

EDEN NORTH CAROLINA COAL ASH SPILL SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on Feb 8, 2014 by EPA Sample Team 1. Sediment sample measurement are in milligrams per kilogram (mg/Kg), milligrams per liter (mg/L), and micrograms per kilogram (µg/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, iron, selenium, silver, and thallium. This sample was collected in an area directly outside the outfall with visible ash that will be addressed by direct removal. There were no exceedances of the 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 | | Ash Bar at 48" Outfall | |
|---------------------------|--|-------|------------------------|-------|
| Sample Information | | | | |
| Sample ID | - | | EDEN_AB_L_UP_20140208 | |
| Date | - | | 2/8/2014 | |
| Time | - | | 1200 | |
| Status | - | | Validation Complete | |
| Type | - | | Sediment | |
| Total Metals | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 5,510 | mg/kg |
| Antimony | 2 ^a | mg/kg | 0.989J | mg/kg |
| Arsenic | 9.8 | mg/kg | 33.2 | mg/kg |
| Barium | 60 ^b | mg/kg | 322 | mg/kg |
| Beryllium | - | mg/kg | 1.72J | mg/kg |
| Boron | - | mg/kg | 37U | mg/kg |
| Cadmium | 0.99 | mg/kg | 0.147J | mg/kg |
| Calcium | - | - | 4,050 | mg/kg |
| Chromium | 43.4 | mg/kg | 11.2 | mg/kg |
| Cobalt | 50 | mg/kg | 6.86 | mg/kg |
| Copper | 31.6 | mg/kg | 31.4 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 12,000 | mg/kg |
| Lead | 35.8 | mg/kg | 6.23J | mg/kg |
| Magnesium | - | - | 654 | mg/kg |
| Manganese | 460 ^c | mg/kg | 70.6 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0771J | mg/kg |
| Molybdenum | - | mg/kg | 1.73J | mg/kg |
| Nickel | 22.7 | mg/kg | 12.5 | mg/kg |
| Potassium | - | - | 1,000 | mg/kg |
| Selenium | 2 ^d | mg/kg | 3.79J | mg/kg |
| Silica | - | - | 51.6 | % |
| Silver | 0.733 | mg/kg | 3.67U | mg/kg |
| Sodium | - | - | 217 | mg/kg |
| Thallium | - | - | 7.35U | mg/kg |
| Vanadium | 57 ^c | mg/kg | 31.0 | mg/kg |
| Zinc | 121 | mg/kg | 12.4 | mg/kg |

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| Sample ID | - | | EDEN_AB_L_UP_20140208 | |
| TCLP Metals | | | | |
| | 40 CFR 261.24 | | | |
| Arsenic | 5.0 | mg/L | 0.0931J | mg/L |
| Barium | 100.0 | mg/L | 3.34 | mg/L |
| Cadmium | 1.0 | mg/L | 0.0250U | mg/L |
| Chromium | 5.0 | mg/L | 0.0500U | mg/L |
| Lead | 5.0 | mg/L | 0.0476J | mg/L |
| Mercury | 0.2 | mg/L | 0.00400U | mg/L |
| Selenium | 1.0 | mg/L | 0.100U | mg/L |
| Silver | 5.0 | mg/L | 0.0250U | mg/L |
| BTEX | | | | |
| Benzene | - | - | 1.5UJ | µg/kg |
| Ethylbenzene | - | - | 1.5UJ | µg/kg |
| m,p-Xylene | - | - | 1.1J- | µg/kg |
| o-Xylene | - | - | 1.5UJ | µg/kg |
| Toluene | - | - | 1.5UJ | µg/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

