

# EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on March 24, 2014 by EPA Sample Team 1. Sediment sample measurement is in micrograms per kilogram (mg/kg) and 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, barium, iron, manganese, 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 <sup>2</sup>		Danville Impoundment A		Danville Impoundment B		Danville Impoundment G	
<b>Sample Information</b>								
Sample ID	-		EDEN-DVIM-A-SD-20140324		EDEN-DVIM-B-SD-20140324		EDEN-DVIM-G-SD-20140324	
Date	-		3/24/2014		3/24/2014		3/24/2014	
Time	-		1325		1415		1635	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
<b>Total Metals</b>								
Aluminum	3,200 (bkg)	mg/kg	7,160	mg/kg	18,500	mg/kg	18,600	mg/kg
Antimony	2 <sup>a</sup>	mg/kg	0.604J-	mg/kg	0.684J-	mg/kg	0.452J-	mg/kg
Arsenic	9.8	mg/kg	6.51J	mg/kg	4.33J	mg/kg	1.21J	mg/kg
Barium	60 <sup>b</sup>	mg/kg	123	mg/kg	211	mg/kg	181	mg/kg
Beryllium	-	-	0.849J	mg/kg	1.33J	mg/kg	1.1J	mg/kg
Boron	-	-	37U	mg/kg	52U	mg/kg	43U	mg/kg
Cadmium	0.99	mg/kg	3.65U	mg/kg	5.2U	mg/kg	4.26U	mg/kg
Calcium	-	-	1,490J+	mg/kg	3,050J+	mg/kg	2,770J+	mg/kg
Chromium	43.4	mg/kg	17.1	mg/kg	40.1	mg/kg	37.7	mg/kg
Cobalt	50	mg/kg	8.09	mg/kg	17.5	mg/kg	18	mg/kg
Copper	31.6	mg/kg	16	mg/kg	26.7	mg/kg	28.4	mg/kg
Iron	6,800 (bkg)	mg/kg	13,000	mg/kg	34,500	mg/kg	32,300	mg/kg
Lead	35.8	mg/kg	6.28J	mg/kg	14.8	mg/kg	15.9	mg/kg
Magnesium	-	-	1,820	mg/kg	4,870	mg/kg	3,550	mg/kg
Manganese	460 <sup>c</sup>	mg/kg	216	mg/kg	597	mg/kg	954	mg/kg
Mercury	0.18	mg/kg	0.0466J	mg/kg	0.0404J	mg/kg	0.0436J	mg/kg
Molybdenum	-	-	0.0647J	mg/kg	1.06J	mg/kg	0.349J	mg/kg
Nickel	22.7	mg/kg	8.22	mg/kg	16.9	mg/kg	15	mg/kg
Potassium	-	-	1,650J+	mg/kg	4,500J+	mg/kg	3,090J+	mg/kg
Selenium	2 <sup>d</sup>	mg/kg	7.3U	mg/kg	10.4U	mg/kg	8.51U	mg/kg
Silver	0.733	mg/kg	3.65U	mg/kg	5.2U	mg/kg	0.0504J	mg/kg
Sodium	-	-	146U	mg/kg	208U	mg/kg	170U	mg/kg
Thallium	-	mg/kg	0.604J	mg/kg	2.83J	mg/kg	2.37J	mg/kg
Vanadium	57 <sup>e</sup>	mg/kg	29.3	mg/kg	61.6	mg/kg	64.6	mg/kg
Zinc	121	mg/kg	31	mg/kg	73.8	mg/kg	73.8	mg/kg
<b>Physical Properties</b>								
% Moisture	-	-	35.4	%	52.9	%	44.3	%

**Notes**

<sup>1</sup> Values are based on ELCR=10-4 or HI = 1. Assumptions: EF=100 days/year. ET=2 hr/event

<sup>2</sup> 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.

<sup>a</sup> 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.

<sup>b</sup> The screening value for barium was the probable effect level (PEL) instead of the threshold effect level (TEL) because the TEL was below background

<sup>c</sup> Sediment screening values for manganese and vanadium come from the NOAA SQuIRT. <http://response.restoration.noaa.gov/sites/default/files/SQuIRTs.pdf>

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

<sup>e</sup> Cadmium from diet

<sup>f</sup> Chromium (VI)

