

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT-WATER INTERFACE RESULTS

NOTE: The data below represents sediment-water interface samples that were collected on April 3, 2014 by EPA START (Team 1) sampling teams. Water sample measurements are in milligrams per liter (mg/L) and/or micrograms per liter (µg/L) for these samples. The data is being compared to EPA ecological risk screening levels (ERSLs) to protect aquatic life in the surface water of the Dan River. Specific qualifiers and footnotes are listed below the summary table. These samples were collected at various locations along the river (refer to map for generalized locations). The detected concentrations in sediment-water interface are all below the EPA ERSLs with the exception of lead and copper. EPA typically screens the water concentrations using total metals samples, because this is a conservative practice for screening. Because lead was not detected above screening levels in any of the samples of the dissolved fraction of water (i.e., samples that were filtered to remove particulates), therefore there is no threat of toxicity from lead to aquatic organisms. When chemical concentrations exceed the screening values it doesn't mean there will be adverse health or ecological effects, but recommends further investigation may be needed.

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect Duke 1A Left Descending		Transect Duke 1H Right Descending		Transect FWS 2B Right Descending	
Sample Information								
Sample ID	-		EDEN-DUKE1A-L-BW-20140403		EDEN-DUKE1H-R-BW-20140403		EDEN-FWS2B-R-BW-20140403	
Date	-		04/03/2014		04/03/2014		04/03/2014	
Time	-		1100		1226		1325	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment-Water Interface		Sediment-Water Interface		Sediment-Water Interface	
Water Quality Monitoring								
Temperature	-		13.25	°C	13.55	°C	13.64	°C
Dissolved Oxygen	<6	mg/L	10.58	mS/cm	10.41	mg/L	10.64	mg/L
Specific Conductance	-		0.0082	mS/cm	0.086		0.081	mS/cm
pH	6.5 - 9.0	std	7.83	std	7.44	std	7.53	std
Turbidity	50	NTU	9.2	NTU	18.6	NTU	12.2	NTU
Dissolved metals								
Aluminum	87	µg/L	18.2J	µg/L	25.2J	µg/L	20J	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	4.5U	µg/L	0.106J	µg/L	0.114J	µg/L
Barium	220	µg/L	16.2	µg/L	18.4	µg/L	18	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0791U	mg/L	0.158U	mg/L	0.106U	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,490	µg/L	6,830	µg/L	6,760	µg/L
Chromium	25	µg/L	0.149J	µg/L	0.182J	µg/L	0.174J	µg/L
Cobalt	3	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	2U	µg/L	2U	µg/L	2U	µg/L
Iron	1,000	µg/L	101	µg/L	115	µg/L	112	µg/L
Lead	0.59	µg/L	0.5U	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,690J	µg/L	2,660J	µg/L	2,670J	µg/L
Manganese	200	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.188J	µg/L	0.212J	µg/L	0.191J	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,510J	µg/L	4,130J	µg/L	4,270J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	0.385J	µg/L	0.423J	µg/L	0.389J	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L	10U	µg/L

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect Duke 1A Left Descending		Transect Duke 1H Right Descending		Transect FWS 2B Right Descending	
Sample Information								
Sample ID	-		EDEN-DUKE1A-L-BW-20140403		EDEN-DUKE1H-R-BW-20140403		EDEN-FWS2B-R-BW-20140403	
Total Dissolved Solids								
Total Dissolved Solids	-	-	49	mg/L	49	mg/L	53	mg/L
Total Suspended Solids								
Total Suspended Solids	-	-	54	mg/L	10	mg/L	9	mg/L
Total Metals								
Aluminum	2,000	µg/L	168	µg/L	333	µg/L	282	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Barium	220	µg/L	19.1	µg/L	22.6	µg/L	23.8	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0804U	mg/L	0.157	mg/L	0.107U	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,450	µg/L	6,900	µg/L	6,750	µg/L
Chromium	29	µg/L	2.5U	µg/L	2.5U	µg/L	2.5U	µg/L
Cobalt	24	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	0.425J	µg/L	0.397J	µg/L	0.542J	µg/L
Iron	2,300	µg/L	550	µg/L	802	µg/L	704	µg/L
Lead	0.6	µg/L	0.5U	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,650J	µg/L	2,670J	µg/L	2,660J	µg/L
Manganese	200	µg/L	27.5	µg/L	32.3	µg/L	41.1	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,370J	µg/L	4,100J	µg/L	4,190J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.448U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	1.15J	µg/L	1.6J	µg/L	1.61J	µg/L
Zinc	39	µg/L	2.18J	µg/L	10U	µg/L	10U	µg/L
Anions								
Bromide	-	-	1U	mg/L	1U	mg/L	1U	mg/L
Chloride	230	mg/L	6.42	mg/L	7.65	mg/L	7.32	mg/L
Sulfate	-	-	4.83	mg/L	4.63	mg/L	4.74	mg/L

