

## EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

**NOTE:** The data below represents surface water samples that were collected on March 9, 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, iron, and lead. EPA typically screens the surface water concentrations using total metals samples, because this is a conservative practice for screening. Because none of these compounds were 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), there is no threat of toxicity 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 <sup>1</sup>		Abreu-Grogan Park Boat Dock		S Boston WTP	
<b>Sample Information</b>						
Sample ID	-		EDEN-DWTP-RAW-1-20140309		EDEN-SBWTP-RAW-2-20140309	
Date	-		03/09/2014		03/09/2014	
Time	-		0535		1840	
Status	-		Validation Complete		Validation Complete	
Type	-		Surface Water		Surface Water	
<b>Water Quality Monitoring</b>						
Temperature	-		-	-	-	-
Dissolved Oxygen	<6	mg/L	-	-	8	mg/L
Specific Conductance	-		0.089	mS/cm	-	-
pH	6.5 - 9.0	std	7.2	std	-	-
Turbidity	50	NTU	72	NTU	70	NTU
<b>Dissolved metals</b>						
Aluminum	87	µg/L	8.94J	µg/L	19.8	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.218J	µg/L	0.164J	µg/L
Barium	220	µg/L	22.2	µg/L	28.6	µg/L
Beryllium	0.66	µg/L	0.65U	µg/L	0.65U	µg/L
Boron	0.36	mg/L	0.146U	mg/L	0.0716U	mg/L
Cadmium	0.1	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	7,260	µg/L	5,580	µg/L
Chromium	25	µg/L	0.22J	µg/L	0.241J	µg/L
Cobalt	3	µg/L	0.147J	µg/L	0.13J	µg/L
Copper	3	µg/L	0.8J	µg/L	1.37J	µg/L
Iron	1,000	µg/L	133	µg/L	156	µg/L
Lead	0.59	µg/L	0.5U	µg/L	0.5U	µg/L
Magnesium	-	-	2,870J	µg/L	2,310J	µg/L
Manganese	200	µg/L	20.7	µg/L	14.2	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	800	µg/L	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.318J	µg/L	0.432J	µg/L
Potassium	53,000	µg/L	1,660J	µg/L	1,800J	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	9,240J	µg/L	10,900J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	0.319J	µg/L	0.467J	µg/L
Zinc	39	µg/L	10U	µg/L	3.1J	µg/L

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<b>Sample Information</b>						
Sample ID	-		EDEN-DWTP-RAW-1-20140309		EDEN-SBWTP-RAW-2-20140309	
<b>Total Dissolved Solids</b>						
Total Dissolved Solids	-	-	51	mg/L	23	mg/L
<b>Total Suspended Solids</b>						
Total Suspended Solids	-	-	83	mg/L	112	mg/L
<b>Total Metals</b>						
Aluminum	2,000	µg/L	212	µg/L	3,330	µg/L
Antimony	5.6	µg/L	5U	µg/L	5U	µg/L
Arsenic	10	µg/L	0.635J	µg/L	0.679J	µg/L
Barium	220	µg/L	31.6	µg/L	50.2	µg/L
Beryllium	0.66	µg/L	0.132J	µg/L	0.267J	µg/L
Boron	0.36	mg/L	0.203	mg/L	0.103U	mg/L
Cadmium	2	µg/L	0.1U	µg/L	0.1U	µg/L
Calcium	-	-	6,950	µg/L	6,400	µg/L
Chromium	29	µg/L	2.5U	µg/L	5.74	µg/L
Cobalt	24	µg/L	0.703J	µg/L	2.21J	µg/L
Copper	3	µg/L	2U	µg/L	5.65	µg/L
Iron	2,300	µg/L	965	µg/L	7,890	µg/L
Lead	0.6	µg/L	1.35	µg/L	3.12	µg/L
Magnesium	-	-	2,700J	µg/L	3,020J	µg/L
Manganese	200	µg/L	73.5	µg/L	146	µg/L
Mercury	0.000012	mg/L	0.0002U	mg/L	0.0002U	mg/L
Molybdenum	-	-	5U	µg/L	5U	µg/L
Nickel	17	µg/L	0.562J	µg/L	2.71J	µg/L
Potassium	53,000	µg/L	1,500J	µg/L	2,120J	µg/L
Selenium	5	µg/L	0.481J	µg/L	0.445J	µg/L
Silver	0.06	µg/L	0.05U	µg/L	0.05U	µg/L
Sodium	680,000	µg/L	7,950J	µg/L	9,650J	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Vanadium	27	µg/L	2.43J	µg/L	11.8	µg/L
Zinc	39	µg/L	4.05J	µg/L	13.8U	µg/L
<b>Anions</b>						
Bromide	-	-	1U	mg/L	1U	mg/L
Chloride	230	mg/L	16.5	mg/L	17	mg/L
Sulfate	-	-	5.01	mg/L	4.6	mg/L

