

EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

NOTE: The data below represents surface water samples that were collected on Feb 8, 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 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 in any of the samples of the dissolved fraction of surface water (i.e., samples that were filtered to remove particulates), it presents 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 ¹		Hwy 880		Danville WTP		S Boston WTP Intake	
Sample Information								
Sample ID	-		EDEN-BHB-SUR-20140208		EDEN-DWTP-RAW-20140208		EDEN-SBWTP-RAW-20140208	
Date	-		2/8/2014		2/8/2014		2/8/2014	
Time	-		1650		1125		1350	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Surface Water		Surface Water		Surface Water	
Dissolved metals SW6010C/6020A/7470A								
Aluminum	87	µg/L	9.75J	µg/L	50.7	µg/L	7.83J	µg/L
Antimony	5.6	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Arsenic	10	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Barium	220	µg/L	19.5	µg/L	23.0	µg/L	23.0	µg/L
Beryllium	0.66	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Boron	0.36	mg/L	0.145	mg/L	0.119	mg/L	0.0865	mg/L
Cadmium	0.1	µg/L	0.700U	µg/L	0.700U	µg/L	0.700U	µg/L
Calcium	-	-	6,900	µg/L	6,980	µg/L	7,190	µg/L
Chromium	25	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Cobalt	3	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Copper	3	µg/L	2.00U	µg/L	2.00U	µg/L	2.00U	µg/L
Iron	1,000	µg/L	102	µg/L	171	µg/L	135	µg/L
Lead	0.59	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Magnesium	-	-	2,480	µg/L	2,550	µg/L	2,620	µg/L
Manganese	200	µg/L	8.97	µg/L	9.49	µg/L	11.2	µg/L
Mercury	0.000012	mg/L	0.00020U	mg/L	0.00020U	mg/L	0.00020U	mg/L
Molybdenum	800	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Nickel	17	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Potassium	53,000	µg/L	1,340	µg/L	1,500	µg/L	1,660	µg/L
Selenium	5	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Silica	-	-	7.16	mg/L	7.31	mg/L	7.58	mg/L
Silver	0.06	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	4,590	µg/L	5,170	µg/L	7,820	µg/L
Thallium	0.24	µg/L	0.200U	µg/L	0.200U	µg/L	0.200U	µg/L
Vanadium	27	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Zinc	39	µg/L	10.0U	µg/L	10.0U	µg/L	10.0U	µg/L
Total Dissolved Solids EPA 160.1								
Total Dissolved Solids	-	-	56J+	mg/L	67J+	mg/L	70J+	mg/L
Total Suspended Solids EPA 160.2								
Total Suspended Solids	-	-	10.0	mg/L	9.5J+	mg/L	28.5	mg/L

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Sample ID	-		EDEN-BHB-SUR-20140208		EDEN-DWTP-RAW-20140208		EDEN-SBWTP-RAW-20140208	
Total Metals			SW6010C/6020A/7470A					
Aluminum	2,000	µg/L	322	µg/L	393	µg/L	1,180	µg/L
Antimony	5.6	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Arsenic	10	µg/L	5.00U	µg/L	0.625J	µg/L	1.33J	µg/L
Barium	220	µg/L	23.5	µg/L	26.0	µg/L	35.5	µg/L
Beryllium	0.66	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Boron	0.36	mg/L	0.143J+	mg/L	0.119J+	mg/L	0.0880J+	mg/L
Cadmium	2	µg/L	0.700U	µg/L	0.700U	µg/L	0.700U	µg/L
Calcium	-	-	6,910	µg/L	6,690	µg/L	7,070	µg/L
Chromium	29	µg/L	0.649J	µg/L	0.749J	µg/L	1.85J	µg/L
Cobalt	24	µg/L	5.00U	µg/L	5.00U	µg/L	0.791J	µg/L
Copper	3	µg/L	2.00U	µg/L	2.00U	µg/L	2.77	µg/L
Iron	2,300	µg/L	577	µg/L	684	µg/L	1,500	µg/L
Lead	0.6	µg/L	1.00U	µg/L	1.00U	µg/L	1.41J+	µg/L
Magnesium	-	-	2,470	µg/L	2,430	µg/L	2,630	µg/L
Manganese	200	µg/L	18.3	µg/L	18.2	µg/L	42.4	µg/L
Mercury	0.000012	mg/L	0.00020U	mg/L	0.00020U	mg/L	0.00020U	mg/L
Molybdenum	-	-	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Nickel	17	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Potassium	53,000	µg/L	1,360	µg/L	1,440	µg/L	1,720	µg/L
Selenium	5	µg/L	5.00U	µg/L	5.00U	µg/L	0.289J	µg/L
Silica	-	-	6.87	mg/L	7.16	mg/L	7.92	mg/L
Silver	0.06	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	4,510	µg/L	4,870	µg/L	7,500	µg/L
Thallium	0.24	µg/L	0.200U	µg/L	0.200U	µg/L	0.200U	µg/L
Vanadium	27	µg/L	1.47J	µg/L	1.94J	µg/L	4.58J	µg/L
Zinc	39	µg/L	10.0U	µg/L	10.0U	µg/L	10.0U	µg/L
Anions			SW9056A					
Bromide	-	-	1.0U	mg/L	1.0U	mg/L	1.0U	mg/L
Chloride	230	mg/L	8.1	mg/L	8.2	mg/L	11	mg/L
Sulfate	-	-	5.1	mg/L	5.4	mg/L	6.0	mg/L

