

EDEN NORTH CAROLINA COAL ASH SPILL SURFACE WATER RESULTS

NOTE: The data below represents surface water samples that were collected on Feb 12, 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), there is no threat of toxicity of lead 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		Danville WTP		Leaksville Boat Access		Leaksville Boat Access	
Sample Information								
Sample ID	-		EDEN-DWTP-RAW-20140212		EDEN-LBA-BG-20140212		EDEN-LBA-BG-20140212-DUP	
Date	-		2/12/2014		2/12/2014		2/12/2014	
Time	-		0902		1005		1015	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Surface Water		Surface Water		Surface Water	
Water Quality Monitoring								
Temperature	-		-	-	2.95	°C	-	-
Dissolved Oxygen	<6	mg/L	-	-	7	mg/L	-	-
Specific Conductance	-		-	-	0.094	mS/cm	-	-
pH	6.5 - 9.0	std	-	-	7.08	std	-	-
Turbidity	50	NTU	-	-	7.1	NTU	-	-
Dissolved metals SW6010C/6020A/7470A								
Aluminum	87	µg/L	8.66J	µg/L	9.71J	µg/L	9.81J	µg/L
Antimony	5.6	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Arsenic	10	µg/L	4.50U	µg/L	4.50U	µg/L	4.50U	µg/L
Barium	220	µg/L	18.6	µg/L	17.6	µg/L	17.7	µg/L
Beryllium	0.66	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Boron	0.36	mg/L	0.131J+	mg/L	0.187J+	mg/L	0.187J+	mg/L
Cadmium	0.1	µg/L	0.700U	µg/L	0.700U	µg/L	0.700U	µg/L
Calcium	-	-	6,990	µg/L	6,990	µg/L	7,250	µg/L
Chromium	25	µg/L	2.50U	µg/L	2.50U	µg/L	2.50U	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	67.3J	µg/L	129	µg/L	131	µg/L
Lead	0.59	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Magnesium	-	-	2,610	µg/L	2,420	µg/L	2,530	µg/L
Manganese	200	µg/L	35.2	µg/L	17.6	µg/L	18.6	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	0.180J	µg/L	0.183J	µg/L	0.155J	µg/L
Potassium	53,000	µg/L	1,450	µg/L	1,200	µg/L	1,250	µg/L
Selenium	5	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Silica	-	-	7250	mg/L	7200	mg/L	7230	mg/L
Silver	0.06	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	4,930	µg/L	3,720	µg/L	3,890	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	-	-	73	mg/L	55	mg/L	58	mg/L
Total Suspended Solids EPA 160.2								
Total Suspended Solids	-	-	15.5	mg/L	8.0	mg/L	9.0	mg/L

