

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on July 2, 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, arsenic, barium, and iron. 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 ¹		Schoolfield Dredge Area 1C2C 0-6"		Schoolfield Dredge Area 1C2C 6-12"	
Sample Information						
Sample ID	-		EDEN-SFDA-1C2C-0006-SD-20140702	EDEN-SFDA-1C2C-0612-SD-20140702		
Date	-		07/02/2014	07/02/2014		
Time	-		1540	1540		
Status	-		Validation Complete	Validation Complete		
Type	-		Sediment	Sediment		
Total Metals						
Aluminum	3,200 (bkg)	mg/kg	14000	mg/kg	5800	mg/kg
Antimony	2 ^a	mg/kg	2UJ	mg/kg	1.3UJ	mg/kg
Arsenic	9.8	mg/kg	5.2	mg/kg	3.5	mg/kg
Barium	60 ^b	mg/kg	140	mg/kg	69	mg/kg
Beryllium	-	-	0.99	mg/kg	0.52	mg/kg
Boron	-	-	20U	mg/kg	13U	mg/kg
Cadmium	0.99	mg/kg	0.064J	mg/kg	0.038J	mg/kg
Calcium	-	-	1100	mg/kg	590	mg/kg
Chromium	43.4	mg/kg	28	mg/kg	14	mg/kg
Cobalt	50	mg/kg	10	mg/kg	4.9	mg/kg
Copper	31.6	mg/kg	19	mg/kg	9.3	mg/kg
Iron	6,800 (bkg)	mg/kg	22000	mg/kg	9500	mg/kg
Lead	35.8	mg/kg	11	mg/kg	5	mg/kg
Magnesium	-	-	3000	mg/kg	1400	mg/kg
Manganese	460 ^c	mg/kg	430	mg/kg	170	mg/kg
Mercury	0.18	mg/kg	0.042	mg/kg	0.015J	mg/kg
Molybdenum	-	-	0.61J	mg/kg	1.3U	mg/kg
Nickel	22.7	mg/kg	12	mg/kg	6.1	mg/kg
Potassium	-	-	2300	mg/kg	1100	mg/kg
Selenium	2 ^d	mg/kg	1.2	mg/kg	0.68	mg/kg
Silver	0.733	mg/kg	0.2U	mg/kg	0.13U	mg/kg
Sodium	-	-	400U	mg/kg	250U	mg/kg
Thallium	-	mg/kg	0.3	mg/kg	0.15	mg/kg
Vanadium	57 ^e	mg/kg	42	mg/kg	20	mg/kg
Zinc	121	mg/kg	48	mg/kg	22	mg/kg
Physical Properties						
Percent Ash	-	-	-	-	-	-

Notes

¹ 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.

^a 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.

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

^c 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.

^e Cadmium from diet

^f Chromium (VI)

^g Methyl Mercury

^h Thallium Chloride

% Percent

EPA U.S. Environmental Protection Agency

J Value is estimated

J+ Value is estimated with a possible high bias

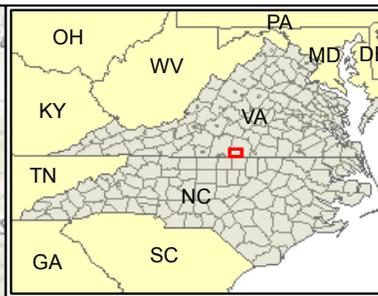
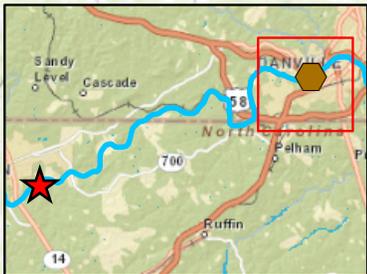
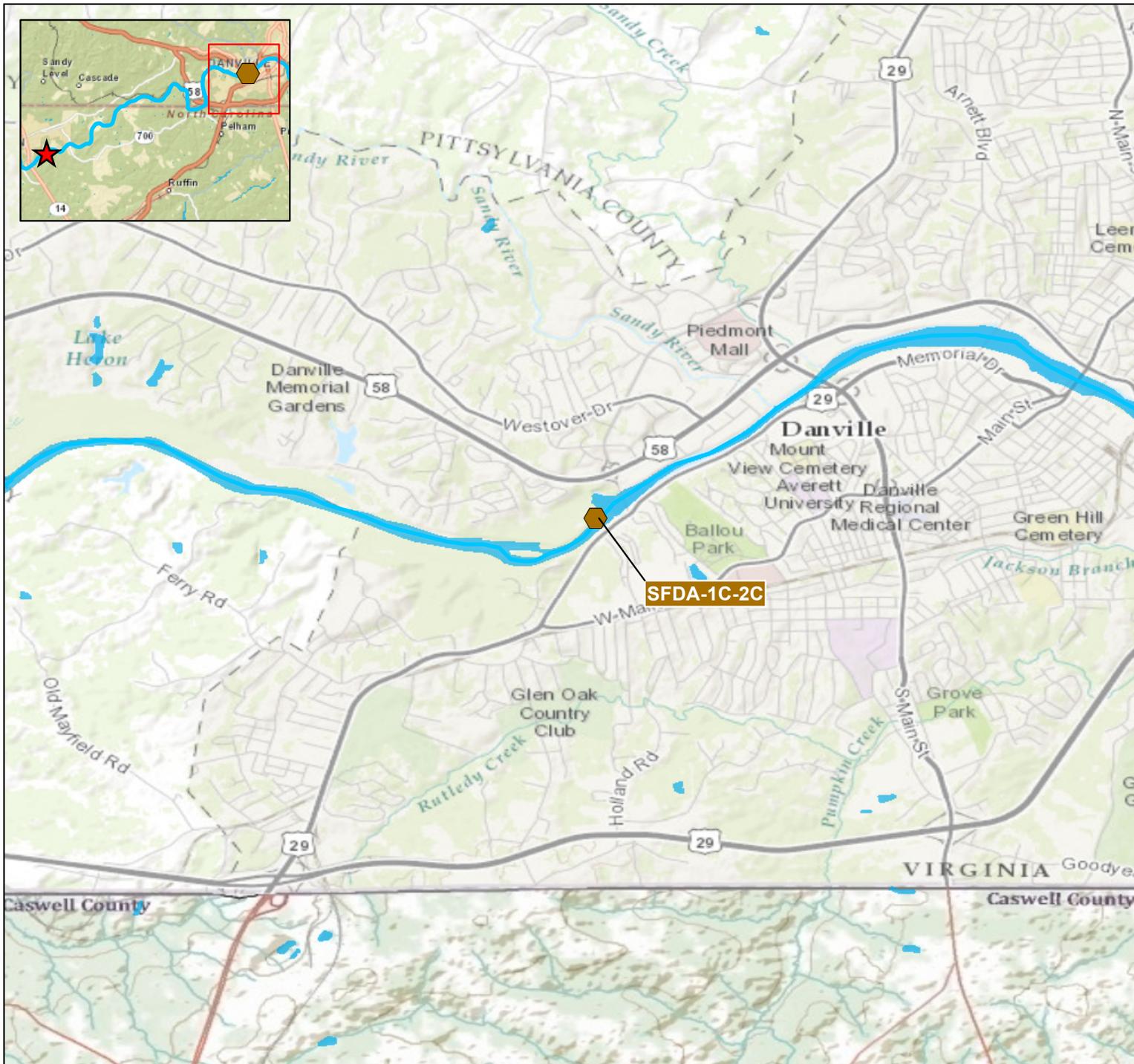
mg/kg milligrams per kilogram

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
July 02, 2014

