

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on March 8, 2014 by EPA Sample Team 1. Sediment sample measurements are in milligrams per kilogram (mg/Kg). The data is being compared to ecological risk screening levels (ERSLs) to protect aquatic life in the sediments 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 sediment are all below the ERSLs with the exception of aluminum, antimony, barium, cadmium, chromium, copper, iron, manganese, selenium, silver, thallium, and vanadium. There were no exceedances of human health screening criteria for sediment. 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 Standards for Sediment ²		Staunton River State Park Boat Ramp		Staunton River State Park Boat Ramp		Buffalo Swim Beach - Public Swimming Area		Bluestone Location on Kerr Reservoir	
Sample Information										
Sample ID	-		EDEN-SRSPBR-L-SD-20140308		EDEN-SRSPBR-L-SD-20140308-DUP		EDEN-BSB-R-SD-20140308		EDEN-BLST-L-SD-20140308	
Date	-		03/08/2014		03/08/2014		03/08/2014		03/08/2014	
Time	-		1110		1115		1411		1326	
Status	-		Validation Complete		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment		Sediment	
Total Metals										
Aluminum	3,200 (bkg)	mg/kg	20,200	mg/kg	15,100	mg/kg	498	mg/kg	12,800	mg/kg
Antimony	2 ^g	mg/kg	0.51J	mg/kg	0.225J	mg/kg	5.85U	mg/kg	6.8U	mg/kg
Arsenic	9.8	mg/kg	0.307J	mg/kg	0.465J	mg/kg	0.178J	mg/kg	1.27J	mg/kg
Barium	60 ^h	mg/kg	121	mg/kg	106	mg/kg	4.56J	mg/kg	25.6	mg/kg
Beryllium	-	-	0.452J	mg/kg	0.451J	mg/kg	2.93U	mg/kg	0.171J	mg/kg
Boron	-	-	33U	mg/kg	32U	mg/kg	29U	mg/kg	34U	mg/kg
Cadmium	0.99	mg/kg	3.3U	mg/kg	3.17U	mg/kg	2.93U	mg/kg	3.4U	mg/kg
Calcium	-	-	5,180	mg/kg	4,880	mg/kg	120	mg/kg	1,560	mg/kg
Chromium	43.4	mg/kg	57.2	mg/kg	50.4	mg/kg	1.66J	mg/kg	36.6	mg/kg
Cobalt	50	mg/kg	23.4	mg/kg	24.1	mg/kg	0.254J	mg/kg	2.89J	mg/kg
Copper	31.6	mg/kg	38	mg/kg	36.4	mg/kg	0.646J	mg/kg	8.25	mg/kg
Iron	6,800 (bkg)	mg/kg	29,300	mg/kg	30,100	mg/kg	1,130	mg/kg	23,600	mg/kg
Lead	35.8	mg/kg	3.89J	mg/kg	3.14J	mg/kg	0.822J	mg/kg	9.75	mg/kg
Magnesium	-	-	8,180	mg/kg	8,080	mg/kg	56.9J	mg/kg	455	mg/kg
Manganese	460 ^e	mg/kg	745	mg/kg	659	mg/kg	33.8	mg/kg	83.9	mg/kg
Mercury	0.18	mg/kg	0.137U	mg/kg	0.131U	mg/kg	0.121U	mg/kg	0.0387J	mg/kg
Molybdenum	-	-	0.668J	mg/kg	0.447J	mg/kg	0.115J	mg/kg	1.14J	mg/kg
Nickel	22.7	mg/kg	22.3	mg/kg	21.8	mg/kg	0.176J	mg/kg	2.7J	mg/kg
Potassium	-	-	1,170	mg/kg	1,440	mg/kg	34.6J	mg/kg	375	mg/kg
Selenium	2 ^d	mg/kg	6.59U	mg/kg	6.33U	mg/kg	5.85U	mg/kg	6.8U	mg/kg
Silver	0.733	mg/kg	3.3U	mg/kg	0.0379J	mg/kg	2.93U	mg/kg	3.4U	mg/kg
Sodium	-	-	189	mg/kg	168	mg/kg	7.83J	mg/kg	25.8J	mg/kg
Thallium	-	-	2.13J	mg/kg	0.957J	mg/kg	5.85U	mg/kg	6.8U	mg/kg
Vanadium	57 ^f	mg/kg	83.9	mg/kg	72.6	mg/kg	2.3J	mg/kg	63.1	mg/kg
Zinc	121	mg/kg	51.7	mg/kg	52.6	mg/kg	5.85U	mg/kg	11.1	mg/kg

Notes

² MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T. Biernacki. 2003. Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters. Florida Department of Environmental Protection, Tallahassee, FL. Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters.

³ The screening value for antimony is from Long, Edward R., and Lee G. Morgan. 1991. The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Program. NOAA Technical Memorandum NOS OMA 52.

^h The screening value for barium was the probable effect level (PEL) instead of the threshold effect level (TEL) because the TEL was below background

^e Sediment screening values for manganese and vanadium come from the NOAA SQUIRT.

<http://response.restoration.noaa.gov/sites/default/files/SQUIRTs.pdf>

^d The screening value for selenium is from Region 3 after Lemley, A.D. 2002. Selenium assessment in aquatic ecosystems. US Forest Service, Blacksburg, VA.

