

EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

NOTE: The data below represents surface water samples that were collected on April 7, 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 surface water are all below the EPA ERSLs with the exception of aluminum, beryllium, copper, iron, lead, and manganese. EPA typically screens the surface water concentrations using total metals samples, because this is a conservative practice for screening. Beryllium, copper, iron, lead, and manganese were not detected above screening levels in any of the samples of the dissolved fraction of surface water (i.e., samples that were filtered to remove particulates), therefore there is no threat of toxicity from these compounds 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		Abreu-Grogan Park Boat Dock		S Boston WTP Intake	
Sample Information						
Sample ID	-		EDEN-DWTP-RAW-1-20140407	EDEN-SBWTP-RAW-1-20140407		
Date	-		04/07/2014	04/07/2014		
Time	-		2234	1345		
Status	-		Validation Complete	Validation Complete		
Type	-		Surface Water	Surface Water		
Dissolved metals						
Aluminum	87	µg/L	337	µg/L	95.9	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.431J	µg/L	0.216J	µg/L
Barium	220	µg/L	20.3	µg/L	23.8	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.0662J+	mg/L	0.0846J+	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	5,110	µg/L	6,250	µg/L
Chromium	25	µg/L	0.554J	µg/L	0.231J	µg/L
Cobalt	3	µg/L	0.156J	µg/L	5U	µg/L
Copper	3	µg/L	2U	µg/L	2U	µg/L
Iron	1,000	µg/L	625	µg/L	289	µg/L
Lead	0.59	µg/L	0.282J	µg/L	0.5U	µg/L
Magnesium	-	-	2,080J	µg/L	2,630J	µg/L
Manganese	200	µg/L	14.7	µg/L	3.76J	µg/L
Mercury	0.00012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.71J	µg/L	0.525J	µg/L
Potassium	53,000	µg/L	2,100J	µg/L	1,810J	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.05U	µg/L	0.05U	µg/L
Sodium	680,000	µg/L	4,010J	µg/L	6,500	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	1.67J	µg/L	1.31J	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L

