe-59	1504	4/10/2018	0	114968002
River Water	Co-58	1504	4/10/2018	0	114968002
River Water	Co-60	1504	4/10/2018	0	114968002
River Water	Zn-65	1504	4/10/2018	0	114968002
River Water	Zr-95	1504	4/10/2018	0	114968002
River Water	I-131	1504	4/10/2018	0	114968002
River Water	Cs-134	1504	4/10/2018	0	114968002
River Water	Cs-137	1504	4/10/2018	0	114968002
Water H-3	Tritium	151.2	4/10/2018	196	114995001
River Water	Mn-54	1512	4/10/2018	0	114968001
River Water	Fe-59	1512	4/10/2018	0	114968001
River Water	Co-58	1512	4/10/2018	0	114968001

River Water	Co-60	1512	4/10/2018	0	114968001
River Water	Zn-65	1512	4/10/2018	0	114968001
River Water	Zr-95	1512	4/10/2018	0	114968001
River Water	I-131	1512	4/10/2018	0	114968001
River Water	Cs-134	1512	4/10/2018	0	114968001
River Water	Cs-137	1512	4/10/2018	0	114968001
River Water	Ba-140	1512	4/10/2018	0	114968001
River Water	La-140	1512	4/10/2018	0	114968001
River Water	Be-7	1512	4/10/2018	0	114968001
Sediment	Co-58	1533	4/10/2018	0	114979002
Sediment	Be-7	1533	4/10/2018	0	114979002
Sediment	Cs-137	1533	4/10/2018	0	114979002
Sediment	Cs-134	1533	4/10/2018	0	114979002
Sediment	Co-60	1533	4/10/2018	0	114979002
Air Filters	Gross Beta	WAY	4/17/2018	.02192	115070001
Air Filters	Gross Beta	HAN	4/17/2018	.02292	115070007
Air Filters	Gross Beta	RRD	4/17/2018	.02271	115070006
Air Filters	Gross Beta	MET	4/17/2018	.02259	115070005
Air Filters	Gross Beta	GIR	4/17/2018	.01992	115070002
Air Filters	Gross Beta	DIS	4/17/2018	.02138	115070004
Air Filters	Gross Beta	SIM	4/17/2018	.01948	115070003
Milk Gamma	I-131	Milky Way	4/24/2018	0	115150002
Milk Gamma	Be-7	Milky Way	4/24/2018	0	115150002
Milk Gamma	La-140	Milky Way	4/24/2018	0	115150002
Milk Gamma	Ba-140	Milky Way	4/24/2018	0	115150002
Milk Gamma	Cs-137	Milky Way	4/24/2018	0	115150002
Milk Gamma	Cs-134	Milky Way	4/24/2018	0	115150002
Air Filters	Gross Beta	WAY	4/24/2018	.02332	115151001
Vegetation	Be-7	Waynesboro	4/24/2018	1260.89	115153003
Vegetation	Cs-137	Waynesboro	4/24/2018	0	115153003
Vegetation	Cs-134	Waynesboro	4/24/2018	0	115153003
Vegetation	I-131	Waynesboro	4/24/2018	0	115153003
Milk Gamma	Be-7	GIR	4/24/2018	0	115150001
Milk Gamma	I-131	GIR	4/24/2018	0	115150001
Milk Gamma	Cs-134	GIR	4/24/2018	0	115150001
Milk Gamma	Cs-137	GIR	4/24/2018	1.08836	115150001
Milk Gamma	Ba-140	GIR	4/24/2018	0	115150001
Milk Gamma	La-140	GIR	4/24/2018	0	115150001
Air Filters	Gross Beta	GIR	4/24/2018	.02563	115151002
Air Filters	Gross Beta	SIM	4/24/2018	.01237	115151003
Vegetation	I-131	Simulator	4/24/2018	0	115153001
Vegetation	Cs-134	Simulator	4/24/2018	0	115153001
Vegetation	Cs-137	Simulator	4/24/2018	16.2764	115153001
Vegetation	Be-7	Simulator	4/24/2018	826.126	115153001
Air Filters	Gross Beta	HAN	4/24/2018	.02308	115151007
Vegetation	Be-7	Hancock Landi	4/24/2018	1338.91	115153002
Vegetation	Cs-137	Hancock Landi	4/24/2018	0	115153002
Vegetation	Cs-134	Hancock Landi	4/24/2018	0	115153002
Vegetation	I-131	Hancock Landi	4/24/2018	0	115153002
Air Filters	Gross Beta	RRD	4/24/2018	.02341	115151006
Air Filters	Gross Beta	MET	4/24/2018	.02276	115151005
Air Filters	Gross Beta	DIS	4/24/2018	.02374	115151004
Air Filters	Gross Beta	WAY	5/1/2018	.01995	115234001
Air Filters	Gross Beta	GIR	5/1/2018	.01926	115234002
Air Filters	Gross Beta	SIM	5/1/2018	.01811	115234003
Air Filters	Gross Beta	HAN	5/1/2018	.01951	115234007
Air Filters	Gross Beta	RRD	5/1/2018	.01626	115234006
Air Filters	Gross Beta	MET	5/1/2018	.02084	115234005
Air Filters	Gross Beta	DIS	5/1/2018	.02015	115234004

DW - Gamma	Fe-59	FAUC	5/7/2018	0	115337002
DW - Gamma	Co-58	FAUC	5/7/2018	0	115337002
DW - Gamma	Co-60	FAUC	5/7/2018	0	115337002
DW - Gamma	Zn-65	FAUC	5/7/2018	0	115337002
DW - Gamma	Zr-95	FAUC	5/7/2018	0	115337002
DW - Gamma	I-131	FAUC	5/7/2018	0	115337002
DW - Gamma	Cs-134	FAUC	5/7/2018	0	115337002
DW - Gamma	Cs-137	FAUC	5/7/2018	0	115337002
DW - Gamma	Ba-140	FAUC	5/7/2018	0	115337002
DW - Gamma	La-140	FAUC	5/7/2018	0	115337002
DW - Gamma	Be-7	FAUC	5/7/2018	0	115337002
DW - Gamma	Mn-54	FAUC	5/7/2018	0	115337002
DW - Gamma	Gross Beta	FAUC	5/7/2018	2.21	115335002
DW - Gamma	Gross Alpha	FAUC	5/7/2018	0	115335002
DW - Gamma	Zn-65	RAUC	5/7/2018	0	115337001
DW - Gamma	Zr-95	RAUC	5/7/2018	0	115337001
DW - Gamma	I-131	RAUC	5/7/2018	0	115337001
DW - Gamma	Cs-134	RAUC	5/7/2018	0	115337001
DW - Gamma	Cs-137	RAUC	5/7/2018	0	115337001
DW - Gamma	Ba-140	RAUC	5/7/2018	0	115337001
DW - Gamma	La-140	RAUC	5/7/2018	0	115337001
DW - Gamma	Be-7	RAUC	5/7/2018	0	115337001
DW - Gamma	Gross Alpha	RAUC	5/7/2018	0	115335001
DW - Gamma	Gross Beta	RAUC	5/7/2018	1.593	115335001
DW - Gamma	Mn-54	RAUC	5/7/2018	0	115337001
DW - Gamma	Fe-59	RAUC	5/7/2018	0	115337001
DW - Gamma	Co-58	RAUC	5/7/2018	0	115337001
DW - Gamma	Co-60	RAUC	5/7/2018	0	115337001
Air Filters	Gross Beta	WAY	5/8/2018	.02798	115330001
Air Filters	Gross Beta	GIR	5/8/2018	.02732	115330002
Air Filters	Gross Beta	SIM	5/8/2018	.02447	115330003
Air Filters	Gross Beta	HAN	5/8/2018	.03104	115330007
DW - Gamma	Zr-95	FPUR	5/8/2018	0	115337006
DW - Gamma	I-131	FPUR	5/8/2018	0	115337006
DW - Gamma	Cs-134	FPUR	5/8/2018	0	115337006
DW - Gamma	Cs-137	FPUR	5/8/2018	0	115337006
DW - Gamma	Ba-140	FPUR	5/8/2018	0	115337006
DW - Gamma	La-140	FPUR	5/8/2018	0	115337006
DW - Gamma	Be-7	FPUR	5/8/2018	0	115337006
DW - Gamma	Gross Beta	FPUR	5/8/2018	0	115335006
DW - Gamma	Gross Alpha	FPUR	5/8/2018	0	115335006
DW - Gamma	Mn-54	FPUR	5/8/2018	0	115337006
DW - Gamma	Fe-59	FPUR	5/8/2018	0	115337006
DW - Gamma	Co-58	FPUR	5/8/2018	0	115337006
DW - Gamma	Co-60	FPUR	5/8/2018	0	115337006
DW - Gamma	Zn-65	FPUR	5/8/2018	0	115337006
Air Filters	Gross Beta	RRD	5/8/2018	.02788	115330006
DW - Gamma	La-140	RPUR	5/8/2018	0	115337005
DW - Gamma	Be-7	RPUR	5/8/2018	0	115337005
DW - Gamma	Mn-54	RPUR	5/8/2018	0	115337005
DW - Gamma	Fe-59	RPUR	5/8/2018	0	115337005
DW - Gamma	Co-58	RPUR	5/8/2018	0	115337005
DW - Gamma	Co-60	RPUR	5/8/2018	0	115337005
DW - Gamma	Zn-65	RPUR	5/8/2018	0	115337005
DW - Gamma	Zr-95	RPUR	5/8/2018	0	115337005
DW - Gamma	Gross Beta	RPUR	5/8/2018	.6027	115335005
DW - Gamma	Gross Alpha	RPUR	5/8/2018	0	115335005
DW - Gamma	I-131	RPUR	5/8/2018	0	115337005
DW - Gamma	Cs-134	RPUR	5/8/2018	0	115337005

DW - Gamma	Cs-137	RPUR	5/8/2018	0	115337005
DW - Gamma	Ba-140	RPUR	5/8/2018	0	115337005
Air Filters	Gross Beta	MET	5/8/2018	.02771	115330005
Air Filters	Gross Beta	DIS	5/8/2018	.02563	115330004
DW - Gamma	Fe-59	FPOR	5/8/2018	0	115337004
DW - Gamma	Co-58	FPOR	5/8/2018	0	115337004
DW - Gamma	Co-60	FPOR	5/8/2018	0	115337004
DW - Gamma	Zn-65	FPOR	5/8/2018	0	115337004
DW - Gamma	Zr-95	FPOR	5/8/2018	0	115337004
DW - Gamma	I-131	FPOR	5/8/2018	0	115337004
DW - Gamma	Cs-134	FPOR	5/8/2018	0	115337004
DW - Gamma	Cs-137	FPOR	5/8/2018	0	115337004
DW - Gamma	Ba-140	FPOR	5/8/2018	0	115337004
DW - Gamma	La-140	FPOR	5/8/2018	0	115337004
DW - Gamma	Be-7	FPOR	5/8/2018	0	115337004
DW - Gamma	Gross Beta	FPOR	5/8/2018	.7647	115335004
DW - Gamma	Gross Alpha	FPOR	5/8/2018	0	115335004
DW - Gamma	Mn-54	FPOR	5/8/2018	0	115337004
DW - Gamma	Zn-65	RPOR	5/8/2018	0	115337003
DW - Gamma	Zr-95	RPOR	5/8/2018	0	115337003
DW - Gamma	I-131	RPOR	5/8/2018	0	115337003
DW - Gamma	Cs-134	RPOR	5/8/2018	0	115337003
DW - Gamma	Cs-137	RPOR	5/8/2018	0	115337003
DW - Gamma	Ba-140	RPOR	5/8/2018	0	115337003
DW - Gamma	La-140	RPOR	5/8/2018	0	115337003
DW - Gamma	Be-7	RPOR	5/8/2018	0	115337003
DW - Gamma	Mn-54	RPOR	5/8/2018	0	115337003
DW - Gamma	Gross Beta	RPOR	5/8/2018	1.962	115335003
DW - Gamma	Gross Alpha	RPOR	5/8/2018	0	115335003
DW - Gamma	Fe-59	RPOR	5/8/2018	0	115337003
DW - Gamma	Co-58	RPOR	5/8/2018	0	115337003
DW - Gamma	Co-60	RPOR	5/8/2018	0	115337003
River Water	Cs-134	1512	5/8/2018	0	115332001
River Water	Cs-137	1512	5/8/2018	0	115332001
River Water	Ba-140	1512	5/8/2018	0	115332001
River Water	La-140	1512	5/8/2018	0	115332001
River Water	Be-7	1512	5/8/2018	0	115332001
River Water	Mn-54	1512	5/8/2018	0	115332001
River Water	Fe-59	1512	5/8/2018	0	115332001
River Water	Co-58	1512	5/8/2018	0	115332001
River Water	Co-60	1512	5/8/2018	0	115332001
River Water	Zn-65	1512	5/8/2018	0	115332001
River Water	Zr-95	1512	5/8/2018	0	115332001
River Water	I-131	1512	5/8/2018	0	115332001
River Water	Be-7	1504	5/8/2018	0	115332002
River Water	Mn-54	1504	5/8/2018	0	115332002
River Water	Fe-59	1504	5/8/2018	0	115332002
River Water	Co-58	1504	5/8/2018	0	115332002
River Water	Co-60	1504	5/8/2018	0	115332002
River Water	Zn-65	1504	5/8/2018	0	115332002
River Water	Zr-95	1504	5/8/2018	0	115332002
River Water	I-131	1504	5/8/2018	0	115332002
River Water	Cs-134	1504	5/8/2018	0	115332002
River Water	Cs-137	1504	5/8/2018	0	115332002
River Water	Ba-140	1504	5/8/2018	0	115332002
River Water	La-140	1504	5/8/2018	0	115332002
River Water	Cs-137	1495	5/8/2018	0	115332003
River Water	Ba-140	1495	5/8/2018	0	115332003
River Water	La-140	1495	5/8/2018	0	115332003