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Sample ID	-	EDEN-BHB-SUR-20140208	EDEN-DWTP-RAW-20140208	EDEN-SBWTP-RAW-20140208
Wet Chemistry				
	EPA 310.2/SM2340B/SW9040 C/SW9060A			
Alkalinity, Total (As CaCO ₃)	-	22.0J+	21.9J+	19.8J+
Hardness, Calcium/Magnesium (As CaCO ₃)	-	27.4	26.7	28.5
Organic Carbon, Dissolved	-	4.96J+	3.36J+	5.39J+
pH	6.5 - 9.0	7.03J	7.09J	7.04J

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

µg/L micrograms per liter

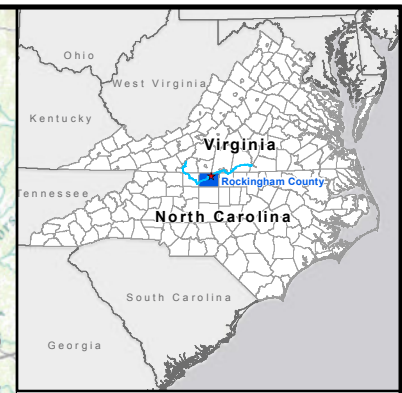
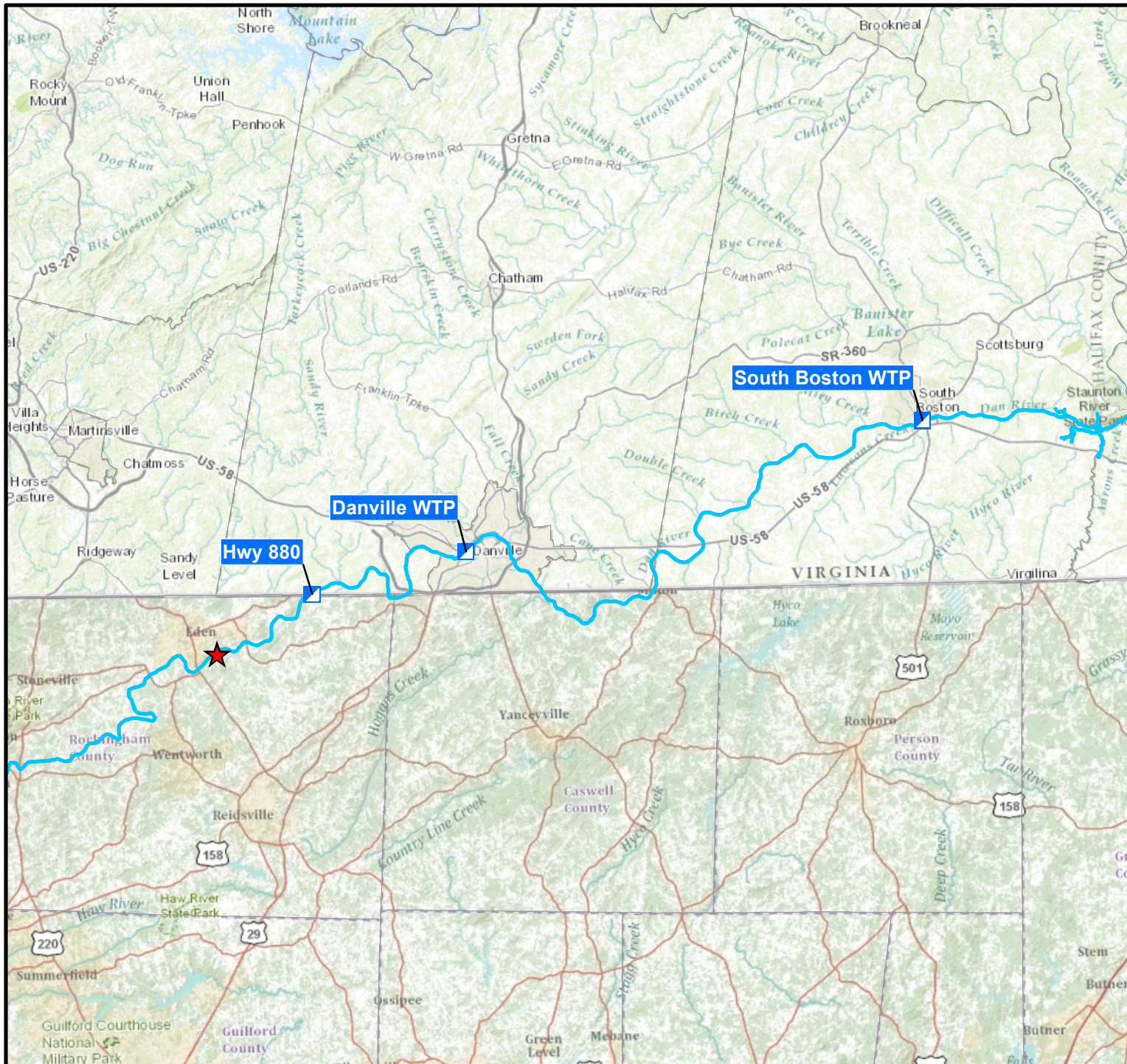
mg/L milligrams per liter

mS/cm milliSiemens per centimeter

NTU Nephelometric turbidity units

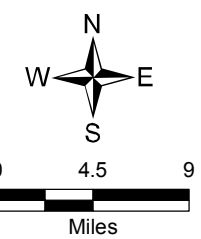
std standard

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
February 8, 2014**