^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

EPA U.S. Environmental Protection Agency

% Percent

J Value is estimated

J- Value is estimated with a possible low bias

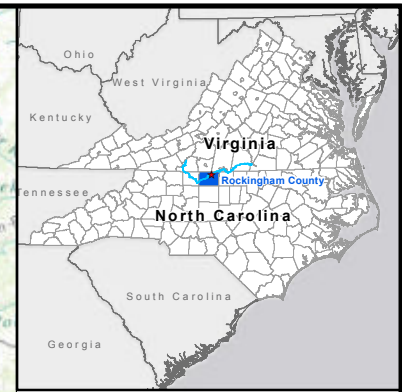
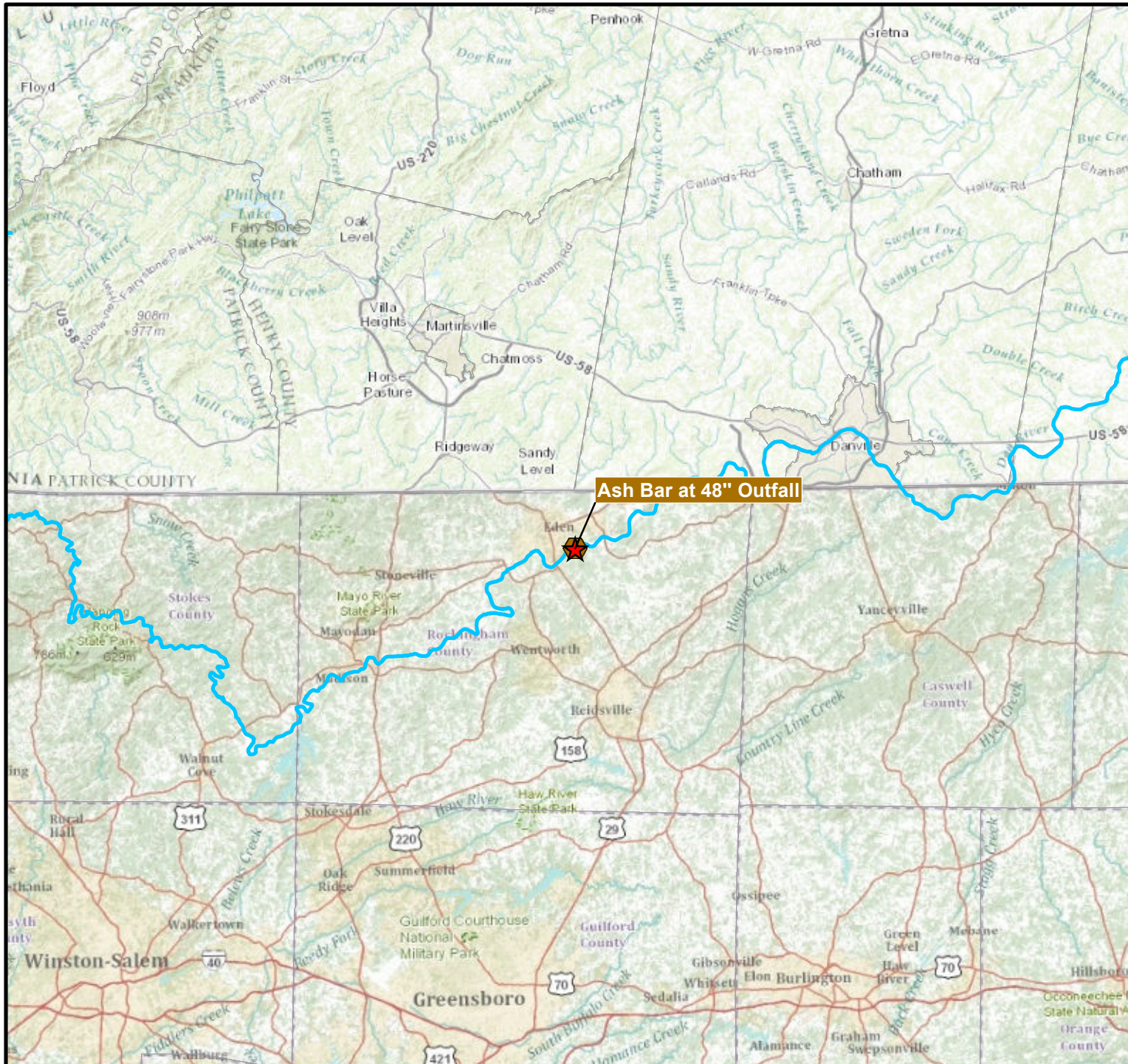
µg/kg micrograms per kilogram

mg/kg milligrams per kilogram

mg/L milligrams per liter

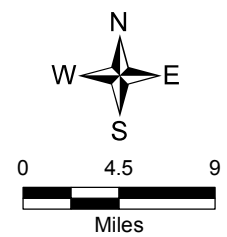
U Analyte was not detected at the listed reporting limit.

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
February 8, 2014

