

EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

NOTE: The data below represents surface water samples that were collected on Feb 16, 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 above the EPA ERSLs for aluminum, beryllium, copper, and lead for total metals. EPA typically screens the surface water concentrations using total metals samples because this is a conservative practice for screening. Because beryllium, copper, and lead were not detected in any of the samples of the dissolved fraction of surface water (i.e., samples that were filtered to remove particulates), they present no threat of toxicity to aquatic organisms. Aluminum continued to be detected above the EPA ERSLs in the dissolved metals analysis. 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		Danville Water Intake	
Sample Information				
Sample ID	-		EDEN-DANIN-20140216	
Date	-		2/16/2014	
Time	-		0709	
Status	-		Validation Complete	
Type	-		Surface Water	
Water Quality Monitoring				
Temperature	-		2.47	°C
Dissolved Oxygen	<6	mg/L	10	mg/L
Specific Conductance	-		0.108	mS/cm
pH	6.5 - 9.0	std	7.41	std
Turbidity	50	NTU	70	NTU
Dissolved metals SW6010C/6020A/7470A				
Aluminum	87	µg/L	156	µg/L
Antimony	5.6	µg/L	5.00U	µg/L
Arsenic	10	µg/L	4.50U	µg/L
Barium	220	µg/L	23.5	µg/L
Beryllium	0.66	µg/L	1.00U	µg/L
Boron	0.36	mg/L	0.102J+	mg/L
Cadmium	0.1	µg/L	0.700U	µg/L
Calcium	-	-	6,550	µg/L
Chromium	25	µg/L	2.50U	µg/L
Cobalt	3	µg/L	5.00U	µg/L
Copper	3	µg/L	2.00U	µg/L
Iron	1,000	µg/L	222	µg/L
Lead	0.59	µg/L	0.105J	µg/L
Magnesium	-	-	2,400	µg/L
Manganese	200	µg/L	6.65	µg/L
Mercury	0.000012	mg/L	0.00020U	mg/L
Molybdenum	800	µg/L	5.00U	µg/L
Nickel	17	µg/L	0.622J	µg/L
Potassium	53,000	µg/L	1,530	µg/L
Selenium	5	µg/L	5.00U	µg/L
Silica	-	-	6.00	mg/L
Silver	0.06	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	7,900	µg/L
Thallium	0.24	µg/L	0.200U	µg/L
Vanadium	27	µg/L	0.915J	µg/L
Zinc	39	µg/L	10.0U	µg/L

