Appendix D: **Radiological Environmental Monitoring Program Supplemental Information**

Negative values are reported in tables in this appendix. Background counts are subtracted from the sample counts. Negative values occur when the background count is greater than the sample count. Background counts reflect naturally occurring radionuclides and cosmic radiation that is detected by laboratory instrumentation.

Appendix Table D-1 Summary of Radioactive Atmospheric Releases by Source

In the Calculated column, blanks indicate the radionuclide is not present. In the facility (Reactors, Separations, Savannah River National Laboratory [SRNL]) columns, a blank indicates the radionuclide was not analyzed. A 0.00E+00 in the facility columns indicates the result was not detected.

Radioactive Atmospheric Releases by Source (curies)[a]

Radionuclide	Half-life[b]		Calculated[c] (Ci)	Reactors (Ci)	Separations[d] (Ci)	SRNL (Ci)	Total (Ci)
Gases and Vapors							
Tritium oxide	12.3	yr	1.72E+01	2.76E+01	7.66E+03		7.71E+03
Tritium elemental	12.3	yr			2.70E+03		2.70E+03
Total Tritium	12.3	yr	1.72E+01	2.76E+01	1.04E+04		1.04E+04
Carbon-14	5,700	yr	9.18E-09		2.62E-02		2.62E-02
Mercury-203	46.6	day	6.47E-10				6.47E-10
Krypton-85	10.8	yr			4.91E+03		4.91E+03
Iodine-129	1.57E+07	yr	9.77E-05		4.67E-03	1.97E-07	4.77E-03
Iodine-131	8.02	day	1.05E-09				1.05E-09
Particles							
Americium-241	432	yr	4.16E-07	0.00E+00	1.69E-06	3.11E-09	2.11E-06
Americium-243	7,370	yr	1.73E-08				1.73E-08
Antimony-125	2.76	yr	2.37E-09				2.37E-09
Barium-133	10.5	yr	4.09E-09				4.09E-09
Cadmium-109	461	day	2.18E-08		0.00E+00		2.18E-08
Cerium-139	138	day	6.13E-10				6.13E-10
Cesium-134	2.06	yr	6.69E-10				6.69E-10
Cesium-137	30.2	yr	3.85E-03	0.00E+00	1.07E-03	0.00E+00	4.92E-03
Cobalt-57	272	day	6.22E-10				6.22E-10
Cobalt-60	5.27	yr	1.49E-07	0.00E+00	0.00E+00	0.00E+00	1.49E-07
Curium-244	18.1	yr	9.87E-09	0.00E+00	2.47E-08	6.81E-08	1.03E-07
Europium-152	13.5	yr	9.69E-09				9.69E-09
Europium-154	8.59	yr	1.29E-09				1.29E-09
Gold-198	2.7	day	2.70E-08				2.70E-08
Iron-55	2.74	yr	7.77E-09				7.77E-09
Lead-212	10.6	hr	8.43E-07				8.43E-07
Manganese-54	312	day	5.03E-10				5.03E-10
Neptunium-237	2.14E+06	yr	1.89E-09	0.00E+00	1.41E-07	0.00E+00	1.42E-07
Nickel-63	100	yr	1.06E-09				1.06E-09
Niobium-95	35	day	3.60E-07				3.60E-07
Plutonium-236	2.86	yr	2.05E-09				2.05E-09
Plutonium-238	87.7	yr	8.24E-08	4.61E-10	2.13E-06	3.32E-08	2.25E-06
Plutonium-239	2.41E+04	yr	4.12E-05	0.00E+00	1.59E-05	6.76E-09	5.71E-05
Plutonium-240	6,560	yr	5.14E-07				5.14E-07

Appendix Table D-1 Summary of Radioactive Atmospheric Releases by Source (continued)

Radioactive Atmospheric Releases by Source (curies)[a]

Radionuclide	Half-life[b]		Calculated[c] (Ci)	Reactors (Ci)	Separations[d] (Ci)	SRNL (Ci)	Total (Ci)
Plutonium-241	14.4	yr	2.45E-05				2.45E-05
Plutonium-242	3.75E+05	yr	6.36E-09				6.36E-09
Protactinium-234	6.7	hr	2.65E-07				2.65E-07
Radium-226	1,600	yr	1.45E-08				1.45E-08
Radium-228	5.75	yr	2.24E-09				2.24E-09
Rhodium-106[e]	29.8	sec	5.03E-09				5.03E-09
Ruthenium-106[e]	374	day	5.03E-09				5.03E-09
Strontium-85	64.8	day	4.83E-10				4.83E-10
Strontium-89	50.5	day	6.52E-11				6.52E-11
Strontium-90[e]	28.8	yr	2.78E-03	0.00E+00	8.05E-05		2.86E-03
Technetium-99	2.11E+05	yr	4.41E-07				4.41E-07
Thallium-208	3.05	min	1.41E-06				1.41E-06
Thorium-228	1.91	yr	1.79E-11	0.00E+00			1.79E-11
Thorium-229	7,340	yr	2.58E-09				2.58E-09
Thorium-230	7.54E+04	yr	3.39E-11	0.00E+00			3.39E-11
Thorium-232	1.41E+10	yr	4.11E-11	0.00E+00			4.11E-11
Tin-113	115	day	7.52E-10				7.52E-10
Uranium-232	68.9	yr	1.41E-08				1.41E-08
Uranium-233	1.59E+05	yr	2.34E-11				2.34E-11
Uranium-234	2.46E+05	yr	8.11E-07	0.00E+00	4.22E-06	2.68E-09	5.04E-06
Uranium-235	7.04E+08	yr	3.82E-08	0.00E+00	3.28E-07	0.00E+00	3.66E-07
Uranium-236	2.34E+07	yr	4.68E-11				4.68E-11
Uranium-237	6.75	day	2.21E-10				2.21E-10
Uranium-238	4.47E+09	yr	1.69E-06	0.00E+00	5.64E-06	3.08E-09	7.33E-06
Yttrium-88	107	day	4.83E-10				4.83E-10
Yttrium-90[e]	64.1	hr	2.78E-03	0.00E+00	8.05E-05		2.86E-03
Zinc-65	244	day	1.10E-09		0.00E+00		1.10E-09
Unidentified alpha[f]	N/A		8.56E-05	4.77E-06	0.00E+00	0.00E+00	9.04E-05
Unidentified beta[g]	N/A		2.99E-04	7.88E-05	5.40E-05	1.82E-06	4.34E-04
TOTAL	N/A		1.72E+01	2.76E+01	1.53E+04	2.13E-06	1.53E+04

Note:
SRNL = Savannah River National Laboratory
[a] One curie equals 3.7E+10 Becquerels
[b] ICRP 107, *Nuclear Decay Data for Dosimetric Calculations* (2008); Half-life time intervals are given in seconds (sec), minutes (min), hours (hr), days (day), and years (yr).
[c] Estimated releases from unmonitored sources. Beginning in 2016, individual isotope annual releases below 1E-12 Ci (1 pCi) are no longer reported in this table; therefore, they were not used in the dose calculations.
[d] Includes separations, waste management, and tritium facilities
[e] Daughter products (Antimony-126, Rhodium-106 and Yttrium-90) are in secular equilibrium with source terms (Tin-126, Ruthenium-106 and Strontium-90, respectively). In MAXDOSE/POPDOSE, they are included in the source term, and their ingrowth is included in their parents' source term.
[f,g] For dose calculations, unidentified alpha and beta/gamma releases are assumed to be Plutonium-239 and Strontium-90, respectively.

