

**EDEN NORTH CAROLINA COAL ASH SPILL
SURFACE WATER RESULTS**

NOTE: The data below represents surface water samples that were collected on Feb 20, 2014 by EPA SEDS (Team 2). Water sample measurements are in milligrams per liter (mg/L), micrograms per liter (µg/L), and nanograms per liter (ng/L) for these samples. The data is being compared to EPA ecological risk screening levels (ERSLs) to protect aquatic life in the surface water 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 surface water are all below the EPA ERSLs with the exception of aluminum, arsenic, barium, beryllium, chromium, cobalt, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. The majority of these analytes were detected in the total metals analysis of the sample that contained ash. EPA typically screens the surface water concentrations using total metals samples, because this is a conservative practice for screening. Because only aluminum was detected above the screening levels in any of the samples of the dissolved fraction of surface water (i.e., samples that were filtered to remove particulates), there is no threat of toxicity from these other analytes to aquatic organisms. Aluminum exceeds the screening level in the dissolved metals analysis and will continue to be monitored. 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 Standard for Surface Water Samples ¹		Danville Raw Water, collected from the river		Near boat ramp at Grogan Park (contained ash)	
Sample Information						
Sample ID	-		DVR04		DR-AGPSW	
Date	-		02/20/2014		02/20/2014	
Time	-		1200		1330	
Status	-		Validation Complete		Validation Complete	
Media	-		Surface Water		Surface Water	
Dissolved metals						
Aluminum	87	µg/L	300	µg/L	440	µg/L
Antimony	5.6	µg/L	1U	µg/L	1U	µg/L
Arsenic	10	µg/L	1U	µg/L	1U	µg/L
Barium	220	µg/L	22	µg/L	23	µg/L
Beryllium	0.66	µg/L	0.5U	µg/L	0.5U	µg/L
Boron	360	µg/L	81	µg/L	83	µg/L
Cadmium	0.1	µg/L	0.5U	µg/L	0.5U	µg/L
Calcium	-	-	5,100	µg/L	5,100	µg/L
Chromium	25	µg/L	1.1U,J	µg/L	1.1U,J	µg/L
Cobalt	3	µg/L	5U	µg/L	5U	µg/L
Copper	3	µg/L	1U	µg/L	1.1	µg/L
Iron	1,000	µg/L	430	µg/L	480	µg/L
Lead	0.59	µg/L	0.4U	µg/L	0.4U	µg/L
Magnesium	-	-	2,100	µg/L	2,000	µg/L
Manganese	200	µg/L	16	µg/L	20	µg/L
Mercury	12	ng/L	1.2U,B-2	ng/L	1.6J,QM-1	ng/L
Molybdenum	800	µg/L	10U	µg/L	10U	µg/L
Nickel	17	µg/L	10U	µg/L	10U	µg/L
Potassium	53,000	µg/L	1,500	µg/L	1,500	µg/L
Selenium	5	µg/L	2U	µg/L	2U	µg/L
Silver	0.06	µg/L	0.013U,J	µg/L	0.013U,J	µg/L
Sodium	680,000	µg/L	4,800	µg/L	4,700	µg/L
Strontium	1,500	µg/L	39	µg/L	39	µg/L
Thallium	0.24	µg/L	0.2U	µg/L	0.2U	µg/L
Tin	73	µg/L	15U	µg/L	15U	µg/L
Titanium	-	-	13	µg/L	17	µg/L
Vanadium	27	µg/L	5U	µg/L	5U	µg/L
Yttrium	-	-	3U	µg/L	3U	µg/L
Zinc	39	µg/L	10U	µg/L	10U	µg/L

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Time	-		1200		1330	
Status	-		Validation Complete		Validation Complete	
Media	-		Surface Water		Surface Water	
Total Metals						
Aluminum	2,000	μg/L	4,900	μg/L	140,000	μg/L
Antimony	5.6	μg/L	1U	μg/L	2.6	μg/L
Arsenic	10	μg/L	5.7	μg/L	87	μg/L
Barium	220	μg/L	100	μg/L	2,400	μg/L
Beryllium	0.66	μg/L	0.9	μg/L	28	μg/L
Boron	360	μg/L	79	μg/L	200	μg/L
Cadmium	2	μg/L	0.5U	μg/L	1.6	μg/L
Calcium	-	-	5,800	μg/L	74,000	μg/L
Chromium	29	μg/L	6.6J	μg/L	110	μg/L
Cobalt	24	μg/L	5U	μg/L	96	μg/L
Copper	3	μg/L	12	μg/L	340	μg/L
Iron	2,300	μg/L	4,600	μg/L	96,000	μg/L
Lead	0.6	μg/L	5.7	μg/L	110	μg/L
Magnesium	-	-	2,600	μg/L	21,000	μg/L
Manganese	200	μg/L	110	μg/L	7,100	μg/L
Mercury	12	ng/L	20	ng/L	110	ng/L
Molybdenum	-	-	10U	μg/L	20U	μg/L
Nickel	17	μg/L	10U	μg/L	140	μg/L
Potassium	53,000	μg/L	2,200	μg/L	41,000	μg/L
Selenium	5	μg/L	2U	μg/L	11	μg/L
Silver	0.06	μg/L	0.015J,Q-2	μg/L	0.62J,Q-2	μg/L
Sodium	680,000	μg/L	4,800	μg/L	7,700	μg/L
Strontium	1,500	μg/L	77	μg/L	1,100	μg/L
Thallium	0.24	μg/L	0.2	μg/L	2.6	μg/L
Tin	73	μg/L	15U	μg/L	30U	μg/L
Titanium	-	-	270	μg/L	4,000	μg/L
Vanadium	27	μg/L	18	μg/L	350	μg/L
Yttrium	-	-	6.6	μg/L	290	μg/L
Zinc	39	μg/L	10U	μg/L	380	μg/L
Classical/Nutrient Analyses						
Cyanide (total)	5.2	μg/L	15U	μg/L	-	-
Nitrate as N	0.31	mg/L	0.29	mg/L	-	-
Nitrate/Nitrite as N	-	-	0.29	mg/L	-	-
Nitrite as N	10	mg/L	0.05U	mg/L	-	-
Total Dissolved Solids	-	-	74	mg/L	96	mg/L
Total Organic Carbon	-	-	2.6	mg/L	-	-
Total Suspended Solids	-	-	220	mg/L	2,100	mg/L

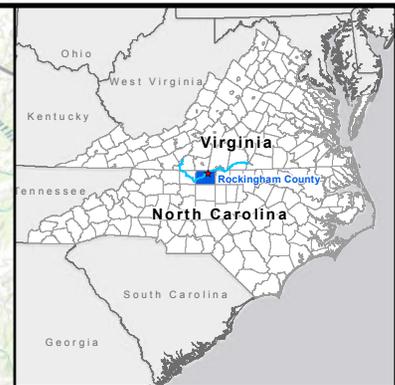