River Water	Be-7	1495	5/8/2018	0	115332003
River Water	Mn-54	1495	5/8/2018	0	115332003
River Water	Fe-59	1495	5/8/2018	0	115332003
River Water	Co-58	1495	5/8/2018	0	115332003
River Water	Co-60	1495	5/8/2018	0	115332003
River Water	Zn-65	1495	5/8/2018	0	115332003
River Water	Zr-95	1495	5/8/2018	0	115332003
River Water	I-131	1495	5/8/2018	0	115332003
River Water	Cs-134	1495	5/8/2018	0	115332003
Milk Gamma	Be-7	Milky Way	5/15/2018	0	115393002
Milk Gamma	La-140	Milky Way	5/15/2018	0	115393002
Milk Gamma	Ba-140	Milky Way	5/15/2018	0	115393002
Milk Gamma	Cs-137	Milky Way	5/15/2018	0	115393002
Milk Gamma	Cs-134	Milky Way	5/15/2018	0	115393002
Milk Gamma	I-131	Milky Way	5/15/2018	0	115393002
Air Filters	Gross Beta	WAY	5/15/2018	.02875	115394001
Milk Gamma	Cs-137	GIR	5/15/2018	.898039	115393001
Milk Gamma	Cs-134	GIR	5/15/2018	0	115393001
Milk Gamma	I-131	GIR	5/15/2018	0	115393001
Milk Gamma	Be-7	GIR	5/15/2018	0	115393001
Milk Gamma	La-140	GIR	5/15/2018	0	115393001
Milk Gamma	Ba-140	GIR	5/15/2018	0	115393001
Air Filters	Gross Beta	GIR	5/15/2018	.02828	115394002
Air Filters	Gross Beta	SIM	5/15/2018	.01285	115394003
Air Filters	Gross Beta	HAN	5/15/2018	.031	115394007
Air Filters	Gross Beta	RRD	5/15/2018	.03013	115394006
Air Filters	Gross Beta	MET	5/15/2018	.03502	115394005
Air Filters	Gross Beta	DIS	5/15/2018	.02766	115394004
Air Filters	Gross Beta	WAY	5/22/2018	.01234	115486001
Air Filters	Gross Beta	GIR	5/22/2018	.01292	115486002
Air Filters	Gross Beta	SIM	5/22/2018	.007829	115486003
Air Filters	Gross Beta	HAN	5/22/2018	.01508	115486007
Air Filters	Gross Beta	RRD	5/22/2018	.01382	115486006
Air Filters	Gross Beta	MET	5/22/2018	.01324	115486005
Air Filters	Gross Beta	DIS	5/22/2018	.01201	115486004
Air Filters	Gross Beta	WAY	5/29/2018	.009094	115544001
Milk Gamma	La-140	Milky Way	5/29/2018	0	115541002
Milk Gamma	I-131	Milky Way	5/29/2018	0	115541002
Milk Gamma	Be-7	Milky Way	5/29/2018	0	115541002
Milk Gamma	Ba-140	Milky Way	5/29/2018	0	115541002
Milk Gamma	Cs-137	Milky Way	5/29/2018	0	115541002
Milk Gamma	Cs-134	Milky Way	5/29/2018	0	115541002
Milk Gamma	I-131	GIR	5/29/2018	0	115541001
Milk Gamma	Cs-134	GIR	5/29/2018	0	115541001
Milk Gamma	Cs-137	GIR	5/29/2018	1.12872	115541001
Milk Gamma	Ba-140	GIR	5/29/2018	0	115541001
Milk Gamma	Be-7	GIR	5/29/2018	0	115541001
Milk Gamma	La-140	GIR	5/29/2018	0	115541001
Air Filters	Gross Beta	GIR	5/29/2018	.01082	115544002
Air Filters	Gross Beta	SIM	5/29/2018	.0133	115544003
Air Filters	Gross Beta	HAN	5/29/2018	.01077	115544007
Air Filters	Gross Beta	RRD	5/29/2018	.01186	115544006
Air Filters	Gross Beta	MET	5/29/2018	.009049	115544005
Air Filters	Gross Beta	DIS	5/29/2018	.01015	115544004
DW - Gamma	Gross Beta	FAUC	6/5/2018	1.24	115628002
DW - Gamma	Fe-59	FAUC	6/5/2018	0	115627002
DW - Gamma	Co-58	FAUC	6/5/2018	0	115627002
DW - Gamma	Co-60	FAUC	6/5/2018	0	115627002
DW - Gamma	Zn-65	FAUC	6/5/2018	0	115627002

DW - Gamma	Zr-95	FAUC	6/5/2018	0	115627002
DW - Gamma	I-131	FAUC	6/5/2018	0	115627002
DW - Gamma	Cs-134	FAUC	6/5/2018	0	115627002
DW - Gamma	Cs-137	FAUC	6/5/2018	0	115627002
DW - Gamma	Ba-140	FAUC	6/5/2018	0	115627002
DW - Gamma	La-140	FAUC	6/5/2018	0	115627002
DW - Gamma	Be-7	FAUC	6/5/2018	0	115627002
DW - Gamma	Mn-54	FAUC	6/5/2018	0	115627002
DW - Gamma	Gross Alpha	FAUC	6/5/2018	0	115628002
DW - Gamma	Be-7	RAUC	6/5/2018	0	115627001
DW - Gamma	Gross Beta	RAUC	6/5/2018	2.525	115628001
DW - Gamma	Gross Alpha	RAUC	6/5/2018	0	115628001
DW - Gamma	Mn-54	RAUC	6/5/2018	0	115627001
DW - Gamma	Fe-59	RAUC	6/5/2018	0	115627001
DW - Gamma	Co-58	RAUC	6/5/2018	0	115627001
DW - Gamma	Co-60	RAUC	6/5/2018	0	115627001
DW - Gamma	Zn-65	RAUC	6/5/2018	0	115627001
DW - Gamma	Zr-95	RAUC	6/5/2018	0	115627001
DW - Gamma	I-131	RAUC	6/5/2018	0	115627001
DW - Gamma	Cs-134	RAUC	6/5/2018	0	115627001
DW - Gamma	Cs-137	RAUC	6/5/2018	0	115627001
DW - Gamma	Ba-140	RAUC	6/5/2018	0	115627001
DW - Gamma	La-140	RAUC	6/5/2018	0	115627001
DW - Gamma	I-131	RPOR	6/5/2018	0	115627003
DW - Gamma	Cs-134	RPOR	6/5/2018	0	115627003
DW - Gamma	Cs-137	RPOR	6/5/2018	0	115627003
DW - Gamma	Ba-140	RPOR	6/5/2018	0	115627003
DW - Gamma	La-140	RPOR	6/5/2018	0	115627003
DW - Gamma	Be-7	RPOR	6/5/2018	0	115627003
DW - Gamma	Gross Beta	RPOR	6/5/2018	2.033	115628003
DW - Gamma	Gross Alpha	RPOR	6/5/2018	0	115628003
DW - Gamma	Mn-54	RPOR	6/5/2018	0	115627003
DW - Gamma	Fe-59	RPOR	6/5/2018	0	115627003
DW - Gamma	Co-58	RPOR	6/5/2018	0	115627003
DW - Gamma	Co-60	RPOR	6/5/2018	0	115627003
DW - Gamma	Zn-65	RPOR	6/5/2018	0	115627003
DW - Gamma	Zr-95	RPOR	6/5/2018	0	115627003
DW - Gamma	Mn-54	FPOR	6/5/2018	0	115627004
DW - Gamma	Fe-59	FPOR	6/5/2018	0	115627004
DW - Gamma	Co-58	FPOR	6/5/2018	0	115627004
DW - Gamma	Co-60	FPOR	6/5/2018	0	115627004
DW - Gamma	Zn-65	FPOR	6/5/2018	0	115627004
DW - Gamma	Zr-95	FPOR	6/5/2018	0	115627004
DW - Gamma	Gross Beta	FPOR	6/5/2018	3.18	115628004
DW - Gamma	Gross Alpha	FPOR	6/5/2018	0	115628004
DW - Gamma	I-131	FPOR	6/5/2018	0	115627004
DW - Gamma	Cs-134	FPOR	6/5/2018	0	115627004
DW - Gamma	Cs-137	FPOR	6/5/2018	0	115627004
DW - Gamma	Ba-140	FPOR	6/5/2018	0	115627004
DW - Gamma	La-140	FPOR	6/5/2018	0	115627004
DW - Gamma	Be-7	FPOR	6/5/2018	0	115627004
Air Filters	Gross Beta	WAY	6/5/2018	.01485	115636001
Vegetation	I-131	Waynesboro	6/5/2018	0	115629001
Vegetation	Cs-134	Waynesboro	6/5/2018	0	115629001
Vegetation	Cs-137	Waynesboro	6/5/2018	0	115629001
Vegetation	Be-7	Waynesboro	6/5/2018	860.415	115629001
Air Filters	Gross Beta	GIR	6/5/2018	.01596	115636002
Air Filters	Gross Beta	SIM	6/5/2018	.01383	115636003
DW - Gamma	Mn-54	FPUR	6/5/2018	0	115627006

DW - Gamma	Fe-59	FPUR	6/5/2018	0	115627006
DW - Gamma	Co-58	FPUR	6/5/2018	0	115627006
DW - Gamma	Co-60	FPUR	6/5/2018	0	115627006
DW - Gamma	Zn-65	FPUR	6/5/2018	0	115627006
DW - Gamma	Zr-95	FPUR	6/5/2018	0	115627006
DW - Gamma	I-131	FPUR	6/5/2018	0	115627006
DW - Gamma	Cs-134	FPUR	6/5/2018	0	115627006
DW - Gamma	Cs-137	FPUR	6/5/2018	0	115627006
DW - Gamma	Ba-140	FPUR	6/5/2018	0	115627006
DW - Gamma	La-140	FPUR	6/5/2018	0	115627006
DW - Gamma	Gross Beta	FPUR	6/5/2018	2.117	115628006
DW - Gamma	Gross Alpha	FPUR	6/5/2018	0	115628006
DW - Gamma	Be-7	FPUR	6/5/2018	0	115627006
Vegetation	Be-7	Simulator	6/5/2018	1344.57	115629002
Vegetation	I-131	Simulator	6/5/2018	0	115629002
Vegetation	Cs-137	Simulator	6/5/2018	0	115629002
Vegetation	Cs-134	Simulator	6/5/2018	0	115629002
Vegetation	Cs-137	Hancock Landi	6/5/2018	0	115629003
Vegetation	Be-7	Hancock Landi	6/5/2018	1242.34	115629003
Vegetation	I-131	Hancock Landi	6/5/2018	0	115629003
Vegetation	Cs-134	Hancock Landi	6/5/2018	0	115629003
DW - Gamma	Gross Alpha	RPUR	6/5/2018	0	115628005
DW - Gamma	Gross Beta	RPUR	6/5/2018	2.655	115628005
Air Filters	Gross Beta	HAN	6/5/2018	.01878	115636007
DW - Gamma	Cs-134	RPUR	6/5/2018	0	115627005
DW - Gamma	Cs-137	RPUR	6/5/2018	0	115627005
DW - Gamma	Ba-140	RPUR	6/5/2018	0	115627005
DW - Gamma	La-140	RPUR	6/5/2018	0	115627005
DW - Gamma	Be-7	RPUR	6/5/2018	0	115627005
DW - Gamma	Mn-54	RPUR	6/5/2018	0	115627005
DW - Gamma	Fe-59	RPUR	6/5/2018	0	115627005
DW - Gamma	Co-58	RPUR	6/5/2018	0	115627005
DW - Gamma	Co-60	RPUR	6/5/2018	0	115627005
DW - Gamma	Zn-65	RPUR	6/5/2018	0	115627005
DW - Gamma	I-131	RPUR	6/5/2018	0	115627005
DW - Gamma	Zr-95	RPUR	6/5/2018	0	115627005
Air Filters	Gross Beta	RRD	6/5/2018	.01662	115636006
Air Filters	Gross Beta	MET	6/5/2018	.01725	115636005
Air Filters	Gross Beta	DIS	6/5/2018	.01764	115636004
Milk Gamma	Ba-140	Milky Way	6/12/2018	0	115771002
Milk Gamma	Cs-137	Milky Way	6/12/2018	.669198	115771002
Milk Gamma	Cs-134	Milky Way	6/12/2018	0	115771002
Milk Gamma	I-131	Milky Way	6/12/2018	0	115771002
Milk Gamma	Be-7	Milky Way	6/12/2018	0	115771002
Milk Gamma	La-140	Milky Way	6/12/2018	0	115771002
Air Filters	Gross Beta	WAY	6/12/2018	.0277	115761001
Milk Gamma	Cs-137	GIR	6/12/2018	.831317	115771001
Milk Gamma	Cs-134	GIR	6/12/2018	0	115771001
Milk Gamma	Be-7	GIR	6/12/2018	0	115771001
Milk Gamma	I-131	GIR	6/12/2018	0	115771001
Milk Gamma	La-140	GIR	6/12/2018	0	115771001
Milk Gamma	Ba-140	GIR	6/12/2018	0	115771001
Air Filters	Gross Beta	GIR	6/12/2018	.02517	115761002
Air Filters	Gross Beta	SIM	6/12/2018	.007273	115761003
Air Filters	Gross Beta	HAN	6/12/2018	.0315	115761007
Air Filters	Gross Beta	RRD	6/12/2018	.03003	115761006
Air Filters	Gross Beta	MET	6/12/2018	.02941	115761005
Air Filters	Gross Beta	DIS	6/12/2018	.03223	115761004
River Water	Mn-54	1512	6/12/2018	0	115763001

River Water	Fe-59	1512	6/12/2018	0	115763001
River Water	Co-58	1512	6/12/2018	0	115763001
River Water	Co-60	1512	6/12/2018	0	115763001
River Water	Zn-65	1512	6/12/2018	0	115763001
River Water	Zr-95	1512	6/12/2018	0	115763001
River Water	I-131	1512	6/12/2018	0	115763001
River Water	Cs-134	1512	6/12/2018	0	115763001
River Water	Cs-137	1512	6/12/2018	0	115763001
River Water	Ba-140	1512	6/12/2018	0	115763001
River Water	La-140	1512	6/12/2018	0	115763001
River Water	Be-7	1512	6/12/2018	0	115763001
River Water	Mn-54	1504	6/12/2018	0	115763002
River Water	Cs-137	1504	6/12/2018	0	115763002
River Water	Ba-140	1504	6/12/2018	0	115763002
River Water	La-140	1504	6/12/2018	0	115763002
River Water	Be-7	1504	6/12/2018	0	115763002
River Water	Fe-59	1504	6/12/2018	0	115763002
River Water	Co-58	1504	6/12/2018	0	115763002
River Water	Co-60	1504	6/12/2018	0	115763002
River Water	Zn-65	1504	6/12/2018	0	115763002
River Water	Zr-95	1504	6/12/2018	0	115763002
River Water	I-131	1504	6/12/2018	0	115763002
River Water	Cs-134	1504	6/12/2018	0	115763002
River Water	Be-7	1495	6/12/2018	0	115763003
River Water	Fe-59	1495	6/12/2018	0	115763003
River Water	Co-58	1495	6/12/2018	0	115763003
River Water	Co-60	1495	6/12/2018	0	115763003
River Water	Zn-65	1495	6/12/2018	0	115763003
River Water	Zr-95	1495	6/12/2018	0	115763003
River Water	I-131	1495	6/12/2018	0	115763003
River Water	Cs-134	1495	6/12/2018	0	115763003
River Water	Mn-54	1495	6/12/2018	0	115763003
River Water	Cs-137	1495	6/12/2018	0	115763003
River Water	Ba-140	1495	6/12/2018	0	115763003
River Water	La-140	1495	6/12/2018	0	115763003
Air Filters	Gross Beta	WAY	6/19/2018	.01546	115873001
Air Filters	Gross Beta	GIR	6/19/2018	.01552	115873002
Air Filters	Gross Beta	SIM	6/19/2018	.01111	115873003
Air Filters	Gross Beta	HAN	6/19/2018	.01824	115873007
Air Filters	Gross Beta	RRD	6/19/2018	.01562	115873006
Air Filters	Gross Beta	MET	6/19/2018	.01531	115873005
Air Filters	Gross Beta	DIS	6/19/2018	.01356	115873004
Milk Gamma	La-140	Milky Way	6/26/2018	0	115990002
Milk Gamma	Ba-140	Milky Way	6/26/2018	0	115990002
Milk Gamma	Cs-137	Milky Way	6/26/2018	0	115990002
Milk Gamma	Cs-134	Milky Way	6/26/2018	0	115990002
Milk Gamma	I-131	Milky Way	6/26/2018	0	115990002
Milk Gamma	Be-7	Milky Way	6/26/2018	0	115990002
Air Qtr Comp	Cs-134	WAY	6/26/2018	0	116115001
Air Qtr Comp	I-131	WAY	6/26/2018	0	116115001
Air Filters	Gross Beta	WAY	6/26/2018	.02154	115988001
Air Qtr Comp	Be-7	WAY	6/26/2018	.06231	116115001
Air Qtr Comp	Cs-137	WAY	6/26/2018	0	116115001
Vegetation	Cs-137	Waynesboro	6/26/2018	0	115991001
Vegetation	Be-7	Waynesboro	6/26/2018	938.792	115991001
Vegetation	I-131	Waynesboro	6/26/2018	0	115991001
Vegetation	Cs-134	Waynesboro	6/26/2018	0	115991001
Milk Gamma	La-140	GIR	6/26/2018	0	115990001
Milk Gamma	Be-7	GIR	6/26/2018	0	115990001