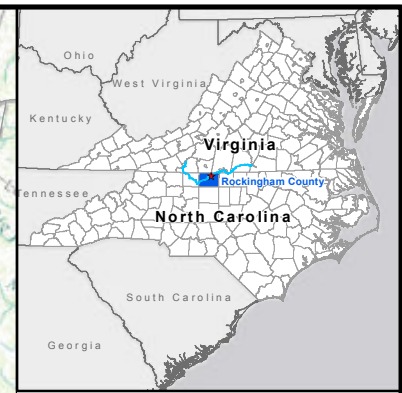
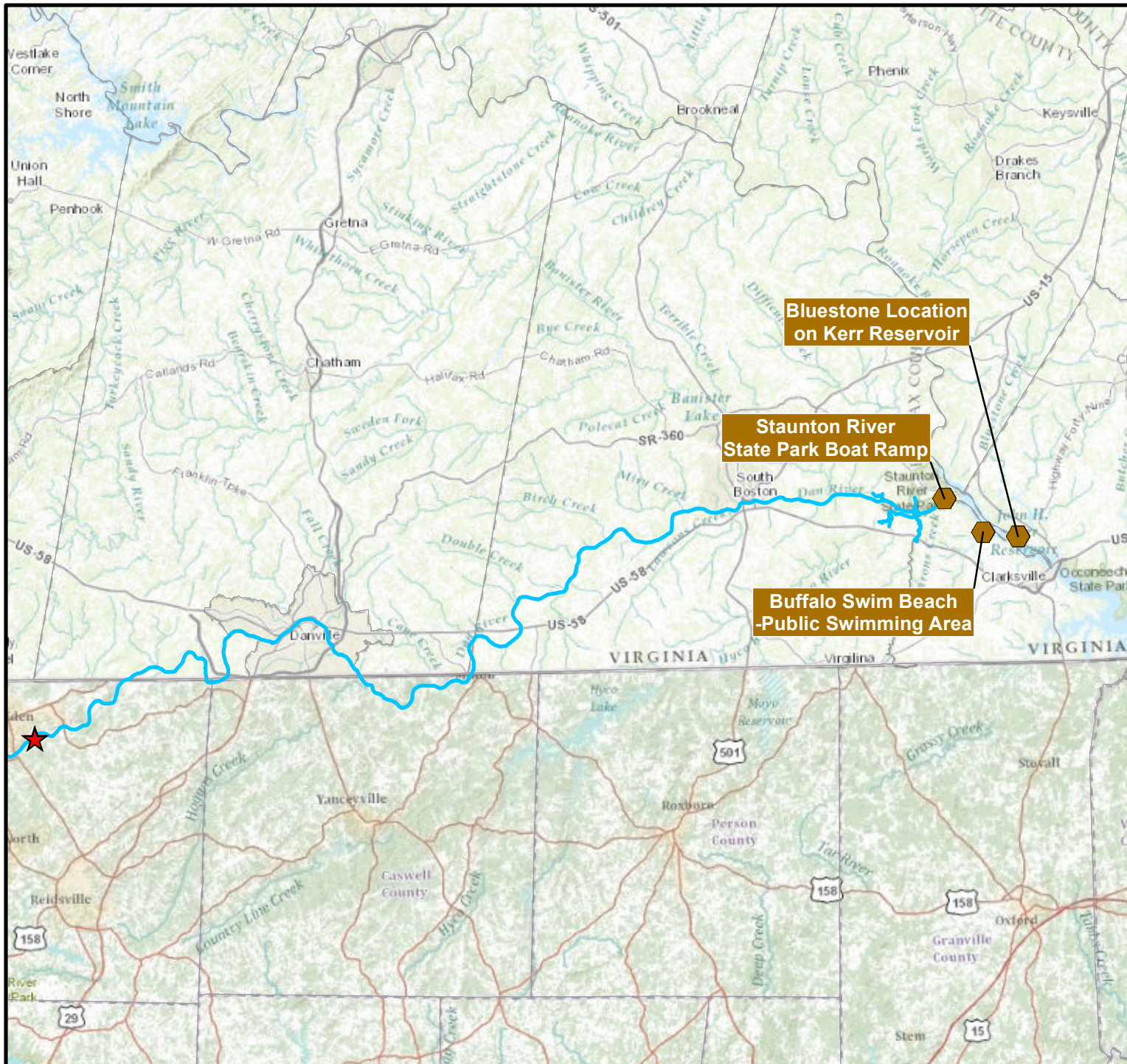
^g Cadmium from diet

^f Chromium (VI)

⁸ Methyl Mercury

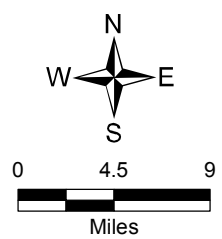
^h Thallium Chloride

- EPA U.S. Environmental Protection Agency
- J Value is estimated
- J- Value is estimated with a possible low bias
- J+ Value is estimated with a possible high bias
- mg/L milligrams per liter
- U Analyte was not detected at the listed reporting limit.
- UJ Analyte was not detected at the listed reporting limit, which is an estimated quantitation.



Legend

- ★ Approximate Spill Location
- Hexagon Sediment Sample Location
- Blue Line Dan River



Map Source: ArcGIS Online World Map Topo, 2014

Sediment Sample Locations
March 8, 2014