Appendix Table D-2 Summary of Air Effluent DOE DCS Sum of Fractions

As discussed in Chapter 5, *Radiological Environmental Monitoring Program*, SRS evaluates the effluent monitoring program by comparing the annual average concentrations to the U.S. Department of Energy (DOE)-derived concentration standards (DCSs). DOE's *Derived Concentration Technical Standard*, DOE-STD-1196-2022 (DOE 2022), establishes numerical standards for DCSs to support implementing DOE Order 458.1. This table presents the air effluent DCS sum of fractions for continuously monitored sources where at least one analyte had at least one detected value. Continuously monitored sources are sampled on a weekly, biweekly, or monthly basis.

Facility (Sampling Location)	Radionuclides Included in the DCS Sum of Fractions	DCS Sum of Fractions	DCS Sum of Fractions Excluding Tritium
A Area (791-A Sandfilter Discharge)	I-129	4.98E-05	4.98E-05
C Area (C-Area Main Stack)	H-3 (oxide)	1.19E-01	0.00E+00
F Area (235-F Sandfilter Discharge)	Am-241, Pu-239/240, U-233/234, U-238	2.93E-04	2.93E-04
F Area (292-F Main Stack)	Am-241, Cm-243/244, I-129, Np-237, Pu-238, Pu-239/240, U-233/244, U-235, U-238	1.79E-01	1.79E-01
F Area (772-4F Stack)	Am-241, Cm-243/244, U-233/234, U-238	2.37E-04	2.37E-04
H Area (292H-Main Stack)	Am-241, Cs-137, Cm-243/244, I-129, Np-237, Pu-238, Pu-239/240, Sr-90, H-3 (oxide), Kr-85, C-14	1.05E+00	9.60E-01
K Area (K-Area Main Stack)	H-3 (oxide)	7.99E-02	0.00E+00
L Area (L-Area Main Disassembly)	H-3 (oxide)	9.11E-02	0.00E+00
L Area (L-Area Main Stack)	H-3 (oxide)	7.43E-02	0.00E+00
Tritium (232-H Stack)	H-3 (elemental), H-3 (oxide)	2.57E+01	0.00E+00
Tritium (233-H Stack)	H-3 (elemental), H-3 (oxide)	1.03E+01	0.00E+00
Tritium (234-H Stack)	H-3 (oxide)	3.38E+00	0.00E+00
Tritium (238-H Stack)	H-3 (oxide)	8.64E-02	0.00E+00
Tritium (264-H Stack)	H-3 (elemental), H-3 (oxide)	4.62E+01	0.00E+00

Appendix Table D-3 Summary of Tritium in Environmental Air

Samples were collected approximately every two weeks at each of the 18 air surveillance locations. Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. One sample was invalidated for Jackson, deployed April 30 to May 15 due to pump failure. Two samples were invalidated for Hwy 301, deployed October 10 to October 31 due to a power outage from Hurricane Helene. Special samples were pulled as a precautionary measure at Burial Ground North, F Area North, East Talatha, and Talatha locations due to open glove box maintenance in H Area, which is why these locations have more samples. Hwy 21/167 went offline April 15 and Old Williston Barricade (OWB) started collecting data March 6. The results at the following locations were all not detected; therefore, they are not reported in this table: Site Perimeter (Hwy 21/167 and Patterson Mill Road) and 25-Mile Radius (Aiken Airport and Augusta Lock &Dam 614). The Highway 301 @ State Line location is the control location.

Location	Number of Detected Results	Mean Concentration (pCi/m^3)	Minimum Concentration (pCi/m^3)	Maximum Concentration (pCi/m^3)
Onsite				
Burial Ground North	28 of 28	3.24E+02	**1.03E+02**	**8.68E+02**
Site Perimeter				
A-14	3 of 26	6.08E+00	-5.19E+00	3.58E+01
Allendale Gate	2 of 26	3.76E+00	-4.86E+00	**1.76E+01**
Barnwell Gate	2 of 26	2.99E+00	-5.35E+00	1.26E+01
Barricade 8	4 of 26	7.01E+00	-3.76E+00	**3.73E+01**
D Area	7 of 26	8.82E+00	-3.80E+00	**5.01E+01**
Darkhorse @ Williston Gate	1 of 26	4.40E+00	-4.90E+00	**1.77E+01**
East Talatha	2 of 27	4.73E+00	-7.71E+00	**1.66E+01**
F Area North	21 of 26	3.48E+01	1.12E+01	**6.87E+01**
Green Pond	1 of 26	5.72E+00	-1.80E+00	1.76E+01
Jackson	1 of 25	4.24E+00	-2.92E+00	**2.06E+01**
Old Williston Barricade	2 of 20	4.97E+00	-5.35E+00	**2.92E+01**
Talatha Gate	2 of 27	5.46E+00	-3.97E+00	**2.33E+01**
25-Mile Radius				
Highway 301 @ State Line	1 of 24	2.69E+00	-9.66E+00	**1.60E+01**

Appendix Table D-4 Summary of Tritium in Rainwater

Samples were collected approximately every four weeks at each of the 18 air surveillance locations. Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. F Area North became operational at the beginning of January, therefore, has one less sample. Hwy 21/167 air station went offline April 3 and was replaced with Old Williston Barricade (OWB), which began collection April 3. The results at the following locations were all not detected; therefore, they are not reported in this table: Site Perimeter (A-14, Allendale Gate, Barnwell Gate, Darkhorse @ Williston Gate, Green Pond, Hwy 21/167, Jackson, OWB, Patterson Mill Road, and Talatha Gate) and 25-Mile Radius (Augusta Lock & Dam 614, Aiken Airport, and Highway 301 @ State Line). The Highway 301 @ State Line location is the control location.

Location	Number of Detected Results	Mean Concentration (pCi/L)	Minimum Concentration (pCi/L)	Maximum Concentration (pCi/L)
Onsite				
Burial Ground North	13 of 14	3.63E+03	3.68E+02	**9.14E+03**
F Area North	**6 of 13**	**5.77E+02**	**-6.52E+01**	**2.20E+03**
Site Perimeter				
Barricade 8	1 of 14	2.00E+02	-2.09E+02	**1.14E+03**
D Area	1 of 14	9.56E+01	-2.49E+02	**6.78E+02**
East Talatha	1 of 14	1.01E+02	-1.10E+02	**5.42E+02**

Appendix Table D-5 Summary of Radionuclides in Environmental Air

Glass fiber filter samples were collected approximately every two weeks at each of the 18 air surveillance locations shown in Figure 5-4. Samples from all locations were analyzed biweekly for gamma-emitting radionuclides, gross alpha, and gross beta.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large.

The F Area North air station has one less sample because it went online January 9. Hwy 21/167 went offline April 15 and Old Williston Barricade began collecting data March 13, replacing Hwy 21/167 in the eastern wind sector. Jackson air station had pump failure April 30 thru May 15 and Hwy 301 was down October 10 to October 31 due to storm damage from Hurricane Helene. Cesium-137 and cobalt-60 results were not detected for any samples collected biweekly; therefore, they were not reported in the table Biweekly Samples: All Locations.

