

# EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT RESULTS

**NOTE:** The data below represents sediment samples that were collected on June 25, 2014 by EPA START 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, barium, iron, manganese. 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>		Schoolfield Dredge Area 5A 0-6 inches		Schoolfield Dredge Area 5B 0-6 inches		Schoolfield Dredge Area 5C 0-6 inches	
<b>Sample Information</b>								
Sample ID	-		EDEN-SFDA-5A-0006-SD-20140625	EDEN-SFDA-5B-0006-SD-20140625	EDEN-SFDA-5C-0006-SD-20140625			
Date	-		6/25/14	6/25/14	6/25/14			
Time	-		1351	1401	1418			
Status	-		Validation Complete	Validation Complete	Validation Complete			
Type	-		Sediment	Sediment	Sediment			
<b>Total Metals</b>								
Aluminum	3,200 (bkg)	mg/kg	19000	mg/Kg	7500	mg/Kg	8600	mg/Kg
Antimony	2 <sup>a</sup>	mg/kg	1.6UJ	mg/Kg	1.5UJ	mg/Kg	1.9UJ	mg/Kg
Arsenic	9.8	mg/kg	4.2	mg/Kg	1.9J	mg/Kg	2.7J	mg/Kg
Barium	60 <sup>b</sup>	mg/kg	150	mg/Kg	75	mg/Kg	79	mg/Kg
Beryllium	-	-	1.1	mg/Kg	0.43J	mg/Kg	0.5J	mg/Kg
Boron	-	-	16U	mg/Kg	15U	mg/Kg	19U	mg/Kg
Cadmium	0.99	mg/kg	0.15	mg/Kg	0.054J	mg/Kg	0.049J	mg/Kg
Calcium	-	-	1500	mg/Kg	680	mg/Kg	700	mg/Kg
Chromium	43.4	mg/kg	36	mg/Kg	18	mg/Kg	17	mg/Kg
Cobalt	50	mg/kg	13	mg/Kg	6.8	mg/Kg	6.9	mg/Kg
Copper	31.6	mg/kg	24	mg/Kg	9.4	mg/Kg	11	mg/Kg
Iron	6,800 (bkg)	mg/kg	28000	mg/Kg	13000	mg/Kg	14000	mg/Kg
Lead	35.8	mg/kg	16	mg/Kg	6	mg/Kg	7	mg/Kg
Magnesium	-	-	3500	mg/Kg	2100	mg/Kg	2000	mg/Kg
Manganese	460 <sup>c</sup>	mg/kg	620	mg/Kg	230	mg/Kg	310	mg/Kg
Mercury	0.18	mg/kg	0.045	mg/Kg	0.03U	mg/Kg	0.03J	mg/Kg
Molybdenum	-	-	0.8J	mg/Kg	1.5U	mg/Kg	1.9U	mg/Kg
Nickel	22.7	mg/kg	15	mg/Kg	7.8	mg/Kg	7.7	mg/Kg
Potassium	-	-	2500	mg/Kg	1700	mg/Kg	1500	mg/Kg
Selenium	2 <sup>d</sup>	mg/kg	0.82	mg/Kg	0.76U	mg/Kg	0.94U	mg/Kg
Silver	0.733	mg/kg	0.16U	mg/Kg	0.15U	mg/Kg	0.19U	mg/Kg
Sodium	-	-	310U	mg/Kg	300U	mg/Kg	370U	mg/Kg
Thallium	-	mg/kg	0.36	mg/Kg	0.18	mg/Kg	0.16J	mg/Kg
Vanadium	57 <sup>e</sup>	mg/kg	56	mg/Kg	26	mg/Kg	28	mg/Kg
Zinc	121	mg/kg	66	mg/Kg	32	mg/Kg	33	mg/Kg
<b>Physical Properties</b>								
Percent Ash	-	-	-	-	-	-	-	-

**Notes**

<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

% Percent

EPA U.S. Environmental Protection Agency

J Value is estimated

J+ Value is estimated with a possible high bias

mg/kg milligrams per kilogram

ND No fly ash detected at a PLM reporting limit of 1 percent

PLM Polarized light microscopy

U Analyte was not detected at the listed reporting limit.

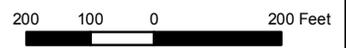
UJ Analyte was not detected at the listed reporting limit, which is an estimated quantitation.



Legend

- Approximate Spill Location
- Sediment Sample Location

Imagery Source:  
ESRI, USGS Mapping Service, 2013



Eden Coal Ash Spill  
Eden, North Carolina

Sediment  
Sample Locations  
June 25, 2014