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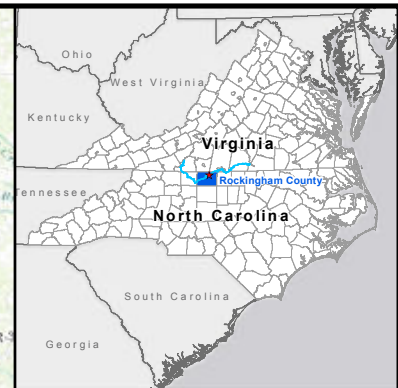
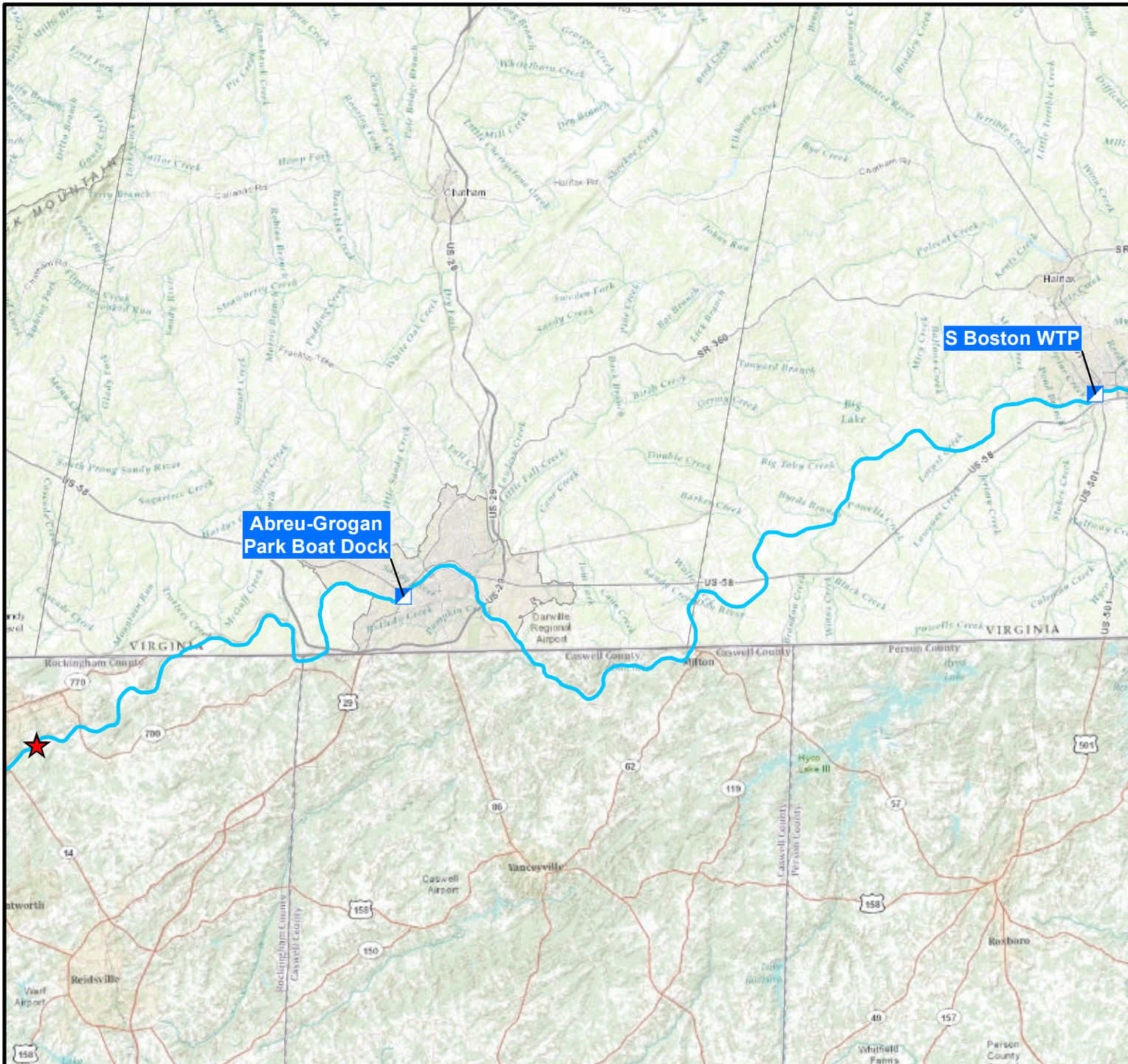
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Type	-		Surface Water	Surface Water		
Total Dissolved Solids						
Total Dissolved Solids	-	-	96	mg/L	79	mg/L
Total Suspended Solids						
Total Suspended Solids	-	-	329	mg/L	289	mg/L
Total Metals						
Aluminum	2,000	µg/L	8,970	µg/L	8,330	µg/L
Antimony	5.6	µg/L	1.03J	µg/L	0.928J	µg/L
Arsenic	10	µg/L	1.84J	µg/L	0.948J	µg/L
Barium	220	µg/L	104	µg/L	115	µg/L
Beryllium	0.66	µg/L	0.777	µg/L	0.578J	µg/L
Boron	0.36	mg/L	0.0676J+	mg/L	0.0889J+	mg/L
Cadmium	2	µg/L	0.058J	µg/L	0.232	µg/L
Calcium	-	-	5,810	µg/L	7,440	µg/L
Chromium	29	µg/L	14.6	µg/L	17.6	µg/L
Cobalt	24	µg/L	5.58	µg/L	6.5	µg/L
Copper	3	µg/L	10.3	µg/L	9.58	µg/L
Iron	2,300	µg/L	2,110	µg/L	2,340	µg/L
Lead	0.6	µg/L	10.5	µg/L	8.01	µg/L
Magnesium	-	-	2,320J	µg/L	2,920J	µg/L
Manganese	200	µg/L	348	µg/L	500	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	0.253J	µg/L	0.269J	µg/L
Nickel	17	µg/L	6.27	µg/L	7.97	µg/L
Potassium	53,000	µg/L	1,980J	µg/L	1,790J	µg/L
Selenium	5	µg/L	4.5U	µg/L	4.5U	µg/L
Silver	0.06	µg/L	0.05U	µg/L	0.036J	µg/L
Sodium	680,000	µg/L	3,810J	µg/L	6,460	µg/L
Thallium	0.24	µg/L	0.141J	µg/L	0.106J	µg/L
Vanadium	27	µg/L	26.6	µg/L	25.1	µg/L
Zinc	39	µg/L	27.1J+	µg/L	31.2J+	µg/L
Anions						
Bromide	-	-	1U	mg/L	1U	mg/L
Chloride	230	mg/L	6.18	mg/L	10.3	mg/L
Sulfate	-	-	5.22	mg/L	6.02	mg/L

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Type	-		Surface Water	Surface Water		
Wet Chemistry						
Alkalinity, Total (As CaCO3)	-	-	10U	mg/L	18.4	mg/L
Hardness, Calcium/Magnesium (As CaCO3)	-	-	24	mg/L	30.6	mg/L
Organic Carbon, Dissolved	-	-	9.15	mg/L	5.42	mg/L
pH	6.5 - 9.0		std	6.52J	std	6.85J

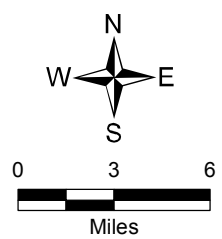
Notes

- 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
- std standard
- U Analyte was not detected at the listed reporting limit.



Legend

-  Approximate Spill Location
-  Surface Water Sample Location
-  Dan River



Map Source: ArcGIS Online World Map Topo, 2014

**Surface Water
Sample Locations
April 7, 2014**