Biweekly Samples: All Locations

Radionuclide	Number of Detected Results	Location of Minimum Concentration	Minimum Concentration (pCi/m^3)	Location of Maximum Concentration	Maximum Concentration (pCi/m^3)
Gross Alpha	434 of 440	A-14	-2.31E-05	Patterson Mill Road	**3.95E-03**
Nonvolatile Beta	439 of 440	Darkhorse @ Williston Gate	-4.24E-04	Jackson	**4.59E-02**

One sample from every air surveillance location was chosen quarterly in 2024 for actinide and strontium 90 analysis based on elevated releases at F Area stacks during 2024. Highway 301 @ State Line is the control location.

Plutonium-238, plutonium-239/240, and uranium-235 results were not detected for the quarterly analyses; therefore, they were not reported in the table Actinide and Strontium-90.

Actinide and Strontium-90

Radionuclide	Number of Detected Results	Location of Minimum Concentration	Minimum Concentration (pCi/m^3)	Location of Maximum Concentration	Maximum Concentration (pCi/m^3)
Americium-241	3 of 67	Aiken Airport	-1.51E-05	Barnwell Gate	5.55E-05
Curium-243/244	2 of 67	Aiken Airport	-5.41E-06	Darkhorse @ Williston Gate	**1.60E-05**
Strontium-90	1 of 67	Allendale Gate	-7.33E-04	Barricade 8	1.03E-03
Uranium-233/234	15 of 67	D Area	-3.65E-06	Aiken Airport	**2.69E-04**
Uranium-238	26 of 67	Barricade 8	-1.49E-06	Aiken Airport	**1.90E-04**

Appendix Table D-6 Summary of Gamma Surveillance

Samples were collected approximately every quarter (13 weeks) at each of the 52 optically stimulated luminescent dosimeter locations. Please reference Environmental Maps, SRS Optically Stimulated Luminescent Dosimeter [OSLD] Sampling Locations.

Station Location Type	Number of Stations	Quarter 1 Average (mR/day)	Quarter 2 Average (mR/day)	Quarter 3 Average (mR/day)	Quarter 4 Average (mR/day)	Annual Total Average (mR/year)	Annual Minimum (mR/year)	Annual Maximum (mR/year)
Population Centers	9	0.57	0.41	0.42	0.37	160.32	140	184
Site Perimeter	9	0.48	0.34	0.35	0.34	137.70	115	151
Air Surveillance Stations	16	0.52	0.35	0.37	0.36	145.57	125	183
Plant Vogtle Vicinity	18	0.50	0.34	0.35	0.39	144.12	126	168

Appendix D-7 Summary of Radionuclides in Soil

Bolded concentration results were reported as detected. Concentrations not bolded indicate the result was less than the analytical method detection limit or that the uncertainty is large. Soil samples were collected from 29 locations in 2024, as described below. Creek Plantation locations are only sampled for gamma-emitting radionuclides and strontium-90.

Locations sampled are as follows:

- Onsite locations: FA-1, FA-2, FA-3, FA-4, FA-5, F Area (2,000’ West), H Area (2,000’ East), Z Area (#3), and Burial Ground locations (643 26E-2 and Burial Ground North)
- Plant Perimeter locations: A-14, Allendale Gate, Barnwell Gate, Barricade 8, D Area, Darkhorse @ Williston Gate, East Talatha, Green Pond, Jackson, Old Williston Barricade, Patterson Mill Road, and Talatha Gate
- 25-Mile Radius locations: Aiken Airport, Augusta Lock and Dam 614, and Highway 301 @ State Line
- Creek Plantation locations: Trail 1 (1175’, 1600’, 1805’) and Trail 6 (2300’). The Highway 301 @ State Line is the control location.

All cobalt-60 and neptunium-237 results were not detected; therefore, they were not reported in this table.

Radionuclide	Number of Detected Results	Control Hwy 301 Concentration (pCi/g)	Location of Minimum Concentration	Minimum Concentration (pCi/g)	Location of Maximum Concentration	Maximum Concentration (pCi/g)
Americium-241	14 of 25	**3.43E-03**	Barricade 8	4.77E-04	FA-2	**9.15E-03**
Cesium-137	21 of 29	**4.99E-02**	FA-1	-4.23E-04	Trail #1 (1600')	**2.83E+01**
Curium-243/244	3 of 25	1.82E-04	H Area (2,000’ East)	-2.27E-04	Jackson	**4.44E-03**
Gross Alpha	25 of 25	**9.45E+00**	Barricade 8	**3.18E+00**	F Area (2,000' West)	**1.85E+01**
Nonvolatile Beta	19 of 25	**1.12E+01**	H Area (2,000’ East)	2.00E+00	F Area (2,000' West)	**2.07E+01**
Plutonium-238	12 of 25	3.18E-04	Augusta Lock & Dam	2.83E-04	FA-3	**2.62E-02**
Plutonium-239/240	25 of 25	**3.23E-03**	Barricade 8	**1.94E-03**	FA-2	**6.49E-02**
Strontium-90	5 of 29	6.79E-02	Patterson Mill Road	-1.45E-01	Trail #1 (1600')	**2.14E-01**
Uranium-233/234	25 of 25	**9.82E-01**	Aiken Airport	**2.31E-01**	Burial Ground North	**2.39E+00**
Uranium-235	24 of 25	**5.82E-02**	Aiken Airport	**5.80E-03**	Burial Ground North	**1.21E-01**
Uranium-238	25 of 25	**1.00E+00**	Talatha Gate	**1.94E-01**	Burial Ground North	**2.38E+00**

Appendix Table D-8 Summary of Radionuclides in Grassy Vegetation

Vegetation samples were collected from 17 locations in 2024. Bolded values are detected results. Values not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large.

Locations sampled are as follows:

- Onsite location: Burial Ground North and F Area North
- Site Perimeter locations: A-14, Allendale Gate, Barnwell Gate, Barricade 8, D Area, Darkhorse @ Williston Gate, East Talatha, Green Pond, Jackson, Old Williston Barricade, Patterson Mill Road, and Talatha Gate
- 25-Mile Radius locations: Aiken Airport, Augusta Lock and Dam 614, and Highway 301 @ State Line. Highway 301 @ State Line is the control location.

All results for cobalt-60 and gross alpha were not detected; therefore, they were not reported in this table.

