

Appendix Table C-1 River and Stream Water Quality Summary Results

15 river and stream locations were sampled monthly for a total of 180 samples.

Appendix C: Nonradiological Environmental Monitoring Program Supplemental Information

Analyte	SC Freshwater Quality Std. (µg/L)	Unit	Number of Results Outside Std.	Individual Result				Average ¹					Comments
				Highest River Location		Highest Stream Location		All Locations	Highest River Location		Highest Stream Location		
DO ²	min. 4.0	mg/L	7	RM-118.8	6.2	FMC-2	1.5	8.3	RM-118.8	8.2	FMC-2	5.0	
pH ²	6.0-8.5	SU	4	RM-160.0	5.3	FMC-2	5.7	7.1	See comment				All locations within range of standard
Temperature	< 5° F above nat. cond. & not > 90° F (32.2° C)	° F	0	RM-118.8	28	SC-4	28.5	17.8	RM-118.8	19.4	SC-4	19.4	
Aluminum	87 ³	µg/L	126	RM-129.1	736	PB-3	799	182	RM-118.8	290	U3R-4	274	
Beryllium	none	µg/L	N/A	RM-141.5	1.23	FMC-2	4.62	0.18	RM-118.8	0.25	FMC-2	0.79	26 detected
Cadmium	0.1	µg/L	See comment	RM-118.8	4.3	FMC-2	14.9	0.8	RM-118.8	1.0	FMC-2	2.8	16 detected, but detection limit (DL) of 0.5 µg/L higher than standard
Chromium	11	µg/L	0	RM-118.8	3	FMC-2	8	2	RM-118.8	2	FMC-2	3	6 detected
Copper	2.9	µg/L	15	RM-160.0	7.2	FMC-2	14.7	2.3	RM-160	3.0	FMC-2	4.1	27 detected
Hardness (total)	none	mg/L	N/A	RM-129.1	40	L3R-2	46	15	RM-129.1	24	L3R-2	32	134 detected
Iron	1000 ³	µg/L	42	RM-118.8	1,510	FMC-2	12,400	1,088	RM-129.1	727	FMC-2	3,744	180 detected
Lead	0.54	µg/L	See comment	All 5	<10	All 10	<10	<10	All 5	<10	All 10	<10	0 detected, but DL of 10 µg/L higher than standard
Manganese	none	µg/L	N/A	RM-118.8	185	FM-2B	1,160	77	RM-118.8	92	FMC-2	204	179 detected
Mercury	0.91	µg/L	0	All 5	<0.02	FMC-2	0.043	0.02	All 5	<0.02	FMC-2	0.023	4 detected
Nickel	16	µg/L	1	RM-150.4	24	FMC-2	15	3	RM-150.4	5	FMC-2	4	12 detected
Nitrate-Nitrogen	1 ⁴	mg/L	1	RM-141.5	1.1	FM-6	0.9	0.2	RM-141.5	0.3	FM-6	0.7	178 detected
Nitrite-Nitrogen	1 ⁴	mg/L	0	RM-160.0	0.02	U3R-0	0.01	0.005	RM-150.4	0.01	FM-6, FMC-2 & U3R-4	0.004	130 detected
Thallium	none	µg/L	N/A	All 5	<15	FM-2B & PB-3	15.3	15	All 5	<15	FM-2B & PB-3	15.03	2 detected
TOC	none	mg/L	N/A	RM-129.1	10	FMC-2	15	5	RM-129.1	5	FMC-2	8	180 detected
Phosphorus	0.06	mg/L	144	RM-118.8	0.38	FM-2B	0.33	0.1	RM-118.8	0.14	FM-6	0.13	179 detected. U3R-1A ave. passed; all other locations ave. >0.06
TSS	none	mg/L	N/A	RM-129.1	34	PB-3	67	9	RM-118.8	12	FMC-2	14	180 detected
Zinc	37	µg/L	1	RM-160	23	FMC-2	39	9	RM-160	10	FMC-2	18	173 detected

¹ When results fell below the detection limit, the detection limit value was used to determine average

² Lowest values reported

³ EPA National Recommended Water Quality Criteria - Aquatic Life

⁴ per DHEC Environmental Surveillance and Oversight Program 2015 Data Report (CR-004111 3/17)

**Appendix Table C-2 Summary of Detected Metal Results for Sediments Collected
from the Savannah River, SRS Streams, and Stormwater Basins**

Bolded concentration results were reported as detected. Concentrations not bolded indicate the result was less than the sample quantitation limit. The control location for the river sediment samples is River Mile 160 (RM-160.0_SED).