Milk Gamma	I-131	GIR	6/26/2018	0	115990001
Milk Gamma	Cs-134	GIR	6/26/2018	0	115990001
Milk Gamma	Cs-137	GIR	6/26/2018	0	115990001
Milk Gamma	Ba-140	GIR	6/26/2018	0	115990001
Air Qtr Comp	I-131	GIR	6/26/2018	0	116115002
Air Qtr Comp	Cs-134	GIR	6/26/2018	0	116115002
Air Qtr Comp	Cs-137	GIR	6/26/2018	0	116115002
Air Qtr Comp	Be-7	GIR	6/26/2018	.06613	116115002
Air Filters	Gross Beta	GIR	6/26/2018	.02067	115988002
Air Qtr Comp	Cs-137	SIM	6/26/2018	0	116115003
Air Qtr Comp	I-131	SIM	6/26/2018	0	116115003
Air Qtr Comp	Be-7	SIM	6/26/2018	.04941	116115003
Air Qtr Comp	Cs-134	SIM	6/26/2018	0	116115003
Air Filters	Gross Beta	SIM	6/26/2018	.01456	115988003
Vegetation	Cs-137	Simulator	6/26/2018	0	115991002
Vegetation	Be-7	Simulator	6/26/2018	898.911	115991002
Vegetation	Cs-134	Simulator	6/26/2018	0	115991002
Vegetation	I-131	Simulator	6/26/2018	0	115991002
Vegetation	I-131	Hancock Landi	6/26/2018	0	115991003
Vegetation	Cs-134	Hancock Landi	6/26/2018	0	115991003
Vegetation	Cs-137	Hancock Landi	6/26/2018	0	115991003
Vegetation	Be-7	Hancock Landi	6/26/2018	1799.75	115991003
Air Qtr Comp	I-131	HAN	6/26/2018	0	116115007
Air Filters	Gross Beta	HAN	6/26/2018	.02296	115988007
Air Qtr Comp	Cs-137	HAN	6/26/2018	0	116115007
Air Qtr Comp	Cs-134	HAN	6/26/2018	0	116115007
Air Qtr Comp	Be-7	HAN	6/26/2018	.08213	116115007
Air Qtr Comp	I-131	RRD	6/26/2018	0	116115006
Air Qtr Comp	Cs-134	RRD	6/26/2018	0	116115006
Air Qtr Comp	Cs-137	RRD	6/26/2018	0	116115006
Air Qtr Comp	Be-7	RRD	6/26/2018	.116	116115006
Air Filters	Gross Beta	RRD	6/26/2018	.02272	115988006
Air Filters	Gross Beta	MET	6/26/2018	.02001	115988005
Air Qtr Comp	I-131	MET	6/26/2018	0	116115005
Air Qtr Comp	Cs-134	MET	6/26/2018	0	116115005
Air Qtr Comp	Cs-137	MET	6/26/2018	0	116115005
Air Qtr Comp	Be-7	MET	6/26/2018	.07074	116115005
Air Qtr Comp	Cs-134	DIS	6/26/2018	0	116115004
Air Filters	Gross Beta	DIS	6/26/2018	.01861	115988004
Air Qtr Comp	I-131	DIS	6/26/2018	0	116115004
Air Qtr Comp	Cs-137	DIS	6/26/2018	0	116115004
Air Qtr Comp	Be-7	DIS	6/26/2018	.06908	116115004
DW - Gamma	Cs-137	FAUC	7/2/2018	0	116070002
DW - Gamma	Ba-140	FAUC	7/2/2018	0	116070002
DW - Gamma	La-140	FAUC	7/2/2018	0	116070002
DW - Gamma	Be-7	FAUC	7/2/2018	0	116070002
Water H-3	Tritium	FAUC	7/2/2018	127	116252002
DW - Gamma	Gross Beta	FAUC	7/2/2018	-1.523	116071002
DW - Gamma	Gross Alpha	FAUC	7/2/2018	0	116071002
DW - Gamma	Mn-54	FAUC	7/2/2018	0	116070002
DW - Gamma	Fe-59	FAUC	7/2/2018	0	116070002
DW - Gamma	Co-58	FAUC	7/2/2018	0	116070002
DW - Gamma	Co-60	FAUC	7/2/2018	0	116070002
DW - Gamma	Zn-65	FAUC	7/2/2018	0	116070002
DW - Gamma	Zr-95	FAUC	7/2/2018	0	116070002
DW - Gamma	I-131	FAUC	7/2/2018	0	116070002
DW - Gamma	Cs-134	FAUC	7/2/2018	0	116070002
DW - Gamma	Mn-54	RAUC	7/2/2018	0	116070001
DW - Gamma	Fe-59	RAUC	7/2/2018	0	116070001

DW - Gamma	Co-58	RAUC	7/2/2018	0	116070001
DW - Gamma	Gross Beta	RAUC	7/2/2018	.6028	116071001
DW - Gamma	Gross Alpha	RAUC	7/2/2018	0	116071001
DW - Gamma	Co-60	RAUC	7/2/2018	0	116070001
DW - Gamma	Zn-65	RAUC	7/2/2018	0	116070001
DW - Gamma	Zr-95	RAUC	7/2/2018	0	116070001
DW - Gamma	I-131	RAUC	7/2/2018	0	116070001
DW - Gamma	Cs-134	RAUC	7/2/2018	0	116070001
Water H-3	Tritium	RAUC	7/2/2018	36.1	116252001
DW - Gamma	Cs-137	RAUC	7/2/2018	0	116070001
DW - Gamma	Ba-140	RAUC	7/2/2018	0	116070001
DW - Gamma	La-140	RAUC	7/2/2018	0	116070001
DW - Gamma	Be-7	RAUC	7/2/2018	0	116070001
Water H-3	Tritium	FPUR	7/2/2018	318	116252006
DW - Gamma	Gross Beta	FPUR	7/2/2018	.65	116071006
DW - Gamma	Gross Alpha	FPUR	7/2/2018	0	116071006
DW - Gamma	Zn-65	RPUR	7/2/2018	0	116070005
DW - Gamma	Zr-95	RPUR	7/2/2018	0	116070005
DW - Gamma	I-131	RPUR	7/2/2018	0	116070005
DW - Gamma	Cs-134	RPUR	7/2/2018	0	116070005
DW - Gamma	Cs-137	RPUR	7/2/2018	0	116070005
DW - Gamma	Ba-140	RPUR	7/2/2018	0	116070005
DW - Gamma	La-140	RPUR	7/2/2018	0	116070005
DW - Gamma	Be-7	RPUR	7/2/2018	0	116070005
Water H-3	Tritium	RPUR	7/2/2018	259	116252005
DW - Gamma	Gross Beta	RPUR	7/2/2018	.711	116071005
DW - Gamma	Gross Alpha	RPUR	7/2/2018	0	116071005
DW - Gamma	Mn-54	RPUR	7/2/2018	0	116070005
DW - Gamma	Fe-59	RPUR	7/2/2018	0	116070005
DW - Gamma	Co-58	RPUR	7/2/2018	0	116070005
DW - Gamma	Co-60	RPUR	7/2/2018	0	116070005
Air Filters	Gross Beta	WAY	7/2/2018	.01279	116081001
DW - Gamma	Co-60	FPOR	7/2/2018	0	116070004
DW - Gamma	Zn-65	FPOR	7/2/2018	0	116070004
DW - Gamma	Zr-95	FPOR	7/2/2018	0	116070004
DW - Gamma	I-131	FPOR	7/2/2018	0	116070004
DW - Gamma	Cs-134	FPOR	7/2/2018	0	116070004
DW - Gamma	Cs-137	FPOR	7/2/2018	0	116070004
DW - Gamma	Ba-140	FPOR	7/2/2018	0	116070004
DW - Gamma	La-140	FPOR	7/2/2018	0	116070004
DW - Gamma	Be-7	FPOR	7/2/2018	0	116070004
DW - Gamma	Mn-54	FPOR	7/2/2018	0	116070004
DW - Gamma	Fe-59	FPOR	7/2/2018	0	116070004
Water H-3	Tritium	FPOR	7/2/2018	172	116252004
DW - Gamma	Gross Beta	FPOR	7/2/2018	1.176	116071004
DW - Gamma	Gross Alpha	FPOR	7/2/2018	0	116071004
DW - Gamma	Co-58	FPOR	7/2/2018	0	116070004
Air Filters	Gross Beta	GIR	7/2/2018	.01285	116081002
DW - Gamma	Be-7	RPOR	7/2/2018	0	116070003
DW - Gamma	Gross Beta	RPOR	7/2/2018	1.355	116071003
DW - Gamma	Gross Alpha	RPOR	7/2/2018	0	116071003
DW - Gamma	Mn-54	RPOR	7/2/2018	0	116070003
DW - Gamma	Fe-59	RPOR	7/2/2018	0	116070003
DW - Gamma	Co-58	RPOR	7/2/2018	0	116070003
DW - Gamma	Co-60	RPOR	7/2/2018	0	116070003
DW - Gamma	Zn-65	RPOR	7/2/2018	0	116070003
DW - Gamma	Zr-95	RPOR	7/2/2018	0	116070003
Water H-3	Tritium	RPOR	7/2/2018	71.8	116252003
DW - Gamma	I-131	RPOR	7/2/2018	0	116070003

DW - Gamma	Cs-134	RPOR	7/2/2018	0	116070003
DW - Gamma	Cs-137	RPOR	7/2/2018	0	116070003
DW - Gamma	Ba-140	RPOR	7/2/2018	0	116070003
DW - Gamma	La-140	RPOR	7/2/2018	0	116070003
Air Filters	Gross Beta	SIM	7/2/2018	.01563	116081003
Air Filters	Gross Beta	HAN	7/2/2018	.01656	116081007
Air Filters	Gross Beta	RRD	7/2/2018	.01856	116081006
Air Filters	Gross Beta	MET	7/2/2018	.01603	116081005
Air Filters	Gross Beta	DIS	7/2/2018	.01347	116081004
Milk Gamma	I-131	Milky Way	7/10/2018	0	116178002
Milk Gamma	Cs-134	Milky Way	7/10/2018	0	116178002
Milk Gamma	Cs-137	Milky Way	7/10/2018	0	116178002
Milk Gamma	Ba-140	Milky Way	7/10/2018	0	116178002
Milk Gamma	La-140	Milky Way	7/10/2018	0	116178002
Milk Gamma	Be-7	Milky Way	7/10/2018	0	116178002
Air Filters	Gross Beta	WAY	7/10/2018	.02011	116180001
Milk Gamma	I-131	GIR	7/10/2018	0	116178001
Milk Gamma	Be-7	GIR	7/10/2018	0	116178001
Milk Gamma	La-140	GIR	7/10/2018	0	116178001
Milk Gamma	Cs-134	GIR	7/10/2018	0	116178001
Milk Gamma	Cs-137	GIR	7/10/2018	1.33955	116178001
Milk Gamma	Ba-140	GIR	7/10/2018	0	116178001
Air Filters	Gross Beta	GIR	7/10/2018	.01588	116180002
Air Filters	Gross Beta	SIM	7/10/2018	.01451	116180003
Air Filters	Gross Beta	RRD	7/10/2018	.02074	116180006
Air Filters	Gross Beta	HAN	7/10/2018	.02342	116180007
Air Filters	Gross Beta	MET	7/10/2018	.02221	116180005
Air Filters	Gross Beta	DIS	7/10/2018	.01694	116180004
Water H-3	Tritium	151.2	7/10/2018	172	116253001
River Water	Cs-134	R.M. 151.2	7/10/2018	0	116179001
River Water	Cs-137	R.M. 151.2	7/10/2018	0	116179001
River Water	Ba-140	R.M. 151.2	7/10/2018	0	116179001
River Water	La-140	R.M. 151.2	7/10/2018	0	116179001
River Water	Be-7	R.M. 151.2	7/10/2018	0	116179001
River Water	I-131	R.M. 151.2	7/10/2018	0	116179001
River Water	Mn-54	R.M. 151.2	7/10/2018	0	116179001
River Water	Fe-59	R.M. 151.2	7/10/2018	0	116179001
River Water	Co-58	R.M. 151.2	7/10/2018	0	116179001
River Water	Co-60	R.M. 151.2	7/10/2018	0	116179001
River Water	Zn-65	R.M. 151.2	7/10/2018	0	116179001
River Water	Zr-95	R.M. 151.2	7/10/2018	0	116179001
Water H-3	Tritium	150.4	7/10/2018	845	116253002
River Water	Be-7	R.M. 150.4	7/10/2018	0	116179002
River Water	Mn-54	R.M. 150.4	7/10/2018	0	116179002
River Water	Fe-59	R.M. 150.4	7/10/2018	0	116179002
River Water	Co-58	R.M. 150.4	7/10/2018	0	116179002
River Water	Co-60	R.M. 150.4	7/10/2018	0	116179002
River Water	Zn-65	R.M. 150.4	7/10/2018	0	116179002
River Water	Zr-95	R.M. 150.4	7/10/2018	0	116179002
River Water	I-131	R.M. 150.4	7/10/2018	0	116179002
River Water	Cs-134	R.M. 150.4	7/10/2018	0	116179002
River Water	Cs-137	R.M. 150.4	7/10/2018	0	116179002
River Water	Ba-140	R.M. 150.4	7/10/2018	0	116179002
River Water	La-140	R.M. 150.4	7/10/2018	0	116179002
Water H-3	Tritium	149.5	7/10/2018	319	116253003
River Water	Fe-59	R.M. 149.5	7/10/2018	0	116179003
River Water	Co-58	R.M. 149.5	7/10/2018	0	116179003
River Water	Co-60	R.M. 149.5	7/10/2018	0	116179003
River Water	Zn-65	R.M. 149.5	7/10/2018	0	116179003