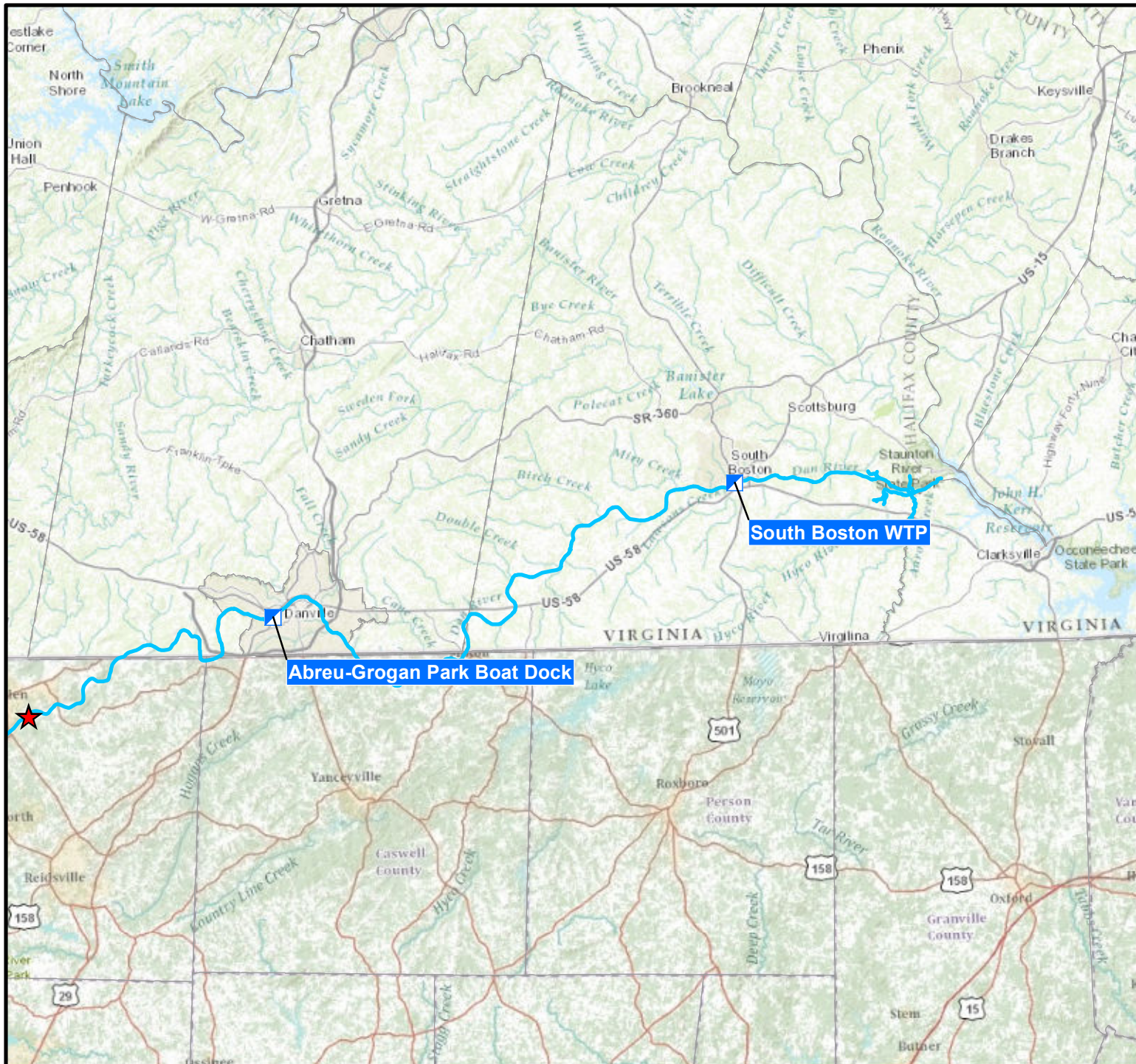
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Sample ID	-		EDEN-DWTP-RAW-1-20140309		EDEN-SBWTP-RAW-2-20140309	
<b>Wet Chemistry</b>						
Alkalinity, Total (As CaCO <sub>3</sub> )	-	-	13.4	mg/L	10.8	mg/L
Hardness, Calcium/Magnesium (As CaCO <sub>3</sub> )	-	-	28.5	mg/L	28.4	mg/L
Organic Carbon, Dissolved	-	-	1.9	mg/L	5.00	mg/L
pH	6.5 - 9.0	std	7.03J	std	6.36J	std




Notes

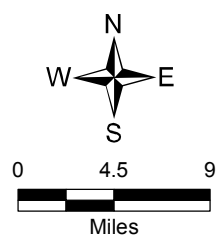
- <sup>1</sup> Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water
- °C degrees Celsius
- EPA U.S. Environmental Protection Agency
- J Value is estimated
- 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
-  Surface Water Sample Location
-  Dan River



Map Source: ArcGIS Online World Map Topo, 2014

**Surface Water Sample Locations**  
**March 9, 2014**