Radionuclide	Number of Detected Results	Control (Highway 301) Concentration (pCi/g)	Location of Minimum Concentration	Minimum Concentration (pCi/g)	Location of Maximum Concentration	Maximum Concentration (pCi/g)
Amercium-241	6 of 17	2.92E-04	Patterson Mill Road	-6.57E-05	D Area	**1.83E-02**
Cesium-137	6 of 17	5.39E-03	Allendale Gate	-2.42E-02	Old Williston Barricade	**1.05E+00**
Curium-243/244	4 of 17	3.92E-05	Talatha Gate	-1.05E-04	Barricade 8	**1.27E-02**
Neptunium-237	4 of 17	2.91E-04	Green Pond	-1.16E-04	Allendale Gate	**4.07E-03**
Nonvolatile Beta	17 of 17	**1.09E+01**	Old Williston Barricade	**6.20E+00**	Augusta Lock & Dam 614	**1.95E+01**
Plutonium-238	4 of 17	5.06E-04	Darkhorse @ Williston Gate	-1.74E-04	Allendale Gate	**6.29E-03**
Plutonium-239/240	3 of 17	1.29E-04	Darkhorse @ Williston Gate	-2.63E-04	Allendale Gate	**5.99E-03**
Strontium-90	16 of 17	**1.03E-01**	A-14	2.44E-02	Aiken Airport & Allendale Gate	**1.36E-01**
Technitium-99	7 of 17	7.57E-02	Augusta Lock & Dam 614	-4.01E-02	A-14	**4.57E-01**
Tritium	3 of 17	0.0158	Augusta Lock & Dam 614	-1.49E-02	Patterson Mill Road	**2.85E-01**
Uranium-233/234	15 of 17	**3.89E-03**	Augusta Lock & Dam 614	**-2.71E-04**	Allendale Gate	**7.27E-03**
Uranium-235	4 of 17	8.00E-05	Jackson	-2.13E-04	Barnwell Gate	**9.36E-04**
Uranium-238	14 of 17	**1.66E-03**	Augusta Lock & Dam 614	-1.51E-05	Burial Ground North	**1.08E-02**

Appendix Table D-9 Summary of Radionuclides in Foodstuffs

Samples of five foodstuffs are collected annually from five regions surrounding SRS. Beef, greens, and fruit are collected each year. In 2024, the greens collected were collards, and the fruit collected was watermelon. Two specific crops a year are also collected, rotating through a variety of vegetables, grains, and nuts. Corn and pecans were the rotational crop samples for 2024. Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large.

Food Type	Radionuclide	Number of Samples	Number of Results > Detection Limit	Mean Concentration (pCi/g)	Minimum Concentration (pCi/g)	Maximum Concentration (pCi/g)
Beef	Americium-241	5	1	2.45E-05	1.21E-06	**5.29E-05**
	Cesium-137	5	1	1.28E-02	-1.06E-02	**5.78E-02**
	Nonvolatile Beta	5	5	1.74E+00	**6.55E-02**	**3.46E+00**
	Technetium-99	5	1	2.39E-02	-3.00E-02	**1.09E-01**
	Uranium-233/234	5	1	4.96E-05	2.06E-05	**1.08E-04**
	Uranium-235	5	1	8.14E-07	-6.84E-06	**2.69E-05**
	Uranium-238	5	1	3.61E-05	9.55E-06	**1.04E-04**
Cobalt-60, curium-243/244, gross alpha, neptunium-237, plutonium-238, plutonium- 239/240, strontium-90, and tritium were all non-detect in beef.						
Corn	Americium-241	5	1	6.65E-04	3.18E-04	9.92E-04
	Curium-243/244	5	1	1.64E-04	-7.46E-05	**4.49E-04**
	Nonvolatile Beta	5	5	7.60E+00	**6.12E+00**	**9.39E+00**
	Strontium-90	5	1	3.32E-02	9.90E-03	**9.33E-02**
	Uranium-233/234	5	4	2.85E-03	**1.52E-03**	**5.64E-03**
	Uranium-235	5	4	8.50E-04	2.49E-04	**1.37E-03**
Cesium-137, cobalt-60, gross alpha, neptunium-237, plutonium-238, plutonium-239/240, technetium-99, tritium, and uranium-238 were all non-detect in corn.						
Watermelon	Americium-241	5	1	4.90E-05	2.26E-05	**7.72E-05**
	Nonvolatile Beta	5	5	7.20E-01	**5.75E-01**	**9.01E-01**
	Plutonium-238	5	1	1.01E-04	5.35E-05	**1.97E-04**
	Uranium-233/234	5	1	6.44E-05	1.56E-05	**1.46E-04**
Cesium-137, cobalt-60, curium-243/244, gross alpha, neptunium-237, plutonium-239/240, strontium-90, technetium-99, tritium, uranium-235 and uranium-238 were all non-detect in watermelon.						

Appendix Table D-9 Summary of Radionuclides in Foodstuffs (continued)

Food Type	Radionuclide	Number of Samples	Number of Results > Detection Limit	Mean Concentration (pCi/g)	Minimum Concentration (pCi/g)	Maximum Concentration (pCi/g)
Collards	Cesium-137	5	4	2.04E-02	7.17E-03	**3.55E-02**
	Nonvolatile Beta	5	5	2.23E+01	**1.19E+01**	**4.22E+01**
	Plutonium-238	5	1	3.74E-04	1.07E-04	**9.37E-04**
	Strontium-90	5	3	6.07E-02	-1.10E-03	**1.16E-01**
	Technetium-99	5	2	7.49E-01	-3.04E-03	**3.04E+00**
	Uranium-233/234	5	3	1.50E-03	6.70E-04	**2.55E-03**
	Uranium-235	5	1	3.34E-04	-4.99E-05	**1.09E-03**
	Uranium-238	5	1	1.17E-03	2.17E-04	**2.83E-03**
Amerecium-241, cobalt-60, curium-243/244, gross alpha, neptunium-237, plutonium-239/240, and tritium were all non-detect in collards.						
Pecans	Americium-241	5	2	8.43E-04	-1.62E-04	**2.27E-03**
	Gross Alpha	5	1	1.20E-01	5.46E-02	**2.47E-01**
	Nonvolatile Beta	5	5	3.75E+00	**3.48E+00**	**4.00E+00**
	Strontium-90	5	1	2.24E-02	2.73E-03	**6.83E-02**
	Uranium-233/234	5	3	1.86E-03	1.44E-05	**5.35E-03**
	Uranium-235	5	1	2.21E-04	1.22E-04	**5.04E-04**
	Uranium-238	5	1	1.57E-03	5.14E-04	**4.95E-03**
Cesium-137, cobalt-60, curium-243/244, neptunium-237, plutonium-238, plutonium-239/240, technetium-99, and tritium were all non-detect in pecans.						

Appendix Table D-10 Summary of Radionuclides in Dairy

SRS collects cow and goat milk samples from dairies in communities surrounding the Site. Cow milk is the primary media sampled; however, whenever available goat milk is also collected. The number listed in parentheses in the "location" column indicates the number of locations in the named state that provide samples to SRS.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. All cobalt-60 results were not detected; therefore, they were not reported in this table.

Location	Radionuclide	Number of Samples	Number of Results > Detection Limit	Mean Concentration (pCi/L)	Minimum Concentration (pCi/L)	Maximum Concentration (pCi/L)
SC–Dairies (4) Cow Milk	Cesium-137	19	1	1.71E+00	-3.73E+00	4.78E+00
	Strontium-90	19	2	5.66E-01	-2.85E-01	**1.99E+00**
	Tritium	19	1	7.51E+01	-6.96E+01	2.54E+02
SC–Dairies (1) Goat Milk	Cesium-137	2	2	6.90E+00	**6.63E+00**	**7.16E+00**
	Strontium-90	2	2	2.36E+00	**2.19E+00**	**2.53E+00**
GA–Dairies (3) Cow Milk	Tritium	12	1	9.62E+01	-5.80E+01	**2.99E+02**

Appendix Table D-11 Radiation in Liquid Source Releases

Tritium is the main contributing radionuclide in liquid source releases. Although the remaining radionuclides are contributors, their contributions in liquid source releases are minimal.

In the facility (Reactor, Separations, and SRNL) columns, a blank indicates the radionuclide was not analyzed. A 0.00E+00 in the facility columns indicates the result was not significant.