River Water	Zr-95	R.M. 149.5	7/10/2018	0	116179003
River Water	I-131	R.M. 149.5	7/10/2018	0	116179003
River Water	Cs-134	R.M. 149.5	7/10/2018	0	116179003
River Water	Cs-137	R.M. 149.5	7/10/2018	0	116179003
River Water	Ba-140	R.M. 149.5	7/10/2018	0	116179003
River Water	La-140	R.M. 149.5	7/10/2018	0	116179003
River Water	Be-7	R.M. 149.5	7/10/2018	0	116179003
River Water	Mn-54	R.M. 149.5	7/10/2018	0	116179003
Air Filters	Gross Beta	WAY	7/17/2018	.03085	116283001
Milk Gamma	I-131	Milky Way	7/24/2018	0	116416002
Milk Gamma	Cs-134	Milky Way	7/24/2018	0	116416002
Milk Gamma	Cs-137	Milky Way	7/24/2018	.543	116416002
Milk Gamma	Ba-140	Milky Way	7/24/2018	0	116416002
Milk Gamma	La-140	Milky Way	7/24/2018	0	116416002
Milk Gamma	Be-7	Milky Way	7/24/2018	0	116416002
Air Filters	Gross Beta	WAY	7/24/2018	.02315	116417001
Milk Gamma	Cs-134	GIR	7/24/2018	0	116416001
Milk Gamma	I-131	GIR	7/24/2018	0	116416001
Milk Gamma	Ba-140	GIR	7/24/2018	0	116416001
Milk Gamma	La-140	GIR	7/24/2018	0	116416001
Milk Gamma	Be-7	GIR	7/24/2018	0	116416001
Milk Gamma	Cs-137	GIR	7/24/2018	1.455	116416001
Air Filters	Gross Beta	HAN	7/24/2018	.02301	116417007
Air Filters	Gross Beta	RRD	7/24/2018	.02167	116417006
Air Filters	Gross Beta	MET	7/24/2018	.02244	116417005
Air Filters	Gross Beta	GIR	7/24/2018	.01834	116417002
Air Filters	Gross Beta	DIS	7/24/2018	.02115	116417004
Air Filters	Gross Beta	SIM	7/24/2018	.00942	116417003
Air Filters	Gross Beta	WAY	7/31/2018	.02552	116550001
Vegetation	Cs-134	Waynesboro	7/31/2018	0	116552001
Vegetation	Cs-137	Waynesboro	7/31/2018	0	116552001
Vegetation	Be-7	Waynesboro	7/31/2018	1420.264	116552001
Vegetation	I-131	Waynesboro	7/31/2018	0	116552001
Air Filters	Gross Beta	GIR	7/31/2018	.01722	116550002
Air Filters	Gross Beta	SIM	7/31/2018	.01797	116550003
Vegetation	I-131	Simulator	7/31/2018	0	116552002
Vegetation	Cs-134	Simulator	7/31/2018	0	116552002
Vegetation	Cs-137	Simulator	7/31/2018	0	116552002
Vegetation	Be-7	Simulator	7/31/2018	664.982	116552002
Vegetation	Cs-134	Hancock Landi	7/31/2018	0	116552003
Vegetation	Cs-137	Hancock Landi	7/31/2018	0	116552003
Vegetation	Be-7	Hancock Landi	7/31/2018	1748.298	116552003
Vegetation	I-131	Hancock Landi	7/31/2018	0	116552003
Air Filters	Gross Beta	HAN	7/31/2018	.02486	116550007
Air Filters	Gross Beta	RRD	7/31/2018	.02843	116550006
Air Filters	Gross Beta	MET	7/31/2018	.0236	116550005
Air Filters	Gross Beta	DIS	7/31/2018	.0196	116550004
Fish	Co-60	1532	8/1/2018	0	116553002
Fish	Zn-65	1532	8/1/2018	0	116553002
Fish	Cs-134	1532	8/1/2018	0	116553002
Fish	Cs-137	1532	8/1/2018	0	116553002
Fish	Be-7	1532	8/1/2018	0	116553002
Fish	Mn-54	1532	8/1/2018	0	116553001
Fish	Fe-59	1532	8/1/2018	0	116553001
Fish	Co-58	1532	8/1/2018	0	116553001
Fish	Co-60	1532	8/1/2018	0	116553001
Fish	Zn-65	1532	8/1/2018	0	116553001
Fish	Cs-134	1532	8/1/2018	0	116553001
Fish	Cs-137	1532	8/1/2018	0	116553001

Fish	Be-7	1532	8/1/2018	0	116553001
Fish	Mn-54	1532	8/1/2018	0	116553002
Fish	Fe-59	1532	8/1/2018	0	116553002
Fish	Co-58	1532	8/1/2018	0	116553002
Fish	Co-60	1480	8/1/2018	0	116553003
Fish	Zn-65	1480	8/1/2018	0	116553003
Fish	Cs-134	1480	8/1/2018	0	116553003
Fish	Cs-137	1480	8/1/2018	41.747	116553003
Fish	Be-7	1480	8/1/2018	0	116553003
Fish	Mn-54	1480	8/1/2018	0	116553003
Fish	Fe-59	1480	8/1/2018	0	116553003
Fish	Mn-54	1480	8/1/2018	0	116553004
Fish	Fe-59	1480	8/1/2018	0	116553004
Fish	Co-58	1480	8/1/2018	0	116553004
Fish	Co-60	1480	8/1/2018	0	116553004
Fish	Zn-65	1480	8/1/2018	0	116553004
Fish	Cs-134	1480	8/1/2018	0	116553004
Fish	Cs-137	1480	8/1/2018	0	116553004
Fish	Be-7	1480	8/1/2018	0	116553004
Fish	Co-58	1480	8/1/2018	0	116553003
Air Filters	Gross Beta	WAY	8/7/2018	.01197	116636001
DW - Gamma	Gross Beta	FAUC	8/7/2018	.5036	116640002
DW - Gamma	Cs-134	FAUC	8/7/2018	0	116639002
DW - Gamma	Cs-137	FAUC	8/7/2018	0	116639002
DW - Gamma	Ba-140	FAUC	8/7/2018	0	116639002
DW - Gamma	La-140	FAUC	8/7/2018	0	116639002
DW - Gamma	Be-7	FAUC	8/7/2018	0	116639002
DW - Gamma	Mn-54	FAUC	8/7/2018	0	116639002
DW - Gamma	Fe-59	FAUC	8/7/2018	0	116639002
DW - Gamma	Co-58	FAUC	8/7/2018	0	116639002
DW - Gamma	Co-60	FAUC	8/7/2018	0	116639002
DW - Gamma	Zn-65	FAUC	8/7/2018	0	116639002
DW - Gamma	Zr-95	FAUC	8/7/2018	0	116639002
DW - Gamma	I-131	FAUC	8/7/2018	0	116639002
DW - Gamma	Gross Alpha	FAUC	8/7/2018	0	116640002
DW - Gamma	Mn-54	RAUC	8/7/2018	0	116639001
DW - Gamma	Fe-59	RAUC	8/7/2018	0	116639001
DW - Gamma	Co-58	RAUC	8/7/2018	0	116639001
DW - Gamma	Co-60	RAUC	8/7/2018	0	116639001
DW - Gamma	Gross Beta	RAUC	8/7/2018	1.292	116640001
DW - Gamma	Gross Alpha	RAUC	8/7/2018	0	116640001
DW - Gamma	Zn-65	RAUC	8/7/2018	0	116639001
DW - Gamma	Zr-95	RAUC	8/7/2018	0	116639001
DW - Gamma	I-131	RAUC	8/7/2018	0	116639001
DW - Gamma	Cs-134	RAUC	8/7/2018	0	116639001
DW - Gamma	Cs-137	RAUC	8/7/2018	0	116639001
DW - Gamma	Ba-140	RAUC	8/7/2018	0	116639001
DW - Gamma	La-140	RAUC	8/7/2018	0	116639001
DW - Gamma	Be-7	RAUC	8/7/2018	0	116639001
DW - Gamma	Be-7	FPOR	8/7/2018	0	116639004
DW - Gamma	Mn-54	FPOR	8/7/2018	0	116639004
DW - Gamma	Fe-59	FPOR	8/7/2018	0	116639004
DW - Gamma	Co-58	FPOR	8/7/2018	0	116639004
DW - Gamma	Co-60	FPOR	8/7/2018	0	116639004
DW - Gamma	Zn-65	FPOR	8/7/2018	0	116639004
DW - Gamma	Zr-95	FPOR	8/7/2018	0	116639004
DW - Gamma	I-131	FPOR	8/7/2018	0	116639004
DW - Gamma	Cs-134	FPOR	8/7/2018	0	116639004
DW - Gamma	Cs-137	FPOR	8/7/2018	0	116639004

DW - Gamma	Ba-140	FPOR	8/7/2018	0	116639004
DW - Gamma	La-140	FPOR	8/7/2018	0	116639004
DW - Gamma	Gross Beta	FPOR	8/7/2018	1.025	116640004
DW - Gamma	Gross Alpha	FPOR	8/7/2018	0	116640004
DW - Gamma	Zr-95	RPOR	8/7/2018	0	116639003
DW - Gamma	I-131	RPOR	8/7/2018	0	116639003
DW - Gamma	Cs-134	RPOR	8/7/2018	0	116639003
DW - Gamma	Cs-137	RPOR	8/7/2018	0	116639003
DW - Gamma	Ba-140	RPOR	8/7/2018	0	116639003
DW - Gamma	La-140	RPOR	8/7/2018	0	116639003
DW - Gamma	Be-7	RPOR	8/7/2018	0	116639003
DW - Gamma	Mn-54	RPOR	8/7/2018	0	116639003
DW - Gamma	Fe-59	RPOR	8/7/2018	0	116639003
DW - Gamma	Co-58	RPOR	8/7/2018	0	116639003
DW - Gamma	Co-60	RPOR	8/7/2018	0	116639003
DW - Gamma	Zn-65	RPOR	8/7/2018	0	116639003
DW - Gamma	Gross Beta	RPOR	8/7/2018	-.2026	116640003
DW - Gamma	Gross Alpha	RPOR	8/7/2018	0	116640003
Air Filters	Gross Beta	HAN	8/7/2018	.01196	116636007
Air Filters	Gross Beta	RRD	8/7/2018	.01145	116636006
Air Filters	Gross Beta	SIM	8/7/2018	.01029	116636003
Air Filters	Gross Beta	GIR	8/7/2018	.007898	116636002
DW - Gamma	Zr-95	FPUR	8/7/2018	0	116639006
DW - Gamma	I-131	FPUR	8/7/2018	0	116639006
DW - Gamma	Cs-134	FPUR	8/7/2018	0	116639006
DW - Gamma	Cs-137	FPUR	8/7/2018	0	116639006
DW - Gamma	Ba-140	FPUR	8/7/2018	0	116639006
DW - Gamma	La-140	FPUR	8/7/2018	0	116639006
DW - Gamma	Be-7	FPUR	8/7/2018	0	116639006
DW - Gamma	Gross Beta	FPUR	8/7/2018	-.2043	116640006
DW - Gamma	Gross Alpha	FPUR	8/7/2018	0	116640006
DW - Gamma	Mn-54	FPUR	8/7/2018	0	116639006
DW - Gamma	Fe-59	FPUR	8/7/2018	0	116639006
DW - Gamma	Co-58	FPUR	8/7/2018	0	116639006
DW - Gamma	Co-60	FPUR	8/7/2018	0	116639006
DW - Gamma	Zn-65	FPUR	8/7/2018	0	116639006
DW - Gamma	Mn-54	RPUR	8/7/2018	0	116639005
DW - Gamma	Fe-59	RPUR	8/7/2018	0	116639005
DW - Gamma	Co-58	RPUR	8/7/2018	0	116639005
DW - Gamma	Co-60	RPUR	8/7/2018	0	116639005
DW - Gamma	Zn-65	RPUR	8/7/2018	0	116639005
DW - Gamma	Zr-95	RPUR	8/7/2018	0	116639005
DW - Gamma	I-131	RPUR	8/7/2018	0	116639005
DW - Gamma	Cs-134	RPUR	8/7/2018	0	116639005
DW - Gamma	Cs-137	RPUR	8/7/2018	0	116639005
DW - Gamma	Ba-140	RPUR	8/7/2018	0	116639005
DW - Gamma	La-140	RPUR	8/7/2018	0	116639005
DW - Gamma	Be-7	RPUR	8/7/2018	0	116639005
DW - Gamma	Gross Beta	RPUR	8/7/2018	-.3545	116640005
DW - Gamma	Gross Alpha	RPUR	8/7/2018	0	116640005
Air Filters	Gross Beta	MET	8/7/2018	.01282	116636005
Air Filters	Gross Beta	DIS	8/7/2018	.008768	116636004
River Water	Fe-59	1512	8/7/2018	0	116641001
River Water	Co-58	1512	8/7/2018	0	116641001
River Water	Cs-134	1512	8/7/2018	0	116641001
River Water	Cs-137	1512	8/7/2018	0	116641001
River Water	Ba-140	1512	8/7/2018	0	116641001
River Water	Co-60	1512	8/7/2018	0	116641001
River Water	Zn-65	1512	8/7/2018	0	116641001

River Water	Zr-95	1512	8/7/2018	0	116641001
River Water	I-131	1512	8/7/2018	0	116641001
River Water	La-140	1512	8/7/2018	0	116641001
River Water	Be-7	1512	8/7/2018	0	116641001
River Water	Mn-54	1512	8/7/2018	0	116641001
River Water	Ba-140	1504	8/7/2018	0	116641002
River Water	La-140	1504	8/7/2018	0	116641002
River Water	Be-7	1504	8/7/2018	0	116641002
River Water	Mn-54	1504	8/7/2018	0	116641002
River Water	Fe-59	1504	8/7/2018	0	116641002
River Water	Co-58	1504	8/7/2018	0	116641002
River Water	Co-60	1504	8/7/2018	0	116641002
River Water	Zn-65	1504	8/7/2018	0	116641002
River Water	Zr-95	1504	8/7/2018	0	116641002
River Water	I-131	1504	8/7/2018	0	116641002
River Water	Cs-134	1504	8/7/2018	0	116641002
River Water	Cs-137	1504	8/7/2018	0	116641002
River Water	Fe-59	1495	8/7/2018	0	116641003
River Water	Co-58	1495	8/7/2018	0	116641003
River Water	Co-60	1495	8/7/2018	0	116641003
River Water	Zn-65	1495	8/7/2018	0	116641003
River Water	Zr-95	1495	8/7/2018	0	116641003
River Water	I-131	1495	8/7/2018	0	116641003
River Water	Cs-134	1495	8/7/2018	0	116641003
River Water	Cs-137	1495	8/7/2018	0	116641003
River Water	Ba-140	1495	8/7/2018	0	116641003
River Water	La-140	1495	8/7/2018	0	116641003
River Water	Be-7	1495	8/7/2018	0	116641003
River Water	Mn-54	1495	8/7/2018	0	116641003
Milk Gamma	Ba-140	Milky Way	8/14/2018	0	116702002
Milk Gamma	La-140	Milky Way	8/14/2018	0	116702002
Milk Gamma	Be-7	Milky Way	8/14/2018	0	116702002
Milk Gamma	Cs-137	Milky Way	8/14/2018	0	116702002
Milk Gamma	Cs-134	Milky Way	8/14/2018	0	116702002
Milk Gamma	I-131	Milky Way	8/14/2018	0	116702002
Air Filters	Gross Beta	WAY	8/14/2018	.02022	116700001
Milk Gamma	Cs-137	GIR	8/14/2018	.856651	116702001
Milk Gamma	Ba-140	GIR	8/14/2018	0	116702001
Milk Gamma	La-140	GIR	8/14/2018	0	116702001
Milk Gamma	Be-7	GIR	8/14/2018	0	116702001
Milk Gamma	Cs-134	GIR	8/14/2018	0	116702001
Milk Gamma	I-131	GIR	8/14/2018	0	116702001
Air Filters	Gross Beta	GIR	8/14/2018	.01247	116700002
Air Filters	Gross Beta	SIM	8/14/2018	.01628	116700003
Air Filters	Gross Beta	HAN	8/14/2018	.02437	116700007
Air Filters	Gross Beta	RRD	8/14/2018	.02267	116700006
Air Filters	Gross Beta	MET	8/14/2018	.02304	116700005
Air Filters	Gross Beta	DIS	8/14/2018	.01994	116700004
Air Filters	Gross Beta	WAY	8/21/2018	.01843	116805001
Air Filters	Gross Beta	GIR	8/21/2018	.009181	116805002
Air Filters	Gross Beta	SIM	8/21/2018	.01947	116805003
Air Filters	Gross Beta	HAN	8/21/2018	.01769	116805007
Air Filters	Gross Beta	RRD	8/21/2018	.01869	116805006
Air Filters	Gross Beta	MET	8/21/2018	.01677	116805005
Air Filters	Gross Beta	DIS	8/21/2018	.01597	116805004
Milk Gamma	Ba-140	Milky Way	8/28/2018	0	116868002
Milk Gamma	La-140	Milky Way	8/28/2018	0	116868002
Milk Gamma	Be-7	Milky Way	8/28/2018	0	116868002
Milk Gamma	Cs-134	Milky Way	8/28/2018	0	116868002