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT-WATER INTERFACE RESULTS

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect Duke 1A Left Descending		Transect Duke 1H Right Descending		Transect FWS 2B Right Descending	
Sample Information								
Sample ID	-		EDEN-DUKE1A-L-BW-20140403		EDEN-DUKE1H-R-BW-20140403		EDEN-FWS2B-R-BW-20140403	
Wet Chemistry								
Alkalinity, Total (As CaCO ₃)	-	-	21	mg/L	20.4	mg/L	20.8	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	27	mg/L	28.2	mg/L	27.8	mg/L
Organic Carbon, Dissolved	-	-	1.83	mg/L	2.44	mg/L	1.64	mg/L
pH	6.5 - 9.0		6.96J	std	7.09J	std	6.91J	std

Notes

¹ Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water

°C degrees Celsius

EPA U.S. Environmental Protection Agency

J Value is estimated

J+ Value is estimated with a possible high bias

J- Value is estimated with a possible low bias

µg/L micrograms per liter

mg/L milligrams per liter

mS/cm milliSiemens per centimeter

NTU Nephelometric turbidity units

std standard

U Analyte was not detected at the listed reporting limit.

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS 3A Left Descending		Transect EPA 01 Mid-Channel		Transect FWS 4A Right Descending	
Sample Information								
Sample ID	-		EDEN-FWS3A-L-BW-20140403		EDEN-EPA01-C-BW-20140403		EDEN-FWS4A-R-BW-20140403	
Date	-		04/03/2014		04/03/2014		04/03/2014	
Time	-		1500		1630		1705	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment-Water Interface		Sediment-Water Interface		Sediment-Water Interface	
Water Quality Monitoring								
Temperature	-		13.92	°C	14.34	°C	14.51	°C
Dissolved Oxygen	<6	mg/L	10.7	mg/L	10.93	mg/L	11.01	mg/L
Specific Conductance	-		0.082	mS/cm	0.08	mS/cm	0.081	mS/cm
pH	6.5 - 9.0	std	7.63	std	7.68	std	7.73	std
Turbidity	50	NTU	11.5	NTU	8	NTU	15.7	NTU
Dissolved metals								
Aluminum	87	µg/L	29.1J	µg/L	22.2J	µg/L	21.6J	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.147J	µg/L	0.131J	µg/L	0.137J	µg/L
Barium	220	µg/L	18.3	µg/L	17.7	µg/L	17.2	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0927U	mg/L	0.118U	mg/L	0.0956U	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,680	µg/L	6,740	µg/L	6,710	µg/L
Chromium	25	µg/L	0.23J	µg/L	0.144J	µg/L	0.162J	µg/L
Cobalt	3	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	0.319J	µg/L	0.294J	µg/L	2U	µg/L
Iron	1,000	µg/L	117	µg/L	113	µg/L	119	µg/L
Lead	0.59	µg/L	0.5U	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,690J	µg/L	2,690J	µg/L	2,690J	µg/L
Manganese	200	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.277J	µg/L	0.343J	µg/L	0.197J	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,630J	µg/L	4,510J	µg/L	4,480J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	0.491J	µg/L	0.361J	µg/L	0.444J	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L	10U	µg/L