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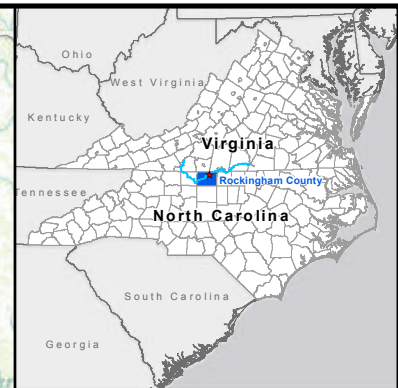
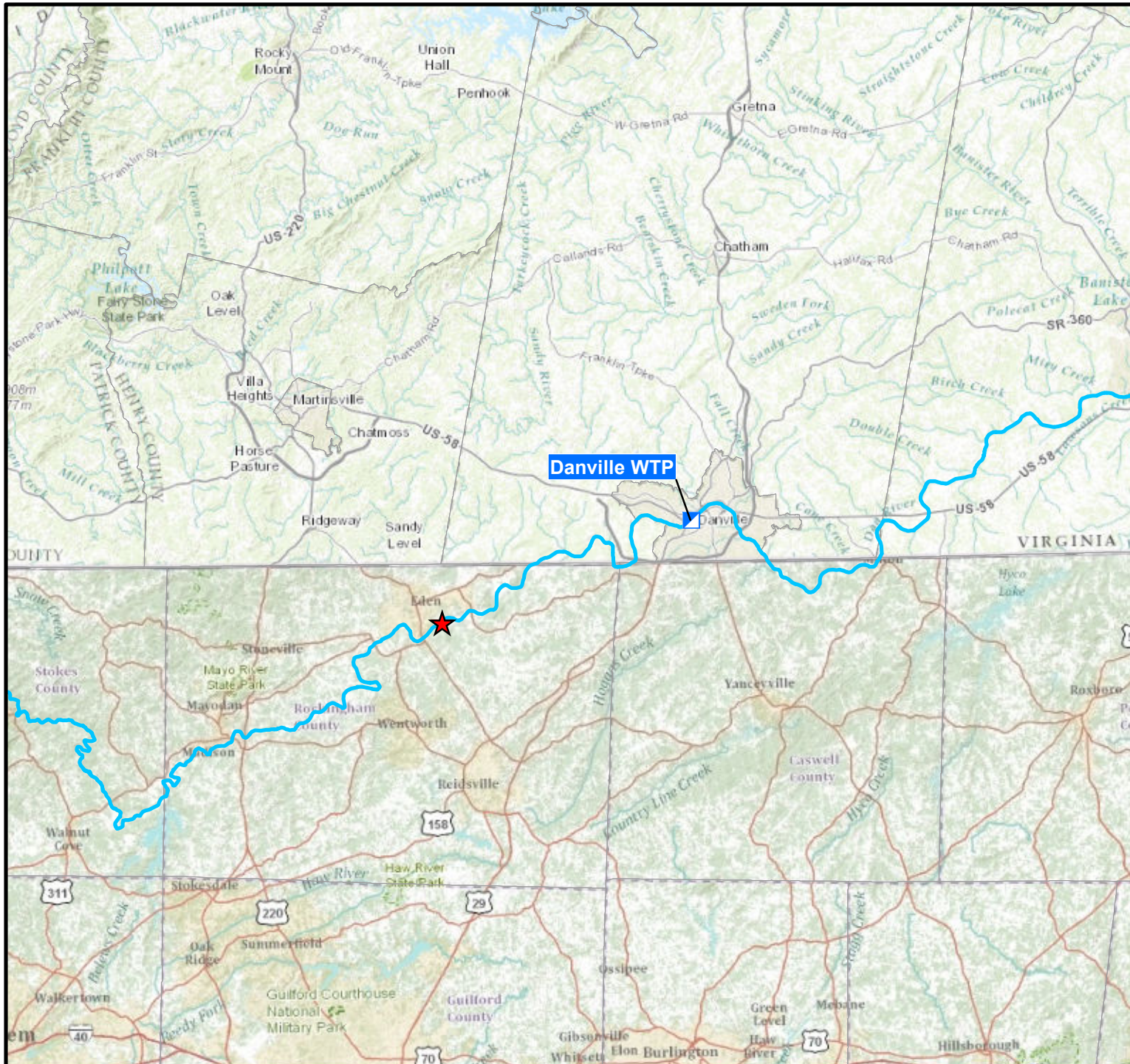
Analyte	Ecological Screening Standard for Surface Water Samples ¹		Danville Water Intake	
Sample Information				
Sample ID	-		EDEN-DANIN-20140216	
Total Dissolved Solids EPA 160.1				
Total Dissolved Solids	-	-	73	mg/L
Total Suspended Solids EPA 160.2				
Total Suspended Solids	-	-	98.5	mg/L
Total Metals SW6010C/6020A/7470A				
Aluminum	2,000	µg/L	2,060	µg/L
Antimony	5.6	µg/L	5.00U	µg/L
Arsenic	10	µg/L	2.64J	µg/L
Barium	220	µg/L	65.6	µg/L
Beryllium	0.66	µg/L	0.710J	µg/L
Boron	0.36	mg/L	0.0983J+	mg/L
Cadmium	2	µg/L	0.700U	µg/L
Calcium	-	-	5,320	µg/L
Chromium	29	µg/L	2.53	µg/L
Cobalt	24	µg/L	1.79J	µg/L
Copper	3	µg/L	7.42	µg/L
Iron	2,300	µg/L	1,690	µg/L
Lead	0.6	µg/L	3.83	µg/L
Magnesium	-	-	2,010	µg/L
Manganese	200	µg/L	39.2	µg/L
Mercury	0.000012	mg/L	0.00020U	mg/L
Molybdenum	-	-	5.00U	µg/L
Nickel	17	µg/L	3.16J	µg/L
Potassium	53,000	µg/L	1470	µg/L
Selenium	5	µg/L	5.00U	µg/L
Silica	-	-	9.39	mg/L
Silver	0.06	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	7,120	µg/L
Thallium	0.24	µg/L	0.142J	µg/L
Vanadium	27	µg/L	7.58	µg/L
Zinc	39	µg/L	19.9	µg/L
Anions SW9056A				
Bromide	-	-	1.0U	mg/L
Chloride	230	mg/L	15	mg/L
Sulfate	-	-	5.6	mg/L

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Sample Information				
Sample ID	-		EDEN-DANIN-20140216	
EPA 310.2/SM2340B/SW9040 C/SW9060A				
Wet Chemistry				
Alkalinity, Total (As CaCO ₃)	-	-	24.0	mg/L
Hardness, Calcium/Magnesium (As CaCO ₃)	-	-	21.5	mg/L
Organic Carbon, Dissolved	-	-	1.34	mg/L
pH	6.5 - 9.0	std	7.05J	std

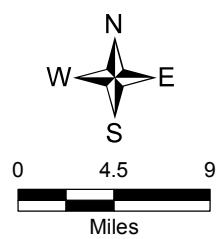
Notes

- 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
- 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 16, 2014**