Milk Gamma	I-131	Milky Way	8/28/2018	0	116868002
Milk Gamma	Cs-137	Milky Way	8/28/2018	.957541	116868002
Air Filters	Gross Beta	WAY	8/28/2018	.02447	116869001
Milk Gamma	Ba-140	GIR	8/28/2018	0	116868001
Milk Gamma	La-140	GIR	8/28/2018	0	116868001
Milk Gamma	Be-7	GIR	8/28/2018	0	116868001
Milk Gamma	I-131	GIR	8/28/2018	0	116868001
Milk Gamma	Cs-134	GIR	8/28/2018	0	116868001
Milk Gamma	Cs-137	GIR	8/28/2018	1.45495	116868001
Air Filters	Gross Beta	GIR	8/28/2018	.009754	116869002
Air Filters	Gross Beta	SIM	8/28/2018	.01952	116869003
Air Filters	Gross Beta	RRD	8/28/2018	.02753	116869006
Air Filters	Gross Beta	HAN	8/28/2018	.02303	116869007
Air Filters	Gross Beta	MET	8/28/2018	.02335	116869005
Air Filters	Gross Beta	DIS	8/28/2018	.0194	116869004
Vegetation	Cs-134	Hancock Landi	8/30/2018	0	116891003
Vegetation	Cs-137	Hancock Landi	8/30/2018	0	116891003
Vegetation	Be-7	Hancock Landi	8/30/2018	1584.61	116891003
Vegetation	I-131	Hancock Landi	8/30/2018	0	116891003
Vegetation	Cs-134	Simulator	8/30/2018	0	116891002
Vegetation	Cs-137	Simulator	8/30/2018	0	116891002
Vegetation	Be-7	Simulator	8/30/2018	641.718	116891002
Vegetation	I-131	Simulator	8/30/2018	0	116891002
Vegetation	Cs-134	Waynesboro	8/30/2018	0	116891001
Vegetation	Cs-137	Waynesboro	8/30/2018	70.5726	116891001
Vegetation	Be-7	Waynesboro	8/30/2018	1897.69	116891001
Vegetation	I-131	Waynesboro	8/30/2018	0	116891001
DW - Gamma	La-140	FPOR	9/4/2018	0	116964004
DW - Gamma	Be-7	FPOR	9/4/2018	0	116964004
DW - Gamma	Mn-54	FPOR	9/4/2018	0	116964004
DW - Gamma	Fe-59	FPOR	9/4/2018	0	116964004
DW - Gamma	Co-58	FPOR	9/4/2018	0	116964004
DW - Gamma	Co-60	FPOR	9/4/2018	0	116964004
DW - Gamma	Zn-65	FPOR	9/4/2018	0	116964004
DW - Gamma	Zr-95	FPOR	9/4/2018	0	116964004
DW - Gamma	I-131	FPOR	9/4/2018	0	116964004
DW - Gamma	Cs-134	FPOR	9/4/2018	0	116964004
DW - Gamma	Cs-137	FPOR	9/4/2018	0	116964004
DW - Gamma	Ba-140	FPOR	9/4/2018	0	116964004
DW - Gamma	La-140	FAUC	9/4/2018	0	116964002
DW - Gamma	Be-7	FAUC	9/4/2018	0	116964002
DW - Gamma	Mn-54	FAUC	9/4/2018	0	116964002
DW - Gamma	Fe-59	FAUC	9/4/2018	0	116964002
DW - Gamma	Co-58	FAUC	9/4/2018	0	116964002
DW - Gamma	Co-60	FAUC	9/4/2018	0	116964002
DW - Gamma	Zn-65	FAUC	9/4/2018	0	116964002
DW - Gamma	Zr-95	FAUC	9/4/2018	0	116964002
DW - Gamma	I-131	FAUC	9/4/2018	0	116964002
DW - Gamma	Cs-134	FAUC	9/4/2018	0	116964002
DW - Gamma	Cs-137	FAUC	9/4/2018	0	116964002
DW - Gamma	Ba-140	FAUC	9/4/2018	0	116964002
DW - Gamma	Fe-59	RAUC	9/4/2018	0	116964001
DW - Gamma	Co-58	RAUC	9/4/2018	0	116964001
DW - Gamma	Co-60	RAUC	9/4/2018	0	116964001
DW - Gamma	Zn-65	RAUC	9/4/2018	0	116964001
DW - Gamma	Zr-95	RAUC	9/4/2018	0	116964001
DW - Gamma	I-131	RAUC	9/4/2018	0	116964001
DW - Gamma	Cs-134	RAUC	9/4/2018	0	116964001
DW - Gamma	Cs-137	RAUC	9/4/2018	0	116964001

DW - Gamma	Ba-140	RAUC	9/4/2018	0	116964001
DW - Gamma	La-140	RAUC	9/4/2018	0	116964001
DW - Gamma	Be-7	RAUC	9/4/2018	0	116964001
DW - Gamma	Gross Beta	RAUC	9/4/2018	0	116963001
DW - Gamma	Gross Alpha	RAUC	9/4/2018	0	116963001
DW - Gamma	Mn-54	RAUC	9/4/2018	0	116964001
DW - Gamma	Zn-65	RPOR	9/4/2018	0	116964003
DW - Gamma	Zr-95	RPOR	9/4/2018	0	116964003
DW - Gamma	I-131	RPOR	9/4/2018	0	116964003
DW - Gamma	Cs-134	RPOR	9/4/2018	0	116964003
DW - Gamma	Cs-137	RPOR	9/4/2018	0	116964003
DW - Gamma	Ba-140	RPOR	9/4/2018	0	116964003
DW - Gamma	La-140	RPOR	9/4/2018	0	116964003
DW - Gamma	Be-7	RPOR	9/4/2018	0	116964003
DW - Gamma	Mn-54	RPOR	9/4/2018	0	116964003
DW - Gamma	Fe-59	RPOR	9/4/2018	0	116964003
DW - Gamma	Co-58	RPOR	9/4/2018	0	116964003
DW - Gamma	Co-60	RPOR	9/4/2018	0	116964003
Air Filters	Gross Beta	WAY	9/4/2018	.01172	116981001
Air Filters	Gross Beta	GIR	9/4/2018	.00636	116981002
Air Filters	Gross Beta	SIM	9/4/2018	.01434	116981003
Air Filters	Gross Beta	HAN	9/4/2018	.01229	116981007
Air Filters	Gross Beta	RRD	9/4/2018	.01741	116981006
DW - Gamma	Fe-59	RPUR	9/4/2018	0	116964005
DW - Gamma	Co-58	RPUR	9/4/2018	0	116964005
DW - Gamma	Co-60	RPUR	9/4/2018	0	116964005
DW - Gamma	Zn-65	RPUR	9/4/2018	0	116964005
DW - Gamma	Zr-95	RPUR	9/4/2018	0	116964005
DW - Gamma	I-131	RPUR	9/4/2018	0	116964005
DW - Gamma	Cs-134	RPUR	9/4/2018	0	116964005
DW - Gamma	Cs-137	RPUR	9/4/2018	0	116964005
DW - Gamma	Ba-140	RPUR	9/4/2018	0	116964005
DW - Gamma	La-140	RPUR	9/4/2018	0	116964005
DW - Gamma	Be-7	RPUR	9/4/2018	0	116964005
DW - Gamma	Mn-54	RPUR	9/4/2018	0	116964005
Air Filters	Gross Beta	MET	9/4/2018	.01529	116981005
DW - Gamma	Co-58	FPUR	9/4/2018	0	116964006
DW - Gamma	Co-60	FPUR	9/4/2018	0	116964006
DW - Gamma	Zn-65	FPUR	9/4/2018	0	116964006
DW - Gamma	Zr-95	FPUR	9/4/2018	0	116964006
DW - Gamma	I-131	FPUR	9/4/2018	0	116964006
DW - Gamma	Cs-134	FPUR	9/4/2018	0	116964006
DW - Gamma	Cs-137	FPUR	9/4/2018	0	116964006
DW - Gamma	Ba-140	FPUR	9/4/2018	0	116964006
DW - Gamma	La-140	FPUR	9/4/2018	0	116964006
DW - Gamma	Be-7	FPUR	9/4/2018	0	116964006
DW - Gamma	Mn-54	FPUR	9/4/2018	0	116964006
DW - Gamma	Fe-59	FPUR	9/4/2018	0	116964006
Air Filters	Gross Beta	DIS	9/4/2018	.01148	116981004
River Water	Co-60	1512	9/4/2018	0	116966001
River Water	Zn-65	1512	9/4/2018	0	116966001
River Water	Zr-95	1512	9/4/2018	0	116966001
River Water	I-131	1512	9/4/2018	0	116966001
River Water	Cs-134	1512	9/4/2018	0	116966001
River Water	Cs-137	1512	9/4/2018	0	116966001
River Water	Ba-140	1512	9/4/2018	0	116966001
River Water	Mn-54	1512	9/4/2018	0	116966001
River Water	Fe-59	1512	9/4/2018	0	116966001
River Water	Co-58	1512	9/4/2018	0	116966001

River Water	La-140	1512	9/4/2018	0	116966001
River Water	Be-7	1512	9/4/2018	0	116966001
River Water	Mn-54	1504	9/4/2018	0	116966002
River Water	Fe-59	1504	9/4/2018	0	116966002
River Water	Co-58	1504	9/4/2018	0	116966002
River Water	Co-60	1504	9/4/2018	0	116966002
River Water	Zn-65	1504	9/4/2018	0	116966002
River Water	Zr-95	1504	9/4/2018	0	116966002
River Water	I-131	1504	9/4/2018	0	116966002
River Water	Cs-134	1504	9/4/2018	0	116966002
River Water	Cs-137	1504	9/4/2018	0	116966002
River Water	Ba-140	1504	9/4/2018	0	116966002
River Water	La-140	1504	9/4/2018	0	116966002
River Water	Be-7	1504	9/4/2018	0	116966002
River Water	La-140	1495	9/4/2018	0	116966003
River Water	Be-7	1495	9/4/2018	0	116966003
River Water	Mn-54	1495	9/4/2018	0	116966003
River Water	Fe-59	1495	9/4/2018	0	116966003
River Water	Co-58	1495	9/4/2018	0	116966003
River Water	Co-60	1495	9/4/2018	0	116966003
River Water	Zn-65	1495	9/4/2018	0	116966003
River Water	Zr-95	1495	9/4/2018	0	116966003
River Water	I-131	1495	9/4/2018	0	116966003
River Water	Cs-134	1495	9/4/2018	0	116966003
River Water	Cs-137	1495	9/4/2018	0	116966003
River Water	Ba-140	1495	9/4/2018	0	116966003
Milk Gamma	Cs-134	Milky Way	9/11/2018	0	117042002
Milk Gamma	I-131	Milky Way	9/11/2018	0	117042002
Milk Gamma	Be-7	Milky Way	9/11/2018	0	117042002
Milk Gamma	La-140	Milky Way	9/11/2018	0	117042002
Milk Gamma	Ba-140	Milky Way	9/11/2018	0	117042002
Milk Gamma	Cs-137	Milky Way	9/11/2018	1.2033	117042002
Air Filters	Gross Beta	WAY	9/11/2018	.02118	117104001
Milk Gamma	I-131	GIR	9/11/2018	0	117042001
Milk Gamma	Cs-134	GIR	9/11/2018	0	117042001
Milk Gamma	Cs-137	GIR	9/11/2018	.78262	117042001
Milk Gamma	Ba-140	GIR	9/11/2018	0	117042001
Milk Gamma	La-140	GIR	9/11/2018	0	117042001
Milk Gamma	Be-7	GIR	9/11/2018	0	117042001
Air Filters	Gross Beta	HAN	9/11/2018	.02118	117104007
Air Filters	Gross Beta	GIR	9/11/2018	.007696	117104002
Air Filters	Gross Beta	RRD	9/11/2018	.02305	117104006
Air Filters	Gross Beta	SIM	9/11/2018	.01651	117104003
Air Filters	Gross Beta	MET	9/11/2018	.01955	117104005
Air Filters	Gross Beta	DIS	9/11/2018	.01583	117104004
Air Filters	Gross Beta	WAY	9/18/2018	.0093	117188001
Air Filters	Gross Beta	GIR	9/18/2018	.003168	117188002
Air Filters	Gross Beta	SIM	9/18/2018	.006634	117188003
Air Filters	Gross Beta	RRD	9/18/2018	.009752	117188006
Air Filters	Gross Beta	HAN	9/18/2018	.008124	117188007
Air Filters	Gross Beta	MET	9/18/2018	.01286	117188005
Air Filters	Gross Beta	DIS	9/18/2018	.008221	117188004
Milk Gamma	Cs-134	Milky Way	9/25/2018	0	117238002
Milk Gamma	I-131	Milky Way	9/25/2018	0	117238002
Milk Gamma	Be-7	Milky Way	9/25/2018	0	117238002
Milk Gamma	La-140	Milky Way	9/25/2018	0	117238002
Milk Gamma	Ba-140	Milky Way	9/25/2018	0	117238002
Milk Gamma	Cs-137	Milky Way	9/25/2018	1.1677	117238002
Air Filters	Gross Beta	WAY	9/25/2018	.027	117269001