River Sediment Results			
Analyte	Control Conc. (mg/kg)	Location of Maximum Result	Maximum Conc. (mg/kg)
Aluminum	5.50E+03	RM-150.4_SED	2.10E+04
Arsenic	4.40E+00	RM-160_SED	4.40E+00
Barium	5.50E+01	RM-118.7_SED and RM-150.4 (Vogtle Discharge)	1.20E+02
Chromium	7.90E+00	RM-150.4_SED	2.30E+01
Copper	3.50E+00	RM-150.4_SED	1.30E+01
Iron	8.70E+03	RM-150.4_SED	1.60E+04
Lead	4.80E+00	RM-118.7_SED	9.30E+00
Magnesium	6.80E+02	RM-150.4_SED	2.40E+03
Manganese	5.80E+02	RM-118.7_SED	1.10E+03
Nickel	3.50E+00	RM-150.4 (Vogtle Discharge)	1.00E+01
Selenium	1.20E+00	RM-129_L3RM-SED	1.50E+00
Uranium	3.10E+01	RM-118.7_SED	5.10E+01
Zinc	1.80E+01	RM-118.7_SED	4.70E+01

Note: Cadmium, cyanide, mercury, and silver were non-detects.

The control location for the stream and stormwater basin sediment samples is Upper Three Runs U3R-0 (U3R-0_SED).

Stream and Stormwater Basin Sediment Results			
Analyte	Control Conc. (mg/kg)	Location of Maximum Result	Maximum Conc. (mg/kg)
Aluminum	8.00E+03	E-05_SED	4.50E+04
Arsenic	2.80E+00	E-004_SED	7.80E+00
Barium	8.70E+01	MCQBR_MON_OWENS	1.20E+02
Cadmium	9.40E-01	BDC_SED	3.40E-01
Chromium	1.30E+01	E-05_SED	5.60E+01
Copper	8.00E+00	BDC_SED and MCQBR_MON_OWENS	1.50E+01
Cyanide	2.50E+00	SC-4_SED	1.84E-01
Iron	4.70E+03	E-05_SED	2.60E+04
Lead	1.90E+01	U3R-0_SED	1.90E+01
Magnesium	9.40E+02	SC-RM	1.50E+03
Manganese	1.80E+01	BDC_RM_SED	9.80E+02
Mercury	3.60E-01	L3R-1A_SED	2.70E-01
Nickel	7.50E+00	BDC_SED	1.7E+01
Selenium	3.80E+00	E-004_SED	2.50E+00
Zinc	1.70E+01	MCQBR_MON_OWENS	6.60E+01

Note: Silver was non-detects.

Appendix Table C-3 Summary of Detected Metal Results for Freshwater Fish Tissue Collected from the Savannah River

Analyte	Number of Detected Values (above the MDC)	Number of Estimated Values (above the MDC, below the SQL)	Maximum Concentration (ug/g)	SQL (ug/g)	MDC (ug/g)	Fish Type with Maximum Concentration	Location of Maximum Concentration
Mercury	124	46	2.10	0.2	0.02	Bass	Upper Three Runs Creek Mouth
Arsenic	11	11	1.72	8.35	0.835	Bass	Augusta Lock and Dam
Cadmium	6	6	0.46	0.706	0.071	Bass	Fourmile Creek Mouth
Chromium	38	38	0.311	0.741	0.074	Catfish	Hwy 301 Bridge
Copper	90	90	0.789	1.48	0.148	Catfish	Hwy 301 Bridge
Manganese	85	84	1.03	0.707	0.071	Panfish	Augusta Lock and Dam
Nickel	4	4	0.247	1.68	0.168	Catfish	Augusta Lock and Dam
Zinc	119	1	12.7	1.48	0.148	Catfish	Hwy 301 Bridge

Note: 119 freshwater tissue samples were collected and analyzed for metals. 124 freshwater tissues samples were collected and analyzed for mercury.

Appendix Table C-4 Summary of Detected Metal Results for Saltwater Fish Tissue Collected from the Savannah River between River Miles 0–8, Near Savannah, GA

Analyte	Number of Detected Values (above the MDC)	Number of Estimated Values (above the MDC, below the SQL)	Maximum Concentration (ug/g)	SQL (ug/g)	MDC (ug/g)	Fish Type with Maximum Concentration
Mercury	15	14	0.216	0.20	0.02	Sea Trout/Flounder
Arsenic	4	4	1.03	9.00	0.90	Red Drum
Chromium	6	6	0.445	0.88	0.083	Mullet
Copper	17	17	0.927	1.02	0.102	Mullet
Manganese	18	16	1.09	0.82	0.082	Mullet
Zinc	21	0	9.96	1.82	0.182	Mullet

Notes:

21 saltwater tissue samples were collected and analyzed for metals and mercury.

**Appendix Table C-5 Precipitation Results of SRS National Trends Network Station
for Calendar Year 2016**

Analyte	Precipitation Weighted Concentration	Deposition
Calcium (Ca ²⁺)	0.054 mg/L	0.71 kg/ha
Magnesium (Mg ²⁺)	0.021 mg/L	0.278 kg/ha
Potassium (K ⁺)	0.015 mg/L	0.198 kg/ha
Sodium (Na ⁺)	0.147 mg/L	1.944 kg/ha
Ammonium (NH ₄ ⁺)	0.148 mg/L	1.96 kg/ha
Nitrate (NO ₃ ⁻)	0.509 mg/L	6.73 kg/ha
Chloride (Cl ⁻)	0.249 mg/L	3.29 kg/ha
Sulfate (SO ₄ ²⁻)	0.372 mg/L	4.92 kg/ha

Note: ha = hectare—a metric unit of area defined as 10,000 square meters.