All cobalt-60 results were not detected; therefore, they were not reported in this table. Cesium--134, cerium-144, promethium-147, and plutonium-241 were added at some Separations outfalls in 2024; all results were not detected and, as such, were not reported in this table.

Radioactive Atmospheric Releases by Source (curies)[a]

Radionuclide	Half-Life[b]		Reactors (Ci)	Separations[c] (Ci)	SRNL (Ci)	Totals (Ci)
H-3[d]	12.3	y	1.06E+02	3.46E+02	2.76E-02	4.53E+02
C-14	5700	y		6.28E-06	0.00E+00	6.28E-06
Sr-90	1.94E-01	y	0.00E+00	1.73E-02		1.73E-02
Tc-99	28.8	y	0.00E+00	5.90E-01	0.00E+00	5.90E-01
I-129	2.11E+05	y	0.00E+00	1.04E-02	0.00E+00	1.04E-02
Cs-137[e]	1.57E+07	y	0.00E+00	9.09E-03	0.00E+00	9.09E-03
U-234	2.46E+05	y	3.80E-04	5.12E-02	7.74E-05	5.16E-02
U-235	7.04E+08	y	0.00E+00	2.13E-03	4.28E-06	2.13E-03
U-238	4.47E+09	y	1.86E-04	6.01E-02	6.97E-05	6.03E-02
Np-237	2.14E+06	y		1.19E-04		1.19E-04
Pu-238	87.7	y	0.00E+00	3.29E-04	0.00E+00	3.29E-04
Pu-239	2.41E+04	y	0.00E+00	1.37E-04	2.92E-07	1.37E-04
Am-241	432	y	0.00E+00	8.16E-06		8.16E-06
Cm-244	18.1	y	0.00E+00	5.12E-06		5.12E-06
Unidentified Alpha[f]	N/A		9.28E-03	5.65E-03	0.00E+00	1.49E-02
Unidentified Beta[g]	N/A		5.28E-02	1.42E-02	4.25E-04	6.74E-02
TOTAL						**4.53E+02**

Note:
SRNL = Savannah River National Laboratory

[a] One curie equals 3.7E+10 becquerels
[b] ICRP 107, Nuclear Decay Data for Dosimetric Calculations (2008). Half-life time intervals are given in years (y).
[c] Includes separations, waste management, and tritium processing facilities
[d] The tritium release total, which includes direct + migration releases, is used in the dose calculations for SRS impacts.
[e] Depending on which value is higher, the Cs-137 release total is based on concentrations measured in Steel Creek mouth fish near RM 141.5 or on the actual measured effluent release total from the Site. Refer to Chapter 6, *Radiological Dose Assessment*, for more information.
[f,g] For dose calculations, unidentified alpha and beta/gamma releases are assumed to be Pu-239 and Sr-90, respectively.

Appendix Table D-12 Summary of Liquid Effluent DOE DCS Sum of Fractions by Facility

As discussed in Chapter 5, *Radiological Environmental Monitoring Program*, SRS evaluates the effluent monitoring program by comparing the annual average concentrations to the U.S. Department of Energy (DOE)-derived concentration standards (DCSs). DOE's *Derived Concentration Technical Standard*, DOE-STD-1196-2022 (DOE 2022), establishes numerical standards for DCSs to support implementing DOE Order 458.1. This table presents the liquid effluent DCS sum of fractions for continuously monitored sources where at least one analyte had at least one detected value. Continuously monitored sources include outfalls where water flows continuously as well as those that discharge intermittently following rain events and batch discharges from facilities.

Facility (Sampling Location)	Radionuclides Included in the Sum of Fractions	DCS Sum of Fractions	DCS Sum of Fractions Excluding Tritium
A Area (TB-2 Outfall at Road 1A)	H-3, Pu-239/240, U-233/234, U-235, U-238	4.17E-04	3.38E-04
E Area (E-003-EFF)	H-3, Sr-90, Tc-99	3.75E-03	1.14E-03
F Area (F-013 200-F Cooling Basin)	Cs-137, Cm-243/244, H-3, Pu-239/240, U-233/234, U-238	3.07E-03	2.80E-03
F Area (F-05)	Am-241, Cm-243/244, H-3, Np-237, Pu-238, Pu-239/240, Sr-90, Tc-99, U-233/234, U-238	1.65E-03	1.26E-03
F Area (FM-3 F-Area Effluent)	Am-241, Cm-243/244, Np-237, H-3, Pu-238, Pu-239/240, Tc-99, U-233/234, U-235, U-238	6.24E-04	4.74E-04
F Tank Farm (F-012 281-8F Retention Basin)	Cs-137, H-3, Pu-238, U-238	3.65E-03	3.22E-03
G Area (G-010)	Am-241, Cm-243/244, H-3, Sr-90, Tc-99, U-233/234, U-235, U-238	5.78E-03	5.45E-03
H Area (FM-1C H-Area Effluent)	Am-241, Cm-243/244, H-3, I-129, Np-237, Pu-238, Pu-239/240, Sr-90, U-233/234, U-238	1.30E-03	8.85E-04
H Area (H-004)	H-3, Pu-238, Pu-239/240, U-233/234, U-235, U-238,	1.50E-03	3.89E-04
H ETP (U3R-2A ETP Outfall at Road C)	Am-241, C-14, Cs-137, H-3, Np-237, Pu-238, Pu-239/240	1.37E-01	2.98E-02
H Tank Farm (H-017 281-8H Retention Basin)	Cs-137, Cm-243/244, H-3, Np-237, Pu-238, Pu-239/240, Sr-90, Tc-99, U-238	9.54E-03	8.74E-03
H Tank Farm (HP-52 H Area Tank Farm)	Am-241, Cs-137, Cm-243/244, H-3, Pu-238, Pu-239/240, U-233/234, U-235, U-238	2.85E-03	2.39E-03
K Area (K Canal)	H-3	1.22E-04	0.00E+00
L Area (L-07)	H-3	9.18E-05	0.00E+00
S Area (S-004)	H-3, U-233/234, U-238	1.67E-03	1.13E-04
Tritium (HP-15 Tritium Facility Outfall)	H-3	1.21E-02	0.00E+00

Appendix Table D-13 Summary of Radionuclides in Sediments

SRS collected annual sediment samples at 39 locations in 2024—10 Savannah River, 21 stream, and 8 stormwater basins—totaling 451 analytes.

Locations sampled are as follows:

- Savannah River locations River Miles (RM): 118.7, 129.0, 134.0, 141.5 (Steel Creek river mouth), 150.2, 150.4, 151.0, 152.3 (Beaver Dam Creek river mouth), 157.2, and 161.0. The control location for the river sediment samples is RM 161.0.
- SRS Stream locations: BFA-1 (presented in its own table), FM-2, FM-3A, FM-A7, FM-A7A, FMC @ Rd A, FMC Swamp, L3R-1A , L3R-2, McQueens Branch (McQB) @ Monroe Owens, PB @ Rd A, PB Swamp, SC-2A, SC-4, TB-5, TC-1, U3R @ USFS Rd 2-1, U3R off Rd 4, U3R-1A, U3R-3, and U3R-4.
- SRS Stormwater Basin locations: E-001, E-002, E-003, E-004, E-005, E-006, Pond 400, and Z Basin. The control location for the river samples is RM 161.0. The control locations for the stream and stormwater basin sediment samples are TC-1 and U3R-1A.