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS 3A Left Descending		Transect EPA 01 Mid-Channel		Transect FWS 4A Right Descending	
Sample Information								
Sample ID	-		EDEN-FWS3A-L-BW-20140403		EDEN-EPA01-C-BW-20140403		EDEN-FWS4A-R-BW-20140403	
Total Dissolved Solids								
Total Dissolved Solids	-	-	55	mg/L	54	mg/L	40	mg/L
Total Suspended Solids								
Total Suspended Solids	-	-	12.5	mg/L	8.5	mg/L	37	mg/L
Total Metals								
Aluminum	2,000	µg/L	295	µg/L	349	µg/L	514	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Barium	220	µg/L	22.8	µg/L	22.2	µg/L	23.4	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.095U	mg/L	0.114U	mg/L	0.0979U	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,760	µg/L	6,820	µg/L	6,800	µg/L
Chromium	29	µg/L	2.5U	µg/L	2.5U	µg/L	2.5U	µg/L
Cobalt	24	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	0.579J	µg/L	0.572J	µg/L	0.899J	µg/L
Iron	2,300	µg/L	747	µg/L	863	µg/L	1,160	µg/L
Lead	0.6	µg/L	0.5U	µg/L	0.5U	µg/L	0.622U	µg/L
Magnesium	-	-	2,700J	µg/L	2,720J	µg/L	2,740J	µg/L
Manganese	200	µg/L	29.5	µg/L	31	µg/L	37.1	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,560J	µg/L	4,440J	µg/L	4,390J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	1.63J	µg/L	1.65J	µg/L	2.13J	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L	10U	µg/L
Anions								
Bromide	-	-	1U	mg/L	1U	mg/L	1U	mg/L
Chloride	230	mg/L	7.07	mg/L	7.18	mg/L	7.14	mg/L
Sulfate	-	-	4.9	mg/L	4.7	mg/L	4.77	mg/L

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Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS 3A Left Descending		Transect EPA 01 Mid-Channel		Transect FWS 4A Right Descending	
Sample Information								
Sample ID	-		EDEN-FWS3A-L-BW-20140403		EDEN-EPA01-C-BW-20140403		EDEN-FWS4A-R-BW-20140403	
Wet Chemistry								
Alkalinity, Total (As CaCO ₃)	-	-	20.6	mg/L	21.5	mg/L	21.6	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	28	mg/L	28.2	mg/L	28.3	mg/L
Organic Carbon, Dissolved	-	-	1.94	mg/L	1.69	mg/L	2.02	mg/L
pH	6.5 - 9.0		6.93J	std	6.83J	std	6.99J	std

Notes

¹ Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water

°C degrees Celsius

EPA U.S. Environmental Protection Agency

J Value is estimated

J+ Value is estimated with a possible high bias

J- Value is estimated with a possible low bias

µg/L micrograms per liter

mg/L milligrams per liter

mS/cm milliSiemens per centimeter

NTU Nephelometric turbidity units

std standard

U Analyte was not detected at the listed reporting limit.

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI1 Left Descending		Transect FWS SFI2 Right Descending		Transect FWS SFI3 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI1-L-BW-20140403		EDEN-FWSSFI2-R-BW-20140403		EDEN-FWSSFI3-L-BW-20140403	
Date	-		04/03/2014		04/03/2014		04/03/2014	
Time	-		1710		1553		1400	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment-Water Interface		Sediment-Water Interface		Sediment-Water Interface	
Water Quality Monitoring								
Temperature	-		14.52	°C	14.5	°C	13.77	°C
Dissolved Oxygen	<6	mg/L	10.19	mg/L	10.34	mg/L	10.15	mg/L
Specific Conductance	-		0.166	mS/cm	0.171	mS/cm	0.164	mS/cm
pH	6.5 - 9.0	std	7.93	std	7.72	std	7.58	std
Turbidity	50	NTU	-	-	-	-	-	-
Dissolved metals								
Aluminum	87	µg/L	21.3J	µg/L	26.1J	µg/L	41.5J	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.135J	µg/L	0.166J	µg/L	0.137J	µg/L
Barium	220	µg/L	17.1	µg/L	18.9	µg/L	18.4	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.079U	mg/L	0.0857U	mg/L	0.0787U	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,700	µg/L	6,960	µg/L	6,780	µg/L
Chromium	25	µg/L	0.25J	µg/L	0.174J	µg/L	0.17J	µg/L
Cobalt	3	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	2U	µg/L	2U	µg/L	0.287J	µg/L
Iron	1,000	µg/L	132	µg/L	133	µg/L	140	µg/L
Lead	0.59	µg/L	0.5U	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,710J	µg/L	2,760J	µg/L	2,700J	µg/L
Manganese	200	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.222J	µg/L	0.224J	µg/L	0.179J	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,710J	µg/L	4,780J	µg/L	4,570J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	0.415J	µg/L	0.525J	µg/L	0.51J	µg/L
Zinc	39	µg/L	2.31J	µg/L	10U	µg/L	10U	µg/L

