

EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

NOTE: The data below represents surface water samples that were collected on April 15, 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 and lead. EPA typically screens the surface 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 surface water (i.e., samples that were filtered to remove particulates), therefore there is no threat of toxicity from this compound 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-1-20140415		EDEN-SBWTP-RAW-1-20140415	
Date	-		04/15/2014		04/15/2014	
Time	-		1511		1545	
Status	-		Validation Complete		Validation Complete	
Type	-		Surface Water		Surface Water	
Dissolved metals						
Aluminum	87	µg/L	430	µg/L	460J	µg/L
Antimony	5.6	µg/L	1U	µg/L	1U	µg/L
Arsenic	10	µg/L	1U	µg/L	0.6J	µg/L
Barium	220	µg/L	21J+	µg/L	26J+	µg/L
Beryllium	0.66	µg/L	0.4U	µg/L	0.4U	µg/L
Boron	0.36	mg/L	0.056J	mg/L	0.061J+	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	5,800	µg/L	6,500	µg/L
Chromium	25	µg/L	1.4J	µg/L	1.6J	µg/L
Cobalt	3	µg/L	0.4U	µg/L	0.12J	µg/L
Copper	3	µg/L	0.96J	µg/L	1.3	µg/L
Iron	1,000	µg/L	450	µg/L	510	µg/L
Lead	0.59	µg/L	0.23J	µg/L	0.31	µg/L
Magnesium	-	-	2,300	µg/L	2,600	µg/L
Manganese	200	µg/L	3.2	µg/L	3.6	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	1U	µg/L	1U	µg/L
Nickel	17	µg/L	0.62J	µg/L	0.77J	µg/L
Potassium	53,000	µg/L	1,600	µg/L	1,900	µg/L
Selenium	5	µg/L	2U	µg/L	2U	µg/L
Silver	0.06	µg/L	1U	µg/L	1U	µg/L
Sodium	680,000	µg/L	4,400	µg/L	7,400	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	4.9	µg/L	6.2	µg/L
Zinc	39	µg/L	20U	µg/L	3.5J	µg/L