Bolded concentration results were reported as detected. Concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large.

River Sediment Results

Nine River Locations Plus One Control
(Samples from some locations analyzed only for cesium-137, cobalt-60, gross alpha, and gross beta)

Analyte	Number > DL	Control RM-161.0 (pCi/g)	Location of Maximum Result	Maximum Result (pCi/g)
Americium-241	4 of 9	< 4.44E-03	BDC RM	**6.07E-03**
Cesium-137	7 of 10	< 9.65E-02	SC RM	**4.02E+00**
Cobalt-60	0 of 10	< 7.55E-02	All < DL	All < DL
Curium-243/244	3 of 9	< 1.77E-03	BDC RM	**2.54E-03**
Gross Alpha	10 of 10	**1.31E+01**	RM 157.2	**3.54E+01**
Neptunium-237	0 of 9	< 1.72E-03	All < DL	All < DL
Nonvolatile Beta	10 of 10	**2.33E+01**	RM 157.2	**3.29E+01**
Plutonium-238	2 of 9	< 3.11E-03	BDC RM	**3.33E-02**
Plutonium-239/240	2 of 9	< 3.39E-03	RM 157.2	**1.89E-02**
Strontium-90	0 of 9	< 1.33E-01	All < DL	All < DL
Uranium-233/234	9 of 9	**2.22E+00**	RM 157.2	**3.49E+00**
Uranium-235	9 of 9	**1.26E-01**	RM 157.2	**2.22E-01**
Uranium-238	9 of 9	**1.96E+00**	RM 157.2	**3.83E+00**

Appendix Table D-13 Summary of Radionuclides in Sediments (continued)

Stream Sediment Results

Eighteen Stream Locations Plus Two Controls
(Some locations sampled only for cesium-137, cobalt-60, gross alpha, and gross beta)

Analyte	Number > DL	Control TC-1 (pCi/g)	Control U3R-1A (pCi/g)	Location of Maximum Result	Maximum Result (pCi/g)
Americium-241	13 of 15	**4.19E-03**	**4.83E-02**	FM-A7	**2.25E-01**
Cesium-137	15 of 20	**7.83E-02**	< 1.59E-01	SC-4	**1.25E+01**
Cobalt-60	0 of 20	< 5.64E-02	< 1.32E-01	All < DL	All < DL
Curium-243/244	8 of 15	< 6.94E-04	**8.22E-03**	FM-A7	**1.12E-01**
Gross Alpha	20 of 20	**1.39E+01**	**4.61E+01**	U3R @USFS Rd 2-1	**4.00E+01**
Neptunium-237	7 of 15	< 7.93E-04	< 8.75E-04	FM-2	**2.59E-02**
Nonvolatile Beta	20 of 20	**9.30E+00**	**3.26E+01**	U3R @ USFS Rd 2-1	**3.66E+01**
Plutonium-238	11 of 15	< 1.39E-03	**1.55E-03**	FM-2	**1.81E+00**
Plutonium-239/240	13 of 15	**8.33E-03**	**1.38E-02**	FM-A7	**2.21E-01**
Strontium-90	4 of 15	<1.39E-01	< 1.39E-01	FM-A7	**5.56E-01**
Uranium-233/234	15 of 15	**1.40E+00**	**3.06E+00**	McQB @ MO	**6.08E+00**
Uranium-235	15 of 15	**8.00E-02**	**1.60E-01**	McQB @ MO	**3.96E-01**
Uranium-238	15 of 15	**1.31E+00**	**3.38E+00**	TB-5	**6.68E+00**

Stormwater Basin Sediment Results

Eight Basin Locations Plus Two Stream Control Locations

Analyte	Number > DL	Control TC-1 (pCi/g)	Control U3R-1A (pCi/g)	Location of Maximum Result	Maximum Result (pCi/g)
Americium-241	8 of 10	**4.19E-03**	**4.83E-02**	Z Basin	< 3.86E-01
Cesium-137	4 of 10	**7.83E-02**	< 1.59E-01	Z Basin	**3.07E+03**
Cobalt-60	0 of 10	< 5.64E-02	< 1.32E-01	All < DL	All < DL
Curium-243/244	6 of 10	< 6.94E-04	**8.22E-03**	Z Basin	< 2.85E-01
Gross Alpha	10 of 10	**1.39E+01**	**4.61E+01**	E-004	**2.54E+01**
Neptunium-237	1 of 10	< 7.93E-04	< 8.75E-04	Z Basin	< 5.78E-02
Nonvolatile Beta	9 of 10	**9.30E+00**	**3.26E+01**	Z Basin	**2.80E+03**
Plutonium-238	6 of 10	< 1.39E-03	**1.55E-03**	Pond 400	**6.38E-02**
Plutonium-239/240	7 of 10	**8.33E-03**	**1.38E-02**	Pond 400	**1.36E-01**
Strontium-90	2 of 10	<1.39E-01	< 1.39E-01	E-003	**5.84E-01**
Uranium-233/234	10 of 10	**1.40E+00**	**3.06E+00**	E-006	**3.33E+00**
Uranium-235	9 of 10	**8.00E-02**	**1.60E-01**	E-004 & E-006	**1.80E-01**
Uranium-238	10 of 10	**1.31E+00**	**3.38E+00**	E-006	**3.40E+00**

Note:
The two stream and stormwater basin control locations, TC-1 and U3R-1A, are included in the number of results greater than the detection limit for the stream, stormwater basin, and BFA sediment results tables.

Appendix Table D-13 Summary of Radionuclides in Sediments (continued)

BFA Sediment Results

BFA-1 Plus Two Controls

Analyte	Number > DL	Control TC-1 (pCi/g)	Control U3R-1A (pCi/g)	Location of Maximum Result	Maximum Result (pCi/g)
Americium-241	3 of 3	**4.19E-03**	**4.83E-02**	BFA-1	**1.11E-02**
Cesium-137	1 of 3	**7.83E-02**	< 1.59E-01	All < DL	All < DL
Cobalt-60	0 of 3	< 5.64E-02	< 1.32E-01	All < DL	All < DL
Curium-243/244	2 of 3	< 6.94E-04	**8.22E-03**	BFA-1	**1.69E-03**
Gross Alpha	3 of 3	**1.39E+01**	**4.61E+01**	BFA-1	**1.00E+01**
Neptunium-237	0 of 3	< 7.93E-04	< 8.75E-04	All < DL	All < DL
Nonvolatile Beta	3 of 3	**9.30E+00**	**3.26E+01**	BFA-1	**9.31E+00**
Plutonium-238	2 of 3	< 1.39E-03	**1.55E-03**	BFA-1	**3.59E-03**
Plutonium-239/240	3 of 3	**8.33E-03**	**1.38E-02**	BFA-1	**1.45E-02**
Strontium-90	0 of 3	<1.39E-01	< 1.39E-01	All < DL	All < DL
Uranium-233/234	3 of 3	**1.40E+00**	**3.06E+00**	BFA-1	**1.24E+00**
Uranium-235	3 of 3	**8.00E-02**	**1.60E-01**	BFA-1	**6.22E-02**
Uranium-238	3 of 3	**1.31E+00**	**3.38E+00**	BFA-1	**1.11E+00**

Note:
The two stream and stormwater basin control locations, TC-1 and U3R-1A, are included in the number of results greater than the detection limit for the stream, stormwater basin, and BFA sediment results tables.