Air Qtr Comp	I-131	WAY	9/25/2018	0	117416001
Air Qtr Comp	Cs-134	WAY	9/25/2018	0	117416001
Air Qtr Comp	Cs-137	WAY	9/25/2018	0	117416001
Air Qtr Comp	Be-7	WAY	9/25/2018	.07981	117416001
Vegetation	Cs-134	Waynesboro	9/25/2018	0	117271001
Vegetation	Cs-137	Waynesboro	9/25/2018	0	117271001
Vegetation	Be-7	Waynesboro	9/25/2018	1076.6	117271001
Vegetation	I-131	Waynesboro	9/25/2018	0	117271001
Milk Gamma	Be-7	GIR	9/25/2018	0	117238001
Milk Gamma	La-140	GIR	9/25/2018	0	117238001
Milk Gamma	Ba-140	GIR	9/25/2018	0	117238001
Milk Gamma	Cs-137	GIR	9/25/2018	1.1914	117238001
Milk Gamma	Cs-134	GIR	9/25/2018	0	117238001
Milk Gamma	I-131	GIR	9/25/2018	0	117238001
Air Qtr Comp	I-131	GIR	9/25/2018	0	117416002
Air Filters	Gross Beta	GIR	9/25/2018	.008324	117269002
Air Qtr Comp	Be-7	GIR	9/25/2018	0	117416002
Air Qtr Comp	Cs-137	GIR	9/25/2018	0	117416002
Air Qtr Comp	Cs-134	GIR	9/25/2018	0	117416002
Air Qtr Comp	Cs-134	SIM	9/25/2018	0	117416003
Air Qtr Comp	Cs-137	SIM	9/25/2018	0	117416003
Air Qtr Comp	Be-7	SIM	9/25/2018	.06709	117416003
Air Qtr Comp	I-131	SIM	9/25/2018	0	117416003
Air Filters	Gross Beta	SIM	9/25/2018	.02142	117269003
Vegetation	Cs-137	Simulator	9/25/2018	0	117271002
Vegetation	Be-7	Simulator	9/25/2018	687.83	117271002
Vegetation	I-131	Simulator	9/25/2018	0	117271002
Vegetation	Cs-134	Simulator	9/25/2018	0	117271002
Air Filters	Gross Beta	DIS	9/25/2018	.02035	117269004
Air Qtr Comp	Be-7	DIS	9/25/2018	.06494	117416004
Air Qtr Comp	I-131	DIS	9/25/2018	0	117416004
Air Qtr Comp	Cs-134	DIS	9/25/2018	0	117416004
Air Qtr Comp	Cs-137	DIS	9/25/2018	0	117416004
Vegetation	Cs-137	Hancock Landi	9/25/2018	0	117271003
Vegetation	Be-7	Hancock Landi	9/25/2018	1257.4	117271003
Vegetation	I-131	Hancock Landi	9/25/2018	0	117271003
Vegetation	Cs-134	Hancock Landi	9/25/2018	0	117271003
Air Qtr Comp	Cs-134	HAN	9/25/2018	0	117416007
Air Qtr Comp	I-131	HAN	9/25/2018	0	117416007
Air Qtr Comp	Be-7	HAN	9/25/2018	.07923	117416007
Air Filters	Gross Beta	HAN	9/25/2018	.02684	117269007
Air Qtr Comp	Cs-137	HAN	9/25/2018	0	117416007
Air Filters	Gross Beta	RRD	9/25/2018	.03012	117269006
Air Qtr Comp	Be-7	RRD	9/25/2018	.07633	117416006
Air Qtr Comp	Cs-137	RRD	9/25/2018	0	117416006
Air Qtr Comp	Cs-134	RRD	9/25/2018	0	117416006
Air Qtr Comp	I-131	RRD	9/25/2018	0	117416006
Air Filters	Gross Beta	MET	9/25/2018	.02243	117269005
Air Qtr Comp	Cs-137	MET	9/25/2018	0	117416005
Air Qtr Comp	Cs-134	MET	9/25/2018	0	117416005
Air Qtr Comp	I-131	MET	9/25/2018	0	117416005
Air Qtr Comp	Be-7	MET	9/25/2018	.07696	117416005
DW - Beta	Gross Alpha	FPUR	10/2/2018	0	117344006
Water H-3	Tritium	FPUR	10/2/2018	596	117541006
DW - Gamma	Mn-54	FPUR	10/2/2018	0	117343006
DW - Gamma	Fe-59	FPUR	10/2/2018	0	117343006
DW - Gamma	Co-58	FPUR	10/2/2018	0	117343006
DW - Gamma	Co-60	FPUR	10/2/2018	0	117343006
DW - Gamma	Zn-65	FPUR	10/2/2018	0	117343006

DW - Gamma	Zr-95	FPUR	10/2/2018	0	117343006
DW - Gamma	I-131	FPUR	10/2/2018	0	117343006
DW - Gamma	Cs-134	FPUR	10/2/2018	0	117343006
DW - Gamma	Cs-137	FPUR	10/2/2018	0	117343006
DW - Gamma	Ba-140	FPUR	10/2/2018	0	117343006
DW - Gamma	La-140	FPUR	10/2/2018	0	117343006
DW - Gamma	Be-7	FPUR	10/2/2018	0	117343006
DW - Beta	Gross Beta	FPUR	10/2/2018	2.216	117344006
DW - Beta	Gross Alpha	RPUR	10/2/2018	0	117344005
DW - Gamma	Mn-54	RPUR	10/2/2018	0	117343005
DW - Gamma	Fe-59	RPUR	10/2/2018	0	117343005
DW - Gamma	Co-58	RPUR	10/2/2018	0	117343005
DW - Gamma	Co-60	RPUR	10/2/2018	0	117343005
Water H-3	Tritium	RPUR	10/2/2018	942	117541005
DW - Gamma	La-140	RPUR	10/2/2018	0	117343005
DW - Gamma	Be-7	RPUR	10/2/2018	0	117343005
DW - Gamma	Zn-65	RPUR	10/2/2018	0	117343005
DW - Gamma	Zr-95	RPUR	10/2/2018	0	117343005
DW - Gamma	I-131	RPUR	10/2/2018	0	117343005
DW - Gamma	Cs-134	RPUR	10/2/2018	0	117343005
DW - Gamma	Cs-137	RPUR	10/2/2018	0	117343005
DW - Gamma	Ba-140	RPUR	10/2/2018	0	117343005
DW - Beta	Gross Beta	RPUR	10/2/2018	-1.284	117344005
DW - Gamma	Fe-59	RPOR	10/2/2018	0	117343003
DW - Gamma	Co-58	RPOR	10/2/2018	0	117343003
DW - Gamma	Co-60	RPOR	10/2/2018	0	117343003
DW - Gamma	Zn-65	RPOR	10/2/2018	0	117343003
DW - Gamma	Zr-95	RPOR	10/2/2018	0	117343003
DW - Beta	Gross Beta	RPOR	10/2/2018	0	117344003
DW - Beta	Gross Alpha	RPOR	10/2/2018	0	117344003
Water H-3	Tritium	RPOR	10/2/2018	1310	117541003
DW - Gamma	I-131	RPOR	10/2/2018	0	117343003
DW - Gamma	Cs-134	RPOR	10/2/2018	0	117343003
DW - Gamma	Cs-137	RPOR	10/2/2018	0	117343003
DW - Gamma	Ba-140	RPOR	10/2/2018	0	117343003
DW - Gamma	La-140	RPOR	10/2/2018	0	117343003
DW - Gamma	Be-7	RPOR	10/2/2018	0	117343003
DW - Gamma	Mn-54	RPOR	10/2/2018	0	117343003
Water H-3	Tritium	FPOR	10/2/2018	672	117541004
DW - Gamma	Cs-137	FPOR	10/2/2018	0	117343004
DW - Gamma	Ba-140	FPOR	10/2/2018	0	117343004
DW - Gamma	La-140	FPOR	10/2/2018	0	117343004
DW - Gamma	Be-7	FPOR	10/2/2018	0	117343004
DW - Beta	Gross Beta	FPOR	10/2/2018	1.559	117344004
DW - Beta	Gross Alpha	FPOR	10/2/2018	0	117344004
DW - Gamma	Mn-54	FPOR	10/2/2018	0	117343004
DW - Gamma	Fe-59	FPOR	10/2/2018	0	117343004
DW - Gamma	Co-58	FPOR	10/2/2018	0	117343004
DW - Gamma	Co-60	FPOR	10/2/2018	0	117343004
DW - Gamma	Zn-65	FPOR	10/2/2018	0	117343004
DW - Gamma	Zr-95	FPOR	10/2/2018	0	117343004
DW - Gamma	I-131	FPOR	10/2/2018	0	117343004
DW - Gamma	Cs-134	FPOR	10/2/2018	0	117343004
Air Filters	Gross Beta	RRD	10/2/2018	.02144	117345006
Air Filters	Gross Beta	HAN	10/2/2018	.02501	117345007
Air Filters	Gross Beta	WAY	10/2/2018	.02152	117345001
Air Filters	Gross Beta	GIR	10/2/2018	.02101	117345002
Air Filters	Gross Beta	SIM	10/2/2018	.01828	117345003
Air Filters	Gross Beta	MET	10/2/2018	.02058	117345005

Air Filters	Gross Beta	DIS	10/2/2018	.01817	117345004
DW - Gamma	I-131	RAUC	10/2/2018	0	117343001
DW - Gamma	Cs-134	RAUC	10/2/2018	0	117343001
DW - Gamma	Cs-137	RAUC	10/2/2018	0	117343001
DW - Gamma	Ba-140	RAUC	10/2/2018	0	117343001
DW - Gamma	La-140	RAUC	10/2/2018	0	117343001
DW - Gamma	Be-7	RAUC	10/2/2018	0	117343001
Water H-3	Tritium	RAUC	10/2/2018	534	117541001
DW - Beta	Gross Beta	RAUC	10/2/2018	.6981	117344001
DW - Beta	Gross Alpha	RAUC	10/2/2018	0	117344001
DW - Gamma	Mn-54	RAUC	10/2/2018	0	117343001
DW - Gamma	Fe-59	RAUC	10/2/2018	0	117343001
DW - Gamma	Co-58	RAUC	10/2/2018	0	117343001
DW - Gamma	Co-60	RAUC	10/2/2018	0	117343001
DW - Gamma	Zn-65	RAUC	10/2/2018	0	117343001
DW - Gamma	Zr-95	RAUC	10/2/2018	0	117343001
DW - Gamma	La-140	FAUC	10/2/2018	0	117343002
DW - Gamma	Be-7	FAUC	10/2/2018	0	117343002
DW - Gamma	Mn-54	FAUC	10/2/2018	0	117343002
DW - Beta	Gross Beta	FAUC	10/2/2018	1.137	117344002
DW - Beta	Gross Alpha	FAUC	10/2/2018	0	117344002
Water H-3	Tritium	FAUC	10/2/2018	425	117541002
DW - Gamma	Fe-59	FAUC	10/2/2018	0	117343002
DW - Gamma	Co-58	FAUC	10/2/2018	0	117343002
DW - Gamma	Co-60	FAUC	10/2/2018	0	117343002
DW - Gamma	Zn-65	FAUC	10/2/2018	0	117343002
DW - Gamma	Zr-95	FAUC	10/2/2018	0	117343002
DW - Gamma	I-131	FAUC	10/2/2018	0	117343002
DW - Gamma	Cs-134	FAUC	10/2/2018	0	117343002
DW - Gamma	Cs-137	FAUC	10/2/2018	0	117343002
DW - Gamma	Ba-140	FAUC	10/2/2018	0	117343002
Milk Gamma	I-131	Milky Way	10/9/2018	0	117468002
Milk Gamma	Cs-134	Milky Way	10/9/2018	0	117468002
Milk Gamma	Cs-137	Milky Way	10/9/2018	.96698	117468002
Milk Gamma	Ba-140	Milky Way	10/9/2018	0	117468002
Milk Gamma	La-140	Milky Way	10/9/2018	0	117468002
Milk Gamma	Be-7	Milky Way	10/9/2018	0	117468002
Air Filters	Gross Beta	WAY	10/9/2018	.03066	117509001
Milk Gamma	Be-7	GIR	10/9/2018	0	117468001
Milk Gamma	La-140	GIR	10/9/2018	0	117468001
Milk Gamma	Ba-140	GIR	10/9/2018	0	117468001
Milk Gamma	Cs-137	GIR	10/9/2018	1.0196	117468001
Milk Gamma	Cs-134	GIR	10/9/2018	0	117468001
Milk Gamma	I-131	GIR	10/9/2018	0	117468001
Air Filters	Gross Beta	GIR	10/9/2018	.0192	117509002
Air Filters	Gross Beta	HAN	10/9/2018	.03217	117509007
Air Filters	Gross Beta	RRD	10/9/2018	.03383	117509006
Air Filters	Gross Beta	SIM	10/9/2018	.03355	117509003
Air Filters	Gross Beta	MET	10/9/2018	.03215	117509005
Air Filters	Gross Beta	DIS	10/9/2018	.03603	117509004
Water H-3	Tritium	1512	10/9/2018	300	117540001
River Water	Mn-54	1512	10/9/2018	0	117469001
River Water	Fe-59	1512	10/9/2018	0	117469001
River Water	Co-58	1512	10/9/2018	0	117469001
River Water	Co-60	1512	10/9/2018	0	117469001
River Water	Zn-65	1512	10/9/2018	0	117469001
River Water	Zr-95	1512	10/9/2018	0	117469001
River Water	I-131	1512	10/9/2018	0	117469001
River Water	Cs-134	1512	10/9/2018	0	117469001

River Water	Cs-137	1512	10/9/2018	0	117469001
River Water	Ba-140	1512	10/9/2018	0	117469001
River Water	La-140	1512	10/9/2018	0	117469001
River Water	Be-7	1512	10/9/2018	0	117469001
River Water	La-140	1504	10/9/2018	0	117469002
River Water	I-131	1504	10/9/2018	0	117469002
River Water	Be-7	1504	10/9/2018	0	117469002
Water H-3	Tritium	1504	10/9/2018	2850	117540002
River Water	Cs-134	1504	10/9/2018	0	117469002
River Water	Cs-137	1504	10/9/2018	0	117469002
River Water	Ba-140	1504	10/9/2018	0	117469002
River Water	Mn-54	1504	10/9/2018	0	117469002
River Water	Fe-59	1504	10/9/2018	0	117469002
River Water	Co-58	1504	10/9/2018	0	117469002
River Water	Co-60	1504	10/9/2018	0	117469002
River Water	Zn-65	1504	10/9/2018	0	117469002
River Water	Zr-95	1504	10/9/2018	0	117469002
River Water	Mn-54	1495	10/9/2018	0	117469003
River Water	Ba-140	1495	10/9/2018	0	117469003
River Water	La-140	1495	10/9/2018	0	117469003
River Water	Be-7	1495	10/9/2018	0	117469003
River Water	Fe-59	1495	10/9/2018	0	117469003
River Water	Co-58	1495	10/9/2018	0	117469003
River Water	Co-60	1495	10/9/2018	0	117469003
River Water	Zn-65	1495	10/9/2018	0	117469003
River Water	Zr-95	1495	10/9/2018	0	117469003
River Water	I-131	1495	10/9/2018	0	117469003
River Water	Cs-134	1495	10/9/2018	0	117469003
River Water	Cs-137	1495	10/9/2018	0	117469003
Water H-3	Tritium	1495	10/9/2018	1040	117540003
Air Filters	Gross Beta	WAY	10/16/2018	.02085	117698001
Air Filters	Gross Beta	GIR	10/16/2018	.01014	117698002
Air Filters	Gross Beta	SIM	10/16/2018	.01734	117698003
Air Filters	Gross Beta	HAN	10/16/2018	.02243	117698007
Air Filters	Gross Beta	RRD	10/16/2018	.02487	117698006
Air Filters	Gross Beta	MET	10/16/2018	.01926	117698005
Air Filters	Gross Beta	DIS	10/16/2018	.02129	117698004
Milk Gamma	Be-7	Milky Way	10/23/2018	0	117811002
Milk Gamma	La-140	Milky Way	10/23/2018	0	117811002
Milk Gamma	Ba-140	Milky Way	10/23/2018	0	117811002
Milk Gamma	Cs-137	Milky Way	10/23/2018	.93935	117811002
Milk Gamma	Cs-134	Milky Way	10/23/2018	0	117811002
Milk Gamma	I-131	Milky Way	10/23/2018	0	117811002
Air Filters	Gross Beta	WAY	10/23/2018	.02232	117812001
Milk Gamma	Ba-140	GIR	10/23/2018	0	117811001
Milk Gamma	La-140	GIR	10/23/2018	0	117811001
Milk Gamma	Be-7	GIR	10/23/2018	0	117811001
Milk Gamma	I-131	GIR	10/23/2018	0	117811001
Milk Gamma	Cs-134	GIR	10/23/2018	0	117811001
Milk Gamma	Cs-137	GIR	10/23/2018	1.1204	117811001
Air Filters	Gross Beta	SIM	10/23/2018	.01804	117812003
Air Filters	Gross Beta	GIR	10/23/2018	.02328	117812002
Air Filters	Gross Beta	HAN	10/23/2018	.0221	117812007
Air Filters	Gross Beta	RRD	10/23/2018	.02609	117812006
Air Filters	Gross Beta	MET	10/23/2018	.02183	117812005
Air Filters	Gross Beta	DIS	10/23/2018	.02257	117812004
Sediment	Be-7	1502	10/23/2018	0	117824001
Sediment	Cs-137	1502	10/23/2018	0	117824001
Sediment	Cs-134	1502	10/23/2018	0	117824001