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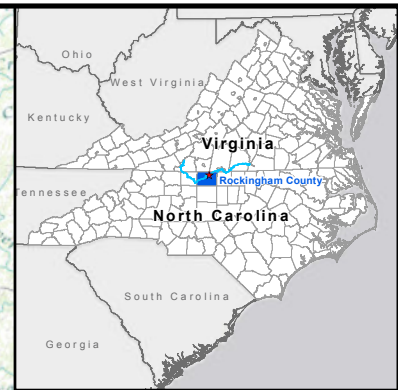
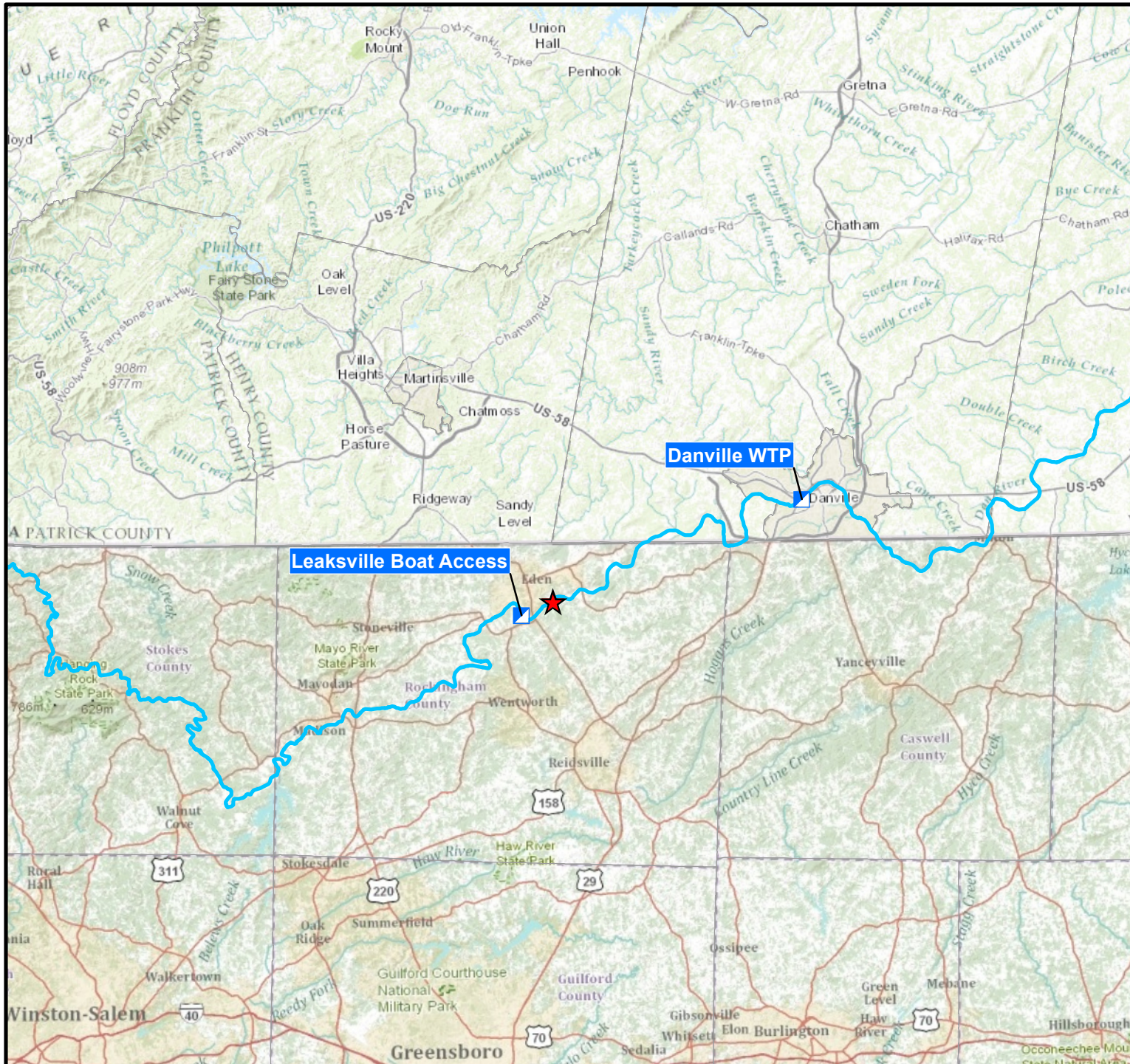
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Sample Information								
Sample ID	-		EDEN-DWTP-RAW-20140212		EDEN-LBA-BG-20140212		EDEN-LBA-BG-20140212-DUP	
Total Metals SW6010C/6020A/7470A								
Aluminum	2,000	µg/L	399	µg/L	235	µg/L	261	µg/L
Antimony	5.6	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Arsenic	10	µg/L	0.548J	µg/L	4.50U	µg/L	4.50U	µg/L
Barium	220	µg/L	23.2	µg/L	18.6	µg/L	19.2	µg/L
Beryllium	0.66	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Boron	0.36	mg/L	0.136J+	mg/L	0.199J+	mg/L	0.198J+	mg/L
Cadmium	2	µg/L	0.700U	µg/L	0.700U	µg/L	0.700U	µg/L
Calcium	-	-	6,490	µg/L	6,820	µg/L	6,900	µg/L
Chromium	29	µg/L	0.632J	µg/L	2.50U	µg/L	2.50U	µg/L
Cobalt	24	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Copper	3	µg/L	0.960J	µg/L	0.467J	µg/L	0.437J	µg/L
Iron	2,300	µg/L	518	µg/L	405	µg/L	448	µg/L
Lead	0.6	µg/L	0.394J	µg/L	0.179J	µg/L	0.908J	µg/L
Magnesium	-	-	2,420	µg/L	2,340	µg/L	2,390	µg/L
Manganese	200	µg/L	107	µg/L	21.0	µg/L	23.5	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	0.583J	µg/L	0.285J	µg/L	0.301J	µg/L
Potassium	53,000	µg/L	1350	µg/L	1180	µg/L	1190	µg/L
Selenium	5	µg/L	5.00U	µg/L	5.00U	µg/L	5.00U	µg/L
Silica	-	-	7,430	mg/L	7,160	mg/L	7,410	mg/L
Silver	0.06	µg/L	1.00U	µg/L	1.00U	µg/L	1.00U	µg/L
Sodium	680,000	µg/L	4,580	µg/L	3,580	µg/L	3,650	µg/L
Thallium	0.24	µg/L	0.200U	µg/L	0.200U	µg/L	0.200U	µg/L
Vanadium	27	µg/L	1.46J	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
Anions SW9056A								
Bromide	-	-	1.0U	mg/L	1.0U	mg/L	1.0U	mg/L
Chloride	230	mg/L	8.9	mg/L	9.8	mg/L	10	mg/L
Sulfate	-	-	5.7	mg/L	5.1	mg/L	5.3	mg/L

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Sample Information				
Sample ID	-	EDEN-DWTP-RAW-20140212	EDEN-LBA-BG-20140212	EDEN-LBA-BG-20140212-DUP
Wet Chemistry				
	EPA 310.2/SM2340B/SW9040 C/SW9060A			
Alkalinity, Total (As CaCO ₃)	-	28.6	24.0	22.3
Hardness, Calcium/Magnesium (As CaCO ₃)	-	26.2	26.7	27.1
Organic Carbon, Dissolved	-	5.64	4.40	3.27
pH	6.5 - 9.0	7.19J	7.08J	7.17J

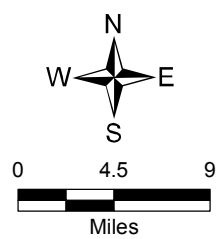
Notes

- 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 12, 2014**