Appendix Table D-14 Summary of Radionuclides in Drinking Water

Samples at the treatment plants are collected monthly. These samples are analyzed for tritium, cobalt-60, cesium-137, gross alpha, and gross beta.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large.

For the treatment plant samples, all results for cobalt-60, and cesium-137 were below detection limits; therefore, they were not reported in the table below.

Treatment Plants—Finished Water Summary

Gross Alpha

Locations	Number of Samples	Number of Detects	Mean Concentration (pCi/L)	Minimum Concentration (pCi/L)	Maximum Concentration (pCi/L)
BJWSA Purrysburg WTP	12	1	1.56E-01	-4.83E-02	**5.07E-01**
North Augusta Public Water Works	12	0	2.66E-02	-1.42E-01	1.26E-01

Nonvolatile Beta

Locations	Number of Samples	Number of Detects	Mean Concentration (pCi/L)	Minimum Concentration (pCi/L)	Maximum Concentration (pCi/L)
BJWSA Purrysburg WTP	12	12	1.86E+00	**1.30E+00**	**2.64E+00**
North Augusta Public Water Works	12	12	1.79E+00	**1.34E+00**	**2.27E+00**

Tritium

Locations	Number of Samples	Number of Detects	Mean Concentration (pCi/L)	Minimum Concentration (pCi/L)	Maximum Concentration (pCi/L)
BJWSA Purrysburg WTP	12	9	3.13E+02	1.20E+02	**6.45E+02**
North Augusta Public Water Works	12	6	1.46E+02	-3.67E+00	**2.55E+02**

Note: BJWSA Purrysburg WTP is Beaufort-Jasper Water and Sewer Authority Purrysburg Water Treatment Plant

Appendix Table D-14 Summary of Radionuclides in Drinking Water (continued)

Samples are collected onsite annually from 10 locations for tritium, cobalt-60, cesium-137, gross beta, gross alpha, americium-241, strontium-90, uranium-233/234, uranium-235, uranium-238, plutonium-238, plutonium-239/240, and curium-243/244. Site 704-16G was inoperable for 2024.

For the onsite annual samples, all results for americium-241, cesium-137, cobalt 60, curium-243/244, plutonium-238, plutonium-239/240, strontium-90, tritium, and uranium-235 were below detection limits; therefore, they were not reported in this table.

Onsite Location Summary—Annual Samples

Location	Number of Samples	Gross Alpha Concentration (pCi/L)	Nonvolatile Beta Concentration (pCi/L)	Uranium-233/234 Concentration (pCi/L)	Uranium-238 Concentration (pCi/L)
617-8G	1	3.48E-01	**1.11E+00**	3.36E-03	7.64E-04
681-3G	1	**6.20E+00**	**4.54E+00**	-1.56E-03	-2.73E-03
709-1G	1	**5.26E-01**	**1.26E+00**	-3.97E-03	7.43E-03
737-G	1	3.66E-01	**1.19E+00**	-1.45E-03	-3.32E-03
782-3A	1	**6.18E-01**	**8.83E-01**	7.26E-03	**1.24E-02**
905-112G Well	1	**3.64E-01**	**6.62E-01**	4.37E-03	1.73E-03
905-113G Well	1	**4.91E-01**	**1.20E+00**	**1.27E-02**	**1.68E-02**
905-125B	1	**1.67E+00**	**7.49E-01**	**4.15E-02**	**8.39E-02**
905-67B	1	**9.56E-01**	**1.16E+00**	**1.55E-02**	**3.10E-02**

Appendix Table D-15 Summary of Radionuclides in Freshwater Fish

To provide a representative sample of the fish from each survey location, samples taken from each fish type are grouped into composite samples (three) and analyzed. Strontium-90 is the only analysis performed in both flesh (edible) and bone (nonedible) samples.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. For the 2024 reporting year all cobalt-60, gross alpha, iodine 129, and technitium-99 results were not detected; therefore, they were not reported in this table.

Cesium-137 (Edible)

	Bass			Catfish			Flathead			Panfish		
Location	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**
Augusta L&D	9.38E-03	6.38E-03	1.42E-02	9.43E-03	3.81E-03	1.61E-02	5.74E-03	-3.05E-03	1.43E-02	-1.58E-03	-1.64E-02	1.82E-02
Four Mile Creek River Mouth	3.23E-02	**1.88E-02**	**5.17E-02**	3.84E-02	**1.72E-02**	**7.10E-02**	4.59E-02	**2.45E-02**	**7.81E-02**	4.98E-02	1.77E-02	**1.01E-01**
Hwy 301 Bridge Area	1.73E-02	**1.37E-02**	**2.19E-02**	1.84E-02	**1.22E-02**	**2.34E-02**	2.36E-02	**1.93E-02**	**2.78E-02**	7.28E-03	3.72E-03	**1.13E-02**
Lower Three Runs Creek River Mouth	1.73E-01	**8.41E-02**	**3.39E-01**	1.24E-01	**2.02E-02**	**3.20E-01**	1.82E-01	**3.22E-02**	**3.28E-01**	5.32E-02	**3.43E-02**	**8.43E-02**
Steel Creek River Mouth	2.00E-01	**1.15E-01**	**2.87E-01**	1.34E-01	**5.64E-02**	**2.49E-01**	4.23E-02	**3.90E-02**	**4.44E-02**	3.43E-02	**2.26E-02**	**5.25E-02**
Upper Three Runs Creek River Mouth	7.04E-02	**2.87E-02**	**1.02E-01**	8.89E-04	-8.08E-03	1.01E-02	3.18E-02	1.46E-02	**4.53E-02**	2.32E-03	-1.52E-02	2.04E-02

Nonvolatile Beta (Edible)

	Bass			Catfish			Flathead			Panfish		
Location	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**	**Mean (pCi/g)**	**Minimum (pCi/g)**	**Maximum (pCi/g)**
Augusta L&D	3.35E+00	**3.28E+00**	**3.49E+00**	3.11E+00	**2.90E+00**	**3.38E+00**	3.41E+00	**3.36E+00**	**3.47E+00**	3.16E+00	**2.70E+00**	**3.53E+00**
Four Mile Creek River Mouth	3.02E+00	**2.48E+00**	**3.95E+00**	3.34E+00	**3.12E+00**	**3.69E+00**	4.08E+00	**3.95E+00**	**4.21E+00**	3.15E+00	**2.87E+00**	**3.62E+00**
Hwy 301 Bridge Area	3.09E+00	**2.79E+00**	**3.41E+00**	3.48E+00	**3.29E+00**	**3.79E+00**	2.62E+00	**1.63E+00**	**3.18E+00**	2.72E+00	**2.48E+00**	**3.01E+00**
Lower Three Runs Creek River Mouth	3.17E+00	**2.76E+00**	**3.49E+00**	2.90E+00	**2.53E+00**	**3.50E+00**	2.81E+00	**2.57E+00**	**3.14E+00**	2.65E+00	**2.11E+00**	**3.27E+00**
Steel Creek River Mouth	7.15E-02	**6.84E-02**	**7.40E-02**	6.25E-02	**6.02E-02**	**6.65E-02**	7.32E-02	**7.10E-02**	**7.66E-02**	5.95E-02	**5.76E-02**	**6.16E-02**
Upper Three Runs Creek River Mouth	2.85E+00	**2.29E+00**	**3.31E+00**	2.76E+00	**2.22E+00**	**3.28E+00**	2.80E+00	**2.67E+00**	**3.04E+00**	3.14E+00	**2.82E+00**	**3.37E+00**