Sediment	Co-60	1502	10/23/2018	0	117824001
Sediment	Co-58	1502	10/23/2018	0	117824001
Sediment	Be-7	1533	10/23/2018	366.31	117824002
Sediment	Cs-137	1533	10/23/2018	47.739	117824002
Sediment	Cs-134	1533	10/23/2018	0	117824002
Sediment	Co-60	1533	10/23/2018	0	117824002
Sediment	Co-58	1533	10/23/2018	0	117824002
Milk Gamma	Cs-137	GIR	10/30/2018	1.023	117935001
Milk Gamma	Ba-140	GIR	10/30/2018	0	117935001
Milk Gamma	La-140	GIR	10/30/2018	0	117935001
Milk Gamma	Be-7	GIR	10/30/2018	0	117935001
Milk Gamma	I-131	GIR	10/30/2018	0	117935001
Milk Gamma	Cs-134	GIR	10/30/2018	0	117935001
Milk Gamma	Be-7	Milky Way	10/30/2018	0	117935002
Milk Gamma	La-140	Milky Way	10/30/2018	0	117935002
Milk Gamma	Ba-140	Milky Way	10/30/2018	0	117935002
Milk Gamma	Cs-137	Milky Way	10/30/2018	1.1854	117935002
Milk Gamma	Cs-134	Milky Way	10/30/2018	0	117935002
Milk Gamma	I-131	Milky Way	10/30/2018	0	117935002
Air Filters	Gross Beta	GIR	10/30/2018	.02212	117937002
Vegetation	Cs-134	Waynesboro	10/30/2018	0	117936001
Vegetation	Cs-137	Waynesboro	10/30/2018	0	117936001
Vegetation	Be-7	Waynesboro	10/30/2018	1748.4	117936001
Vegetation	I-131	Waynesboro	10/30/2018	0	117936001
Air Filters	Gross Beta	MET	10/30/2018	.02377	117937005
Air Filters	Gross Beta	DIS	10/30/2018	.0224	117937004
Air Filters	Gross Beta	WAY	10/30/2018	.02446	117937001
Air Filters	Gross Beta	RRD	10/30/2018	.02371	117937006
Air Filters	Gross Beta	HAN	10/30/2018	.02217	117937007
Vegetation	Cs-134	Hancock Landi	10/30/2018	0	117936003
Vegetation	Cs-137	Hancock Landi	10/30/2018	0	117936003
Vegetation	Be-7	Hancock Landi	10/30/2018	2290.1	117936003
Vegetation	I-131	Hancock Landi	10/30/2018	0	117936003
Vegetation	Cs-134	Simulator	10/30/2018	0	117936002
Vegetation	Cs-137	Simulator	10/30/2018	0	117936002
Vegetation	Be-7	Simulator	10/30/2018	2073.3	117936002
Vegetation	I-131	Simulator	10/30/2018	0	117936002
Air Filters	Gross Beta	SIM	10/30/2018	.01801	117937003
DW - Beta	Gross Beta	FAUC	11/5/2018	1.853	118049002
DW - Beta	Gross Alpha	FAUC	11/5/2018	0	118049002
DW - Gamma	Mn-54	FAUC	11/5/2018	0	118050002
DW - Gamma	Fe-59	FAUC	11/5/2018	0	118050002
DW - Gamma	Co-58	FAUC	11/5/2018	0	118050002
DW - Gamma	Co-60	FAUC	11/5/2018	0	118050002
DW - Gamma	Zn-65	FAUC	11/5/2018	0	118050002
DW - Gamma	Zr-95	FAUC	11/5/2018	0	118050002
DW - Gamma	I-131	FAUC	11/5/2018	0	118050002
DW - Gamma	Cs-134	FAUC	11/5/2018	0	118050002
DW - Gamma	Cs-137	FAUC	11/5/2018	0	118050002
DW - Gamma	Ba-140	FAUC	11/5/2018	0	118050002
DW - Gamma	La-140	FAUC	11/5/2018	0	118050002
DW - Gamma	Be-7	FAUC	11/5/2018	0	118050002
DW - Beta	Gross Beta	RAUC	11/5/2018	2.746	118049001
DW - Beta	Gross Alpha	RAUC	11/5/2018	0	118049001
DW - Gamma	Fe-59	RAUC	11/5/2018	0	118050001
DW - Gamma	Mn-54	RAUC	11/5/2018	0	118050001
DW - Gamma	Co-58	RAUC	11/5/2018	0	118050001
DW - Gamma	Co-60	RAUC	11/5/2018	0	118050001
DW - Gamma	Zn-65	RAUC	11/5/2018	0	118050001

DW - Gamma	Zr-95	RAUC	11/5/2018	0	118050001
DW - Gamma	I-131	RAUC	11/5/2018	0	118050001
DW - Gamma	Cs-134	RAUC	11/5/2018	0	118050001
DW - Gamma	Cs-137	RAUC	11/5/2018	0	118050001
DW - Gamma	Ba-140	RAUC	11/5/2018	0	118050001
DW - Gamma	La-140	RAUC	11/5/2018	0	118050001
DW - Gamma	Be-7	RAUC	11/5/2018	0	118050001
DW - Beta	Gross Beta	FPUR	11/6/2018	2.892	118049006
DW - Beta	Gross Alpha	FPUR	11/6/2018	0	118049006
DW - Gamma	Fe-59	FPUR	11/6/2018	0	118050006
DW - Gamma	Co-58	FPUR	11/6/2018	0	118050006
DW - Gamma	Zn-65	FPUR	11/6/2018	0	118050006
DW - Gamma	Zr-95	FPUR	11/6/2018	0	118050006
DW - Gamma	Co-60	FPUR	11/6/2018	0	118050006
DW - Gamma	La-140	FPUR	11/6/2018	0	118050006
DW - Gamma	Be-7	FPUR	11/6/2018	0	118050006
DW - Gamma	Ba-140	FPUR	11/6/2018	0	118050006
DW - Gamma	Cs-134	FPUR	11/6/2018	0	118050006
DW - Gamma	Cs-137	FPUR	11/6/2018	0	118050006
DW - Gamma	I-131	FPUR	11/6/2018	0	118050006
DW - Gamma	Mn-54	FPUR	11/6/2018	0	118050006
DW - Beta	Gross Alpha	RPUR	11/6/2018	0	118049005
DW - Beta	Gross Beta	RPUR	11/6/2018	3.081	118049005
DW - Gamma	Mn-54	RPUR	11/6/2018	0	118050005
DW - Gamma	Fe-59	RPUR	11/6/2018	0	118050005
DW - Gamma	Co-58	RPUR	11/6/2018	0	118050005
DW - Gamma	Co-60	RPUR	11/6/2018	0	118050005
DW - Gamma	Zn-65	RPUR	11/6/2018	0	118050005
DW - Gamma	Zr-95	RPUR	11/6/2018	0	118050005
DW - Gamma	I-131	RPUR	11/6/2018	0	118050005
DW - Gamma	Cs-134	RPUR	11/6/2018	0	118050005
DW - Gamma	Cs-137	RPUR	11/6/2018	0	118050005
DW - Gamma	Ba-140	RPUR	11/6/2018	0	118050005
DW - Gamma	La-140	RPUR	11/6/2018	0	118050005
DW - Gamma	Be-7	RPUR	11/6/2018	0	118050005
DW - Gamma	Be-7	FPOR	11/6/2018	0	118050004
DW - Gamma	Co-60	FPOR	11/6/2018	0	118050004
DW - Gamma	Zn-65	FPOR	11/6/2018	0	118050004
DW - Gamma	Zr-95	FPOR	11/6/2018	0	118050004
DW - Gamma	Mn-54	FPOR	11/6/2018	0	118050004
DW - Beta	Gross Beta	FPOR	11/6/2018	3.102	118049004
DW - Beta	Gross Alpha	FPOR	11/6/2018	0	118049004
DW - Gamma	Fe-59	FPOR	11/6/2018	0	118050004
DW - Gamma	Co-58	FPOR	11/6/2018	0	118050004
DW - Gamma	I-131	FPOR	11/6/2018	0	118050004
DW - Gamma	Cs-134	FPOR	11/6/2018	0	118050004
DW - Gamma	Cs-137	FPOR	11/6/2018	0	118050004
DW - Gamma	Ba-140	FPOR	11/6/2018	0	118050004
DW - Gamma	La-140	FPOR	11/6/2018	0	118050004
DW - Gamma	La-140	RPOR	11/6/2018	0	118050003
DW - Gamma	Be-7	RPOR	11/6/2018	0	118050003
DW - Gamma	Mn-54	RPOR	11/6/2018	0	118050003
DW - Gamma	Fe-59	RPOR	11/6/2018	0	118050003
DW - Gamma	Co-58	RPOR	11/6/2018	0	118050003
DW - Gamma	Co-60	RPOR	11/6/2018	0	118050003
DW - Gamma	Zn-65	RPOR	11/6/2018	0	118050003
DW - Gamma	Zr-95	RPOR	11/6/2018	0	118050003
DW - Beta	Gross Beta	RPOR	11/6/2018	3.199	118049003
DW - Beta	Gross Alpha	RPOR	11/6/2018	0	118049003

DW - Gamma	I-131	RPOR	11/6/2018	0	118050003
DW - Gamma	Cs-134	RPOR	11/6/2018	0	118050003
DW - Gamma	Cs-137	RPOR	11/6/2018	0	118050003
DW - Gamma	Ba-140	RPOR	11/6/2018	0	118050003
Air Filters	Gross Beta	WAY	11/6/2018	.01795	118047001
Air Filters	Gross Beta	GIR	11/6/2018	.01827	118047002
Air Filters	Gross Beta	SIM	11/6/2018	.01536	118047003
Air Filters	Gross Beta	HAN	11/6/2018	.01768	118047007
Air Filters	Gross Beta	RRD	11/6/2018	.01867	118047006
Air Filters	Gross Beta	MET	11/6/2018	.01845	118047005
Air Filters	Gross Beta	DIS	11/6/2018	.02026	118047004
Milk Gamma	Be-7	MIL	11/13/2018	0	118122002
Milk Gamma	I-131	MIL	11/13/2018	0	118122002
Milk Gamma	Cs-134	MIL	11/13/2018	0	118122002
Milk Gamma	Cs-137	MIL	11/13/2018	1.0849	118122002
Milk Gamma	Ba-140	MIL	11/13/2018	0	118122002
Milk Gamma	La-140	MIL	11/13/2018	0	118122002
Air Filters	Gross Beta	WAY	11/13/2018	.0214	118124001
Milk Gamma	Cs-134	GIR	11/13/2018	0	118122001
Milk Gamma	I-131	GIR	11/13/2018	0	118122001
Milk Gamma	Ba-140	GIR	11/13/2018	0	118122001
Milk Gamma	Be-7	GIR	11/13/2018	0	118122001
Milk Gamma	La-140	GIR	11/13/2018	0	118122001
Milk Gamma	Cs-137	GIR	11/13/2018	1.0765	118122001
Air Filters	Gross Beta	GIR	11/13/2018	.02086	118124002
Air Filters	Gross Beta	SIM	11/13/2018	.02456	118124003
Air Filters	Gross Beta	HAN	11/13/2018	.02315	118124007
Air Filters	Gross Beta	RRD	11/13/2018	.02608	118124006
Air Filters	Gross Beta	MET	11/13/2018	.02406	118124005
Air Filters	Gross Beta	DIS	11/13/2018	.02024	118124004
River Water	Mn-54	1512	11/13/2018	0	118123001
River Water	Fe-59	1512	11/13/2018	0	118123001
River Water	Co-58	1512	11/13/2018	0	118123001
River Water	Co-60	1512	11/13/2018	0	118123001
River Water	Zn-65	1512	11/13/2018	0	118123001
River Water	Zr-95	1512	11/13/2018	0	118123001
River Water	I-131	1512	11/13/2018	0	118123001
River Water	Cs-134	1512	11/13/2018	0	118123001
River Water	Cs-137	1512	11/13/2018	0	118123001
River Water	Ba-140	1512	11/13/2018	0	118123001
River Water	La-140	1512	11/13/2018	0	118123001
River Water	Be-7	1512	11/13/2018	0	118123001
River Water	Mn-54	1504	11/13/2018	0	118123002
River Water	Fe-59	1504	11/13/2018	0	118123002
River Water	Co-58	1504	11/13/2018	0	118123002
River Water	Co-60	1504	11/13/2018	0	118123002
River Water	Zn-65	1504	11/13/2018	0	118123002
River Water	Zr-95	1504	11/13/2018	0	118123002
River Water	I-131	1504	11/13/2018	0	118123002
River Water	Cs-134	1504	11/13/2018	0	118123002
River Water	Cs-137	1504	11/13/2018	0	118123002
River Water	Ba-140	1504	11/13/2018	0	118123002
River Water	La-140	1504	11/13/2018	0	118123002
River Water	Be-7	1504	11/13/2018	0	118123002
River Water	I-131	1495	11/13/2018	0	118123003
River Water	Cs-134	1495	11/13/2018	0	118123003
River Water	Cs-137	1495	11/13/2018	0	118123003
River Water	Ba-140	1495	11/13/2018	0	118123003
River Water	La-140	1495	11/13/2018	0	118123003