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI1 Left Descending		Transect FWS SFI2 Right Descending		Transect FWS SFI3 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSF11-L-BW-20140403		EDEN-FWSSF12-R-BW-20140403		EDEN-FWSSF13-L-BW-20140403	
Total Dissolved Solids								
Total Dissolved Solids	-	-	49	mg/L	47	mg/L	50	mg/L
Total Suspended Solids								
Total Suspended Solids	-	-	13.5	mg/L	8.5	mg/L	11	mg/L
Total Metals								
Aluminum	2,000	µg/L	222	µg/L	372	µg/L	325	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Barium	220	µg/L	20.7	µg/L	23.5	µg/L	23.2	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0821U	mg/L	0.0897U	mg/L	0.0931U	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,700	µg/L	6,980	µg/L	6,650	µg/L
Chromium	29	µg/L	2.5U	µg/L	2.5U	µg/L	2.5U	µg/L
Cobalt	24	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	0.469J	µg/L	0.915J	µg/L	0.707J	µg/L
Iron	2,300	µg/L	627	µg/L	896	µg/L	766	µg/L
Lead	0.6	µg/L	0.5U	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,670J	µg/L	2,780J	µg/L	2,660J	µg/L
Manganese	200	µg/L	19.7	µg/L	52.5	µg/L	27.7	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,650J	µg/L	4,750J	µg/L	4,380J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	1.37J	µg/L	1.77J	µg/L	1.76J	µg/L
Zinc	39	µg/L	2.45J	µg/L	8.91J	µg/L	10U	µg/L
Anions								
Bromide	-	-	1U	mg/L	1U	mg/L	1U	mg/L
Chloride	230	mg/L	6.85	mg/L	7.24	mg/L	6.65	mg/L
Sulfate	-	-	4.89	mg/L	4.93	mg/L	4.77	mg/L

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT-WATER INTERFACE RESULTS

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI1 Left Descending		Transect FWS SFI2 Right Descending		Transect FWS SFI3 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI1-L-BW-20140403		EDEN-FWSSFI2-R-BW-20140403		EDEN-FWSSFI3-L-BW-20140403	
Wet Chemistry								
Alkalinity, Total (As CaCO ₃)	-	-	21.7	mg/L	22.4	mg/L	21.4	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	27.7	mg/L	28.9	mg/L	27.6	mg/L
Organic Carbon, Dissolved	-	-	2.03	mg/L	1.85	mg/L	1.94	mg/L
pH	6.5 - 9.0		7.37J	std	6.87J	std	6.91J	std

Notes

- ¹ Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water
- °C degrees Celsius
- EPA U.S. Environmental Protection Agency
- J Value is estimated
- J+ Value is estimated with a possible high bias
- J- Value is estimated with a possible low bias
- µg/L micrograms per liter
- mg/L milligrams per liter
- mS/cm milliSiemens per centimeter
- NTU Nephelometric turbidity units
- std standard
- U Analyte was not detected at the listed reporting limit.

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI4 Left Descending		Transect EPA 03 Left Descending		Transect FWS SFI5 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI4-L-BW-20140403		EDEN-EPA03-L-BW-20140403		EDEN-FWSSFI5-L-BW-20140403	
Date	-		04/03/2014		04/03/2014		04/03/2014	
Time	-		1223		1123		0830	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment-Water Interface		Sediment-Water Interface		Sediment-Water Interface	
Water Quality Monitoring								
Temperature	-		13.78	°C	13.52	°C	13.61	°C
Dissolved Oxygen	<6	mg/L	9.9	mg/L	9.98	mg/L	10.11	mg/L
Specific Conductance	-		0.168	mS/cm	0.173	mS/cm	0.182	mS/cm
pH	6.5 - 9.0	std	7.42	std	5.45	std	7.18	std
Turbidity	50	NTU	-	-	-	-	-	-
Dissolved metals								
Aluminum	87	µg/L	33.8J	µg/L	31.9J	µg/L	33.9J	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.17J	µg/L	0.245J	µg/L	0.221J	µg/L
Barium	220	µg/L	18.5	µg/L	19.2	µg/L	17.7	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0797U	mg/L	0.106U	mg/L	0.0938U	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,750	µg/L	6,930	µg/L	6,760	µg/L
Chromium	25	µg/L	0.169J	µg/L	0.182J	µg/L	0.17J	µg/L
Cobalt	3	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	0.212J	µg/L	5.21J	µg/L	2U	µg/L
Iron	1,000	µg/L	144	µg/L	151	µg/L	128	µg/L
Lead	0.59	µg/L	0.5U	µg/L	0.119J	µg/L	0.5U	µg/L
Magnesium	-	-	2,700J	µg/L	2,740J	µg/L	2,690J	µg/L
Manganese	200	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.203J	µg/L	0.219J	µg/L	0.155J	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.057U	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,650J	µg/L	4,630J	µg/L	4,430J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	0.527J	µg/L	0.604J	µg/L	0.636J	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L	10U	µg/L

**EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT-WATER INTERFACE RESULTS**

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI4 Left Descending		Transect EPA 03 Left Descending		Transect FWS SFI5 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI4-L-BW-20140403		EDEN-EPA03-L-BW-20140403		EDEN-FWSSFI5-L-BW-20140403	
Total Dissolved Solids								
Total Dissolved Solids	-	-	38	mg/L	41	mg/L	40	mg/L
Total Suspended Solids								
Total Suspended Solids	-	-	25.5	mg/L	110	mg/L	124	mg/L
Total Metals								
Aluminum	2,000	µg/L	718	µg/L	529	µg/L	960	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Barium	220	µg/L	28.7	µg/L	26.6	µg/L	31.9	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L	0.113J	µg/L
Boron	0.36	mg/L	0.089U	mg/L	0.105U	mg/L	0.0886U	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,850	µg/L	7,030	µg/L	6,960	µg/L
Chromium	29	µg/L	2.5U	µg/L	2.5U	µg/L	2.5U	µg/L
Cobalt	24	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	1.42J	µg/L	1.23J	µg/L	1.53J	µg/L
Iron	2,300	µg/L	1,450	µg/L	1,120	µg/L	1,780	µg/L
Lead	0.6	µg/L	1.08U	µg/L	0.842U	µg/L	1.22U	µg/L
Magnesium	-	-	2,750J	µg/L	2,780J	µg/L	2,820J	µg/L
Manganese	200	µg/L	71.6	µg/L	61.1	µg/L	64.8	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	5U	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	5U	µg/L	5U	µg/L	5U	µg/L
Potassium	53,000	µg/L	5,000U	µg/L	5,000U	µg/L	5,000U	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.0288J	µg/L	0.057U	µg/L	0.057U	µg/L
Sodium	680,000	µg/L	4,540J	µg/L	4,560J	µg/L	4,430J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	2.93J	µg/L	2.17J	µg/L	3.51J	µg/L
Zinc	39	µg/L	6.69J	µg/L	2.73J	µg/L	9.72J	µg/L
Anions								
Bromide	-	-	1U	mg/L	1U	mg/L	1U	mg/L
Chloride	230	mg/L	6.9	mg/L	7.22	mg/L	7.07	mg/L
Sulfate	-	-	4.98	mg/L	6.99	mg/L	5.14	mg/L

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT-WATER INTERFACE RESULTS

Analyte	Ecological Screening Standard for Surface Water Samples ¹		Transect FWS SFI4 Left Descending		Transect EPA 03 Left Descending		Transect FWS SFI5 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI4-L-BW-20140403		EDEN-EPA03-L-BW-20140403		EDEN-FWSSFI5-L-BW-20140403	
Wet Chemistry								
Alkalinity, Total (As CaCO ₃)	-	-	21.9	mg/L	19.2	mg/L	21	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	28.4	mg/L	29	mg/L	29	mg/L
Organic Carbon, Dissolved	-	-	2.47	mg/L	2.34	mg/L	2.02	mg/L
pH	6.5 - 9.0		7.07J	std	6.89J	std	7J	std