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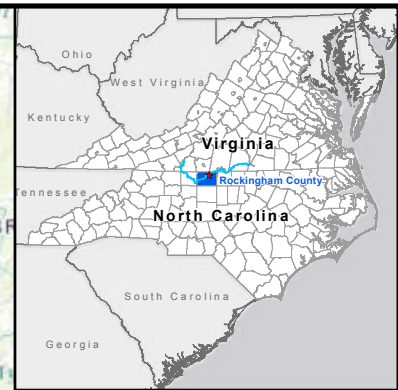
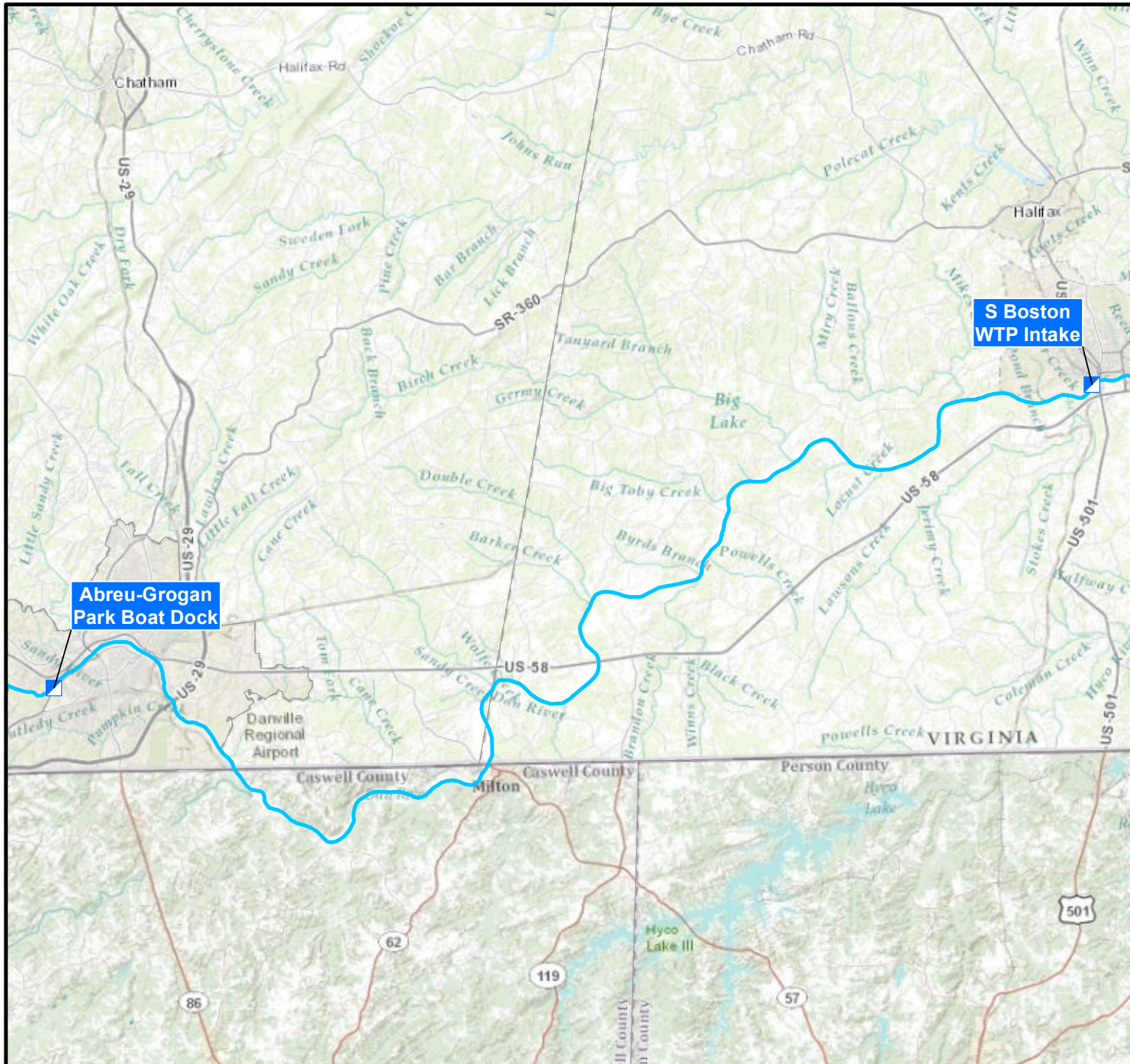
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Status	-		Validation Complete		Validation Complete	
Type	-		Surface Water		Surface Water	
Total Dissolved Solids						
Total Dissolved Solids	-	-	71J	mg/L	77J	mg/L
Total Suspended Solids						
Total Suspended Solids	-	-	81J	mg/L	81J	mg/L
Total Metals						
Aluminum	2,000	µg/L	430J+	µg/L	340J+	µg/L
Antimony	5.6	µg/L	1U	µg/L	1U	µg/L
Arsenic	10	µg/L	1U	µg/L	0.63J	µg/L
Barium	220	µg/L	36J+	µg/L	39J+	µg/L
Beryllium	0.66	µg/L	0.4U	µg/L	0.4U	µg/L
Boron	0.36	mg/L	0.057J	mg/L	0.06J	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,100	µg/L	6,800	µg/L
Chromium	29	µg/L	2U	µg/L	1.7J	µg/L
Cobalt	24	µg/L	1	µg/L	0.96	µg/L
Copper	3	µg/L	2	µg/L	2	µg/L
Iron	2,300	µg/L	940J+	µg/L	1,100J+	µg/L
Lead	0.6	µg/L	1.6	µg/L	1.8	µg/L
Magnesium	-	-	2,400	µg/L	2,700	µg/L
Manganese	200	µg/L	100	µg/L	110	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	1U	µg/L	1U	µg/L
Nickel	17	µg/L	0.73J	µg/L	0.85J	µg/L
Potassium	53,000	µg/L	1,700	µg/L	1,900	µg/L
Selenium	5	µg/L	2U	µg/L	2U	µg/L
Silver	0.06	µg/L	1U	µg/L	1U	µg/L
Sodium	680,000	µg/L	4,500	µg/L	7,400	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	6	µg/L	7.9	µg/L
Zinc	39	µg/L	4J	µg/L	9.8J	µg/L
Anions						
Bromide	-	-	36J	µg/L	80J-	µg/L
Chloride	230	mg/L	6	mg/L	10	mg/L
Sulfate	-	-	4.8	mg/L	5.6	mg/L

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Wet Chemistry						
Alkalinity, Total (As CaCO ₃)	-	-	22	mg/L	23	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	25	mg/L	28	mg/L
Organic Carbon, Dissolved	-	-	2.7	mg/L	2.4	mg/L
pH	6.5 - 9.0		std	7.33J	std	7.31J

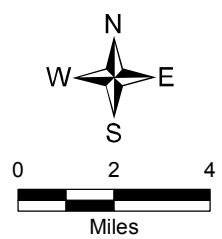
Notes

- 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
- 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 15, 2014**