River Water	Be-7	1495	11/13/2018	0	118123003
River Water	Mn-54	1495	11/13/2018	0	118123003
River Water	Fe-59	1495	11/13/2018	0	118123003
River Water	Co-58	1495	11/13/2018	0	118123003
River Water	Co-60	1495	11/13/2018	0	118123003
River Water	Zn-65	1495	11/13/2018	0	118123003
River Water	Zr-95	1495	11/13/2018	0	118123003
Air Filters	Gross Beta	WAY	11/20/2018	.02901	118230001
Air Filters	Gross Beta	GIR	11/20/2018	.02383	118230002
Air Filters	Gross Beta	SIM	11/20/2018	.02821	118230003
Air Filters	Gross Beta	HAN	11/20/2018	.02603	118230007
Air Filters	Gross Beta	RRD	11/20/2018	.02752	118230006
Air Filters	Gross Beta	MET	11/20/2018	.02422	118230005
Air Filters	Gross Beta	DIS	11/20/2018	.02354	118230004
Milk Gamma	Be-7	Milky Way	11/27/2018	0	118267002
Milk Gamma	I-131	Milky Way	11/27/2018	0	118267002
Milk Gamma	Cs-134	Milky Way	11/27/2018	0	118267002
Milk Gamma	Cs-137	Milky Way	11/27/2018	.83482	118267002
Milk Gamma	Ba-140	Milky Way	11/27/2018	0	118267002
Milk Gamma	La-140	Milky Way	11/27/2018	0	118267002
Air Filters	Gross Beta	WAY	11/27/2018	.02626	118265001
Vegetation	I-131	Waynesboro	11/27/2018	0	118268001
Vegetation	Cs-134	Waynesboro	11/27/2018	0	118268001
Vegetation	Cs-137	Waynesboro	11/27/2018	0	118268001
Vegetation	Be-7	Waynesboro	11/27/2018	2265.4	118268001
Milk Gamma	Be-7	GIR	11/27/2018	0	118267001
Milk Gamma	I-131	GIR	11/27/2018	0	118267001
Milk Gamma	Cs-134	GIR	11/27/2018	0	118267001
Milk Gamma	Cs-137	GIR	11/27/2018	1.0037	118267001
Milk Gamma	Ba-140	GIR	11/27/2018	0	118267001
Milk Gamma	La-140	GIR	11/27/2018	0	118267001
Air Filters	Gross Beta	GIR	11/27/2018	.02585	118265002
Air Filters	Gross Beta	SIM	11/27/2018	.02529	118265003
Vegetation	I-131	Simulator	11/27/2018	0	118268002
Vegetation	Cs-134	Simulator	11/27/2018	0	118268002
Vegetation	Cs-137	Simulator	11/27/2018	0	118268002
Vegetation	Be-7	Simulator	11/27/2018	3860.5	118268002
Air Filters	Gross Beta	HAN	11/27/2018	.02877	118265007
Vegetation	Cs-134	Hancock Landi	11/27/2018	0	118268003
Vegetation	Cs-137	Hancock Landi	11/27/2018	0	118268003
Vegetation	Be-7	Hancock Landi	11/27/2018	985.54	118268003
Vegetation	I-131	Hancock Landi	11/27/2018	0	118268003
Air Filters	Gross Beta	RRD	11/27/2018	.03093	118265006
Air Filters	Gross Beta	MET	11/27/2018	.02713	118265005
Air Filters	Gross Beta	DIS	11/27/2018	.0275	118265004
DW - Beta	Gross Beta	RPOR	12/3/2018	2	118398001
DW - Beta	Gross Alpha	RPOR	12/3/2018	0	118398001
DW - Beta	Gross Alpha	FPUR	12/3/2018	0	118398004
DW - Gamma	I-131	FPUR	12/3/2018	0	118399004
DW - Gamma	Cs-134	FPUR	12/3/2018	0	118399004
DW - Gamma	Cs-137	FPUR	12/3/2018	0	118399004
DW - Gamma	Ba-140	FPUR	12/3/2018	0	118399004
DW - Gamma	La-140	FPUR	12/3/2018	0	118399004
DW - Gamma	Be-7	FPUR	12/3/2018	0	118399004
DW - Gamma	Mn-54	FPUR	12/3/2018	0	118399004
DW - Gamma	Fe-59	FPUR	12/3/2018	0	118399004
DW - Gamma	Co-58	FPUR	12/3/2018	0	118399004
DW - Gamma	Co-60	FPUR	12/3/2018	0	118399004
DW - Beta	Gross Beta	FPUR	12/3/2018	2	118398004

DW - Gamma	Zn-65	FPUR	12/3/2018	0	118399004
DW - Gamma	Zr-95	FPUR	12/3/2018	0	118399004
DW - Gamma	Zr-95	RPUR	12/3/2018	0	118399003
DW - Gamma	Ba-140	RPUR	12/3/2018	0	118399003
DW - Gamma	Cs-137	RPUR	12/3/2018	0	118399003
DW - Gamma	I-131	RPUR	12/3/2018	0	118399003
DW - Gamma	Cs-134	RPUR	12/3/2018	0	118399003
DW - Gamma	La-140	RPUR	12/3/2018	0	118399003
DW - Gamma	Be-7	RPUR	12/3/2018	0	118399003
DW - Gamma	Mn-54	RPUR	12/3/2018	0	118399003
DW - Gamma	Fe-59	RPUR	12/3/2018	0	118399003
DW - Gamma	Co-58	RPUR	12/3/2018	0	118399003
DW - Gamma	Co-60	RPUR	12/3/2018	0	118399003
DW - Gamma	Zn-65	RPUR	12/3/2018	0	118399003
DW - Beta	Gross Alpha	RPUR	12/3/2018	0	118398003
DW - Beta	Gross Beta	RPUR	12/3/2018	2	118398003
DW - Gamma	Fe-59	FPOR	12/3/2018	0	118399002
DW - Gamma	Co-58	FPOR	12/3/2018	0	118399002
DW - Gamma	Co-60	FPOR	12/3/2018	0	118399002
DW - Gamma	Zn-65	FPOR	12/3/2018	0	118399002
DW - Gamma	Zr-95	FPOR	12/3/2018	0	118399002
DW - Gamma	I-131	FPOR	12/3/2018	0	118399002
DW - Gamma	Cs-134	FPOR	12/3/2018	0	118399002
DW - Gamma	Cs-137	FPOR	12/3/2018	0	118399002
DW - Gamma	Ba-140	FPOR	12/3/2018	0	118399002
DW - Gamma	La-140	FPOR	12/3/2018	0	118399002
DW - Gamma	Be-7	FPOR	12/3/2018	0	118399002
DW - Beta	Gross Alpha	FPOR	12/3/2018	0	118398002
DW - Beta	Gross Beta	FPOR	12/3/2018	2	118398002
DW - Gamma	Mn-54	FPOR	12/3/2018	0	118399002
DW - Gamma	Co-58	RPOR	12/3/2018	0	118399001
DW - Gamma	Co-60	RPOR	12/3/2018	0	118399001
DW - Gamma	La-140	RPOR	12/3/2018	0	118399001
DW - Gamma	Be-7	RPOR	12/3/2018	0	118399001
DW - Gamma	Zn-65	RPOR	12/3/2018	0	118399001
DW - Gamma	Zr-95	RPOR	12/3/2018	0	118399001
DW - Gamma	I-131	RPOR	12/3/2018	0	118399001
DW - Gamma	Cs-134	RPOR	12/3/2018	0	118399001
DW - Gamma	Cs-137	RPOR	12/3/2018	0	118399001
DW - Gamma	Fe-59	RPOR	12/3/2018	0	118399001
DW - Gamma	Mn-54	RPOR	12/3/2018	0	118399001
DW - Gamma	Ba-140	RPOR	12/3/2018	0	118399001
DW - Gamma	Co-60	RAUC	12/4/2018	0	118367001
DW - Gamma	Zn-65	RAUC	12/4/2018	0	118367001
DW - Gamma	Zr-95	RAUC	12/4/2018	0	118367001
DW - Gamma	I-131	RAUC	12/4/2018	0	118367001
DW - Gamma	Cs-134	RAUC	12/4/2018	0	118367001
DW - Gamma	Cs-137	RAUC	12/4/2018	0	118367001
DW - Gamma	Ba-140	RAUC	12/4/2018	0	118367001
DW - Gamma	La-140	RAUC	12/4/2018	0	118367001
DW - Gamma	Be-7	RAUC	12/4/2018	0	118367001
DW - Beta	Gross Alpha	RAUC	12/4/2018	0	118366001
DW - Beta	Gross Beta	RAUC	12/4/2018	-1.615	118366001
DW - Gamma	Mn-54	RAUC	12/4/2018	0	118367001
DW - Gamma	Fe-59	RAUC	12/4/2018	0	118367001
DW - Gamma	Co-58	RAUC	12/4/2018	0	118367001
DW - Beta	Gross Beta	FAUC	12/4/2018	-2.017	118366002
DW - Gamma	Zn-65	FAUC	12/4/2018	0	118367002
DW - Gamma	Zr-95	FAUC	12/4/2018	0	118367002

DW - Gamma	I-131	FAUC	12/4/2018	0	118367002
DW - Gamma	Cs-134	FAUC	12/4/2018	0	118367002
DW - Gamma	Cs-137	FAUC	12/4/2018	0	118367002
DW - Gamma	Ba-140	FAUC	12/4/2018	0	118367002
DW - Gamma	La-140	FAUC	12/4/2018	0	118367002
DW - Gamma	Be-7	FAUC	12/4/2018	0	118367002
DW - Gamma	Mn-54	FAUC	12/4/2018	0	118367002
DW - Gamma	Fe-59	FAUC	12/4/2018	0	118367002
DW - Gamma	Co-58	FAUC	12/4/2018	0	118367002
DW - Gamma	Co-60	FAUC	12/4/2018	0	118367002
DW - Beta	Gross Alpha	FAUC	12/4/2018	0	118366002
Air Filters	Gross Beta	WAY	12/4/2018	.02529	118368001
Air Filters	Gross Beta	GIR	12/4/2018	.02255	118368002
Air Filters	Gross Beta	SIM	12/4/2018	.02384	118368003
Air Filters	Gross Beta	MET	12/4/2018	.02975	118368005
Air Filters	Gross Beta	HAN	12/4/2018	.0278	118368007
Air Filters	Gross Beta	RRD	12/4/2018	.02559	118368006
Air Filters	Gross Beta	DIS	12/4/2018	.0281	118368004
Milk Gamma	Cs-134	Milky Way	12/11/2018	0	118529002
Milk Gamma	I-131	Milky Way	12/11/2018	0	118529002
Milk Gamma	Be-7	Milky Way	12/11/2018	0	118529002
Milk Gamma	La-140	Milky Way	12/11/2018	0	118529002
Milk Gamma	Ba-140	Milky Way	12/11/2018	0	118529002
Milk Gamma	Cs-137	Milky Way	12/11/2018	.68762	118529002
Air Filters	Gross Beta	WAY	12/11/2018	.02104	118562001
Milk Gamma	Be-7	GIR	12/11/2018	0	118529001
Milk Gamma	La-140	GIR	12/11/2018	0	118529001
Milk Gamma	Ba-140	GIR	12/11/2018	0	118529001
Milk Gamma	Cs-137	GIR	12/11/2018	.8545	118529001
Milk Gamma	Cs-134	GIR	12/11/2018	0	118529001
Milk Gamma	I-131	GIR	12/11/2018	0	118529001
Air Filters	Gross Beta	GIR	12/11/2018	.01634	118562002
Air Filters	Gross Beta	HAN	12/11/2018	.01797	118562007
Air Filters	Gross Beta	RRD	12/11/2018	.0199	118562006
Air Filters	Gross Beta	SIM	12/11/2018	.0141	118562003
Air Filters	Gross Beta	MET	12/11/2018	.01763	118562005
Air Filters	Gross Beta	DIS	12/11/2018	.0184	118562004
River Water	Co-58	1512	12/11/2018	0	118530001
River Water	Co-60	1512	12/11/2018	0	118530001
River Water	Zn-65	1512	12/11/2018	0	118530001
River Water	Ba-140	1512	12/11/2018	0	118530001
River Water	La-140	1512	12/11/2018	0	118530001
River Water	Be-7	1512	12/11/2018	0	118530001
River Water	Mn-54	1512	12/11/2018	0	118530001
River Water	Zr-95	1512	12/11/2018	0	118530001
River Water	I-131	1512	12/11/2018	0	118530001
River Water	Cs-134	1512	12/11/2018	0	118530001
River Water	Cs-137	1512	12/11/2018	0	118530001
River Water	Fe-59	1512	12/11/2018	0	118530001
Air Filters	Gross Beta	WAY	12/18/2018	.0186	118603001
Air Filters	Gross Beta	SIM	12/18/2018	.01784	118603003
Air Filters	Gross Beta	HAN	12/18/2018	.01944	118603007
Air Filters	Gross Beta	RRD	12/18/2018	.01648	118603006
Air Filters	Gross Beta	MET	12/18/2018	.01065	118603005
Air Filters	Gross Beta	DIS	12/18/2018	.02003	118603004
Milk Gamma	Ba-140	Milky Way	12/24/2018	0	118675002
Milk Gamma	Cs-137	Milky Way	12/24/2018	.70878	118675002
Milk Gamma	Cs-134	Milky Way	12/24/2018	0	118675002
Milk Gamma	I-131	Milky Way	12/24/2018	0	118675002

Milk Gamma	Be-7	Milky Way	12/24/2018	0	118675002
Milk Gamma	La-140	Milky Way	12/24/2018	0	118675002
Air Filters	Gross Beta	WAY	12/24/2018	.02674	118677001
Vegetation	Cs-134	Waynesboro	12/24/2018	0	118676001
Vegetation	Cs-137	Waynesboro	12/24/2018	0	118676001
Vegetation	Be-7	Waynesboro	12/24/2018	2651.9	118676001
Vegetation	I-131	Waynesboro	12/24/2018	0	118676001
Milk Gamma	Be-7	GIR	12/24/2018	0	118675001
Milk Gamma	La-140	GIR	12/24/2018	0	118675001
Milk Gamma	Ba-140	GIR	12/24/2018	0	118675001
Milk Gamma	Cs-137	GIR	12/24/2018	1.0121	118675001
Milk Gamma	Cs-134	GIR	12/24/2018	0	118675001
Milk Gamma	I-131	GIR	12/24/2018	0	118675001
Air Filters	Gross Beta	GIR	12/24/2018	.02463	118677002
Air Filters	Gross Beta	SIM	12/24/2018	.02536	118677003
Vegetation	Cs-134	Simulator	12/24/2018	0	118676002
Vegetation	Cs-137	Simulator	12/24/2018	0	118676002
Vegetation	Be-7	Simulator	12/24/2018	3846.6	118676002
Vegetation	I-131	Simulator	12/24/2018	0	118676002
Vegetation	Cs-134	Hancock Landi	12/24/2018	0	118676003
Vegetation	Cs-137	Hancock Landi	12/24/2018	0	118676003
Vegetation	Be-7	Hancock Landi	12/24/2018	2278.6	118676003
Vegetation	I-131	Hancock Landi	12/24/2018	0	118676003
Air Filters	Gross Beta	HAN	12/24/2018	.02473	118677007
Air Filters	Gross Beta	RRD	12/24/2018	.02311	118677006
Air Filters	Gross Beta	MET	12/24/2018	.02147	118677005
Air Filters	Gross Beta	DIS	12/24/2018	.01998	118677004