Notes

¹ Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water

°C degrees Celsius

EPA U.S. Environmental Protection Agency

J Value is estimated

J+ Value is estimated with a possible high bias

J- Value is estimated with a possible low bias

µg/L micrograms per liter

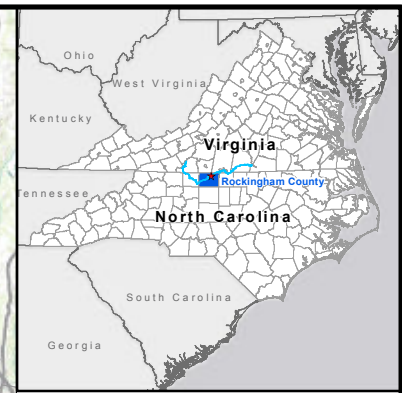
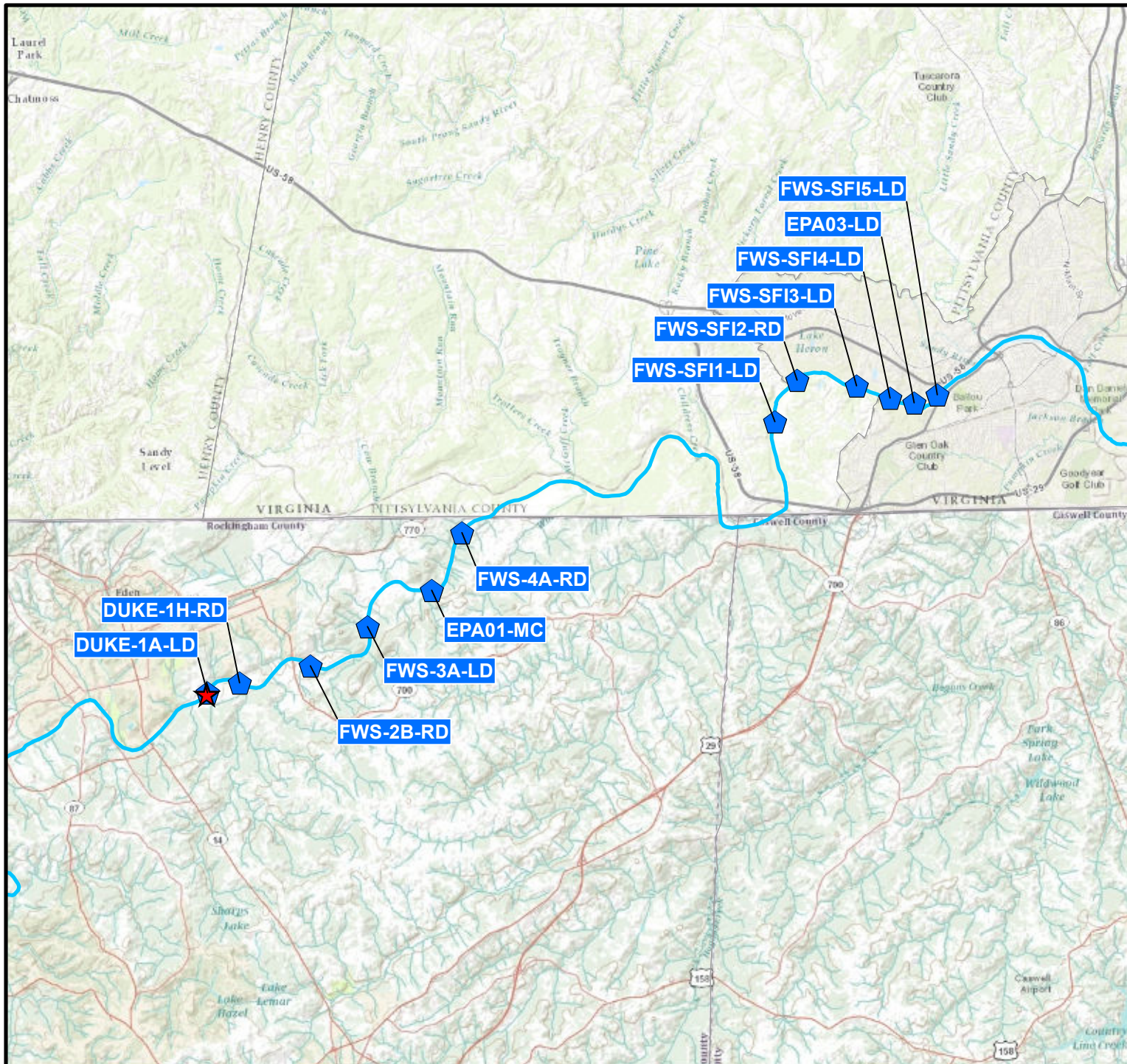
mg/L milligrams per liter

mS/cm milliSiemens per centimeter

NTU Nephelometric turbidity units

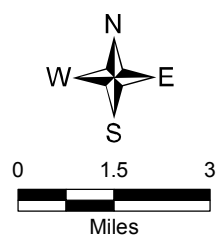
std standard

U Analyte was not detected at the listed reporting limit.



Legend

- ★ Approximate Spill Location
- ▣ Sediment-Water Interface Sample Location
- Dan River



Map Source: ArcGIS Online World Map Topo, 2014

Sediment-Water Interface Sample Locations
April 3, 2014