Appendix Table D-15 Summary of Radionuclides in Freshwater Fish (continued)

Strontium-90 (Edible)												
	Bass			Catfish			Flathead			Panfish		
Location	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
Augusta L&D	2.07E-03	1.03E-03	2.85E-03	1.48E-03	8.19E-04	1.86E-03	2.04E-03	-1.37E-04	**4.26E-03**	2.82E-03	8.02E-04	5.66E-03
Four Mile Creek River Mouth	2.37E-03	2.04E-03	2.80E-03	1.26E-03	-1.20E-04	2.47E-03	1.94E-03	1.51E-03	2.79E-03	3.41E-03	1.61E-03	**6.59E-03**
Hwy 301 Bridge Area	1.39E-04	-2.46E-04	7.42E-04	7.48E-04	1.21E-04	1.84E-03	1.83E-03	1.53E-03	1.99E-03	3.18E-03	1.64E-03	5.53E-03
Lower Three Runs Creek River Mouth	-1.35E-02	-8.33E-02	7.69E-02	1.05E-01	4.19E-02	1.76E-01	8.61E-02	-4.38E-02	1.92E-01	7.91E-02	-2.26E-02	2.61E-01
Steel Creek River Mouth	2.33E-03	9.68E-04	3.04E-03	9.13E-04	-2.81E-04	1.89E-03	1.40E-03	2.59E-04	2.45E-03	3.92E-03	2.09E-03	6.36E-03
Upper Three Runs Creek River Mouth	9.02E-04	5.19E-04	1.30E-03	1.67E-03	1.36E-03	1.87E-03	8.18E-04	-5.61E-05	2.16E-03	5.01E-03	8.38E-04	**8.29E-03**

Appendix Table D-15 Summary of Radionuclides in Freshwater Fish (continued)

Strontium-90 (Nonedible)												
	Bass			Catfish			Flathead			Panfish		
Location	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)	Mean (pCi/g)	Minimum (pCi/g)	Maximum (pCi/g)
Augusta L&D	3.90E-01	**3.32E-01**	**4.57E-01**	4.46E-01	2.66E-01	**5.50E-01**	5.47E-01	**5.13E-01**	**5.75E-01**	4.24E-01	3.05E-01	**4.95E-01**
Four Mile Creek River Mouth	6.34E-01	**5.20E-01**	**8.18E-01**	7.85E-01	**5.91E-01**	**1.03E+00**	4.29E-01	2.48E-01	**6.22E-01**	1.13E+00	**4.30E-01**	**2.23E+00**
Hwy 301 Bridge Area	4.12E-01	**3.63E-01**	**5.06E-01**	3.29E-01	2.41E-01	**3.88E-01**	3.08E-01	2.55E-01	**3.85E-01**	4.49E-01	**3.62E-01**	**5.55E-01**
Lower Three Runs Creek River Mouth	3.91E-01	2.60E-01	**5.99E-01**	3.53E-01	1.73E-01	**6.16E-01**	3.03E-01	8.66E-02	**5.82E-01**	3.49E-01	1.42E-01	**4.94E-01**
Steel Creek River Mouth	4.00E-01	2.86E-01	**4.85E-01**	6.00E-01	**4.52E-01**	**7.61E-01**	2.69E-01	1.74E-01	**3.41E-01**	3.59E-01	2.20E-01	**5.37E-01**
Upper Three Runs Creek River Mouth	5.14E-01	**3.48E-01**	**6.67E-01**	4.14E-01	**3.79E-01**	**4.63E-01**	4.21E-01	**3.49E-01**	**4.82E-01**	4.72E-01	**3.52E-01**	**6.09E-01**

Appendix Table D-16 Summary of Radionuclides in Saltwater Fish

All saltwater fish are collected at the location designated as RM 0–8 (mouth of Savannah River). Strontium-90 is the only analysis performed in both flesh (edible) and bone (nonedible) samples.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. For the current reporting year results of all samples for cesium 137, cobalt-60, gross alpha, iodine-129, strontium-90, and technetium-99 were below method detection limits therefore, they were not reported in this table.

	Marine Mullet				
Radionuclide	**Number of Samples**	**Number of Results > Detection Limit**	**Mean Concentration (pCi/g)**	**Minimum Concentration (pCi/g)**	**Maximum Concentration (pCi/g)**
Nonvolatile Beta	3	3	3.03E+00	**2.89E+00**	**3.19E+00**

Appendix Table D-17 Summary of Radionuclides in Shellfish

All shellfish are collected at the location designated as RM 0-8 (at the mouth of Savannah River). The species of shellfish collected in 2024 were crab and shrimp.

Bolded minimum and maximum concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. All cesium-137, cobalt-60, iodine-129, strontium-90 and technetium-99 results were not detected; therefore, they were not reported in this table. Gross alpha is reported only for crab in the table below as the gross alpha results for shrimp were not detected.

Shellfish Species	Radionuclide	Number of Samples	Number of Results > Detection Limit	Mean Concentration (pCi/g)	Minimum Concentration (pCi/g)	Maximum Concentration (pCi/g)
Crab	Gross Alpha	1	1	4.35E-01	**4.35E-01**	**4.35E-01**
	Nonvolatile Beta	1	1	1.64E+00	**1.64E+00**	**1.64E+00**
Shrimp	Nonvolatile Beta	1	1	1.63E+00	**1.63E+00**	**1.63E+00**

Appendix Table D-18 Summary of Radionuclides in Wildlife

Samples collected for laboratory analysis are selected based on a set frequency, the field-measured cesium-137 activity concentration, and exposure limit considerations as mentioned in section 5.6, *Wildlife Results Summary*. Strontium-90 is the only analysis performed in both flesh and bone samples.

Bolded concentration results were reported as detected. Minimum and maximum concentrations not bolded indicate the result was less than the analytical method detection limit or the uncertainty is large. All cobalt-60 results were below detection limits; therefore, they are not reported in this table.

Sample Type	Nuclide	Number of Samples	Number of Results > Detection Limit	Mean Sample Concentration (pCi/g)	Minimum Sample Concentration (pCi/g)	Maximum Sample Concentration (pCi/g)
Deer Flesh	Cesium-137	7	7	9.69E-01	**8.97E-02**	**1.97E+00**
	Strontium-90	7	0	6.36E-04	-1.13E-03	3.81E-03
Hog Flesh	Cesium-137	2	2	2.98E-01	**2.42E-01**	**3.54E-01**
	Strontium-90	2	1	2.89E-03	-9.22E-04	**6.70E-03**
Alligator Flesh	Cesium-137	1	1	3.77E-01	**3.77E-01**	**3.77E-01**
	Strontium-90	1	0	-8.52E-04	-8.52E-04	-8.52E-04
Deer Bone	Strontium-90	7	7	1.96E+00	**7.70E-01**	**5.65E+00**
Hog Bone	Strontium-90	2	2	1.49E+00	**1.31E+00**	**1.66E+00**
Alligator Bone	Strontium-90	2	2	6.94E-01	**4.82E-01**	**9.05E-01**

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