<sup>g</sup> Methyl Mercury

<sup>h</sup> Thallium Chloride

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J Value is estimated

J+ Value is estimated with a possible high bias

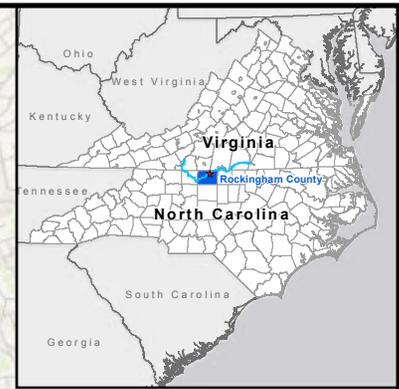
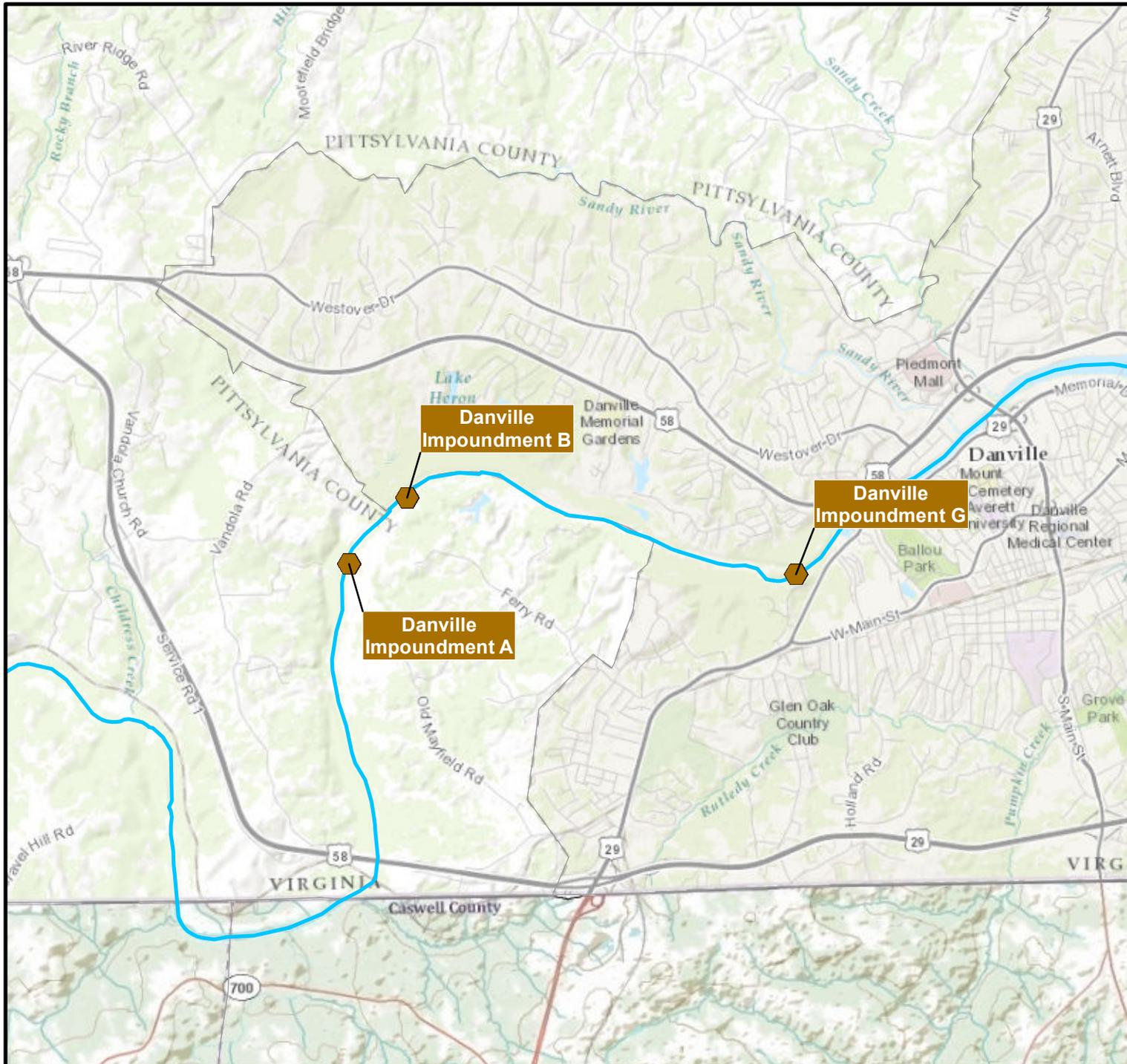
J- Value is estimated with a possible low bias

µg/L micrograms per liter

mg/L milligrams per liter

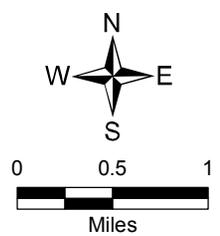
U Analyte was not detected at the listed reporting limit.

UJ Analyte was not detected at the listed reporting limit, which is an estimated quantitation.



**Legend**

- ★ Approximate Spill Location
- Sediment Sample Location
- Dan River



Map Source: ArcGIS Online World Map Topo, 2014

**Sediment Sample Locations**  
**March 24, 2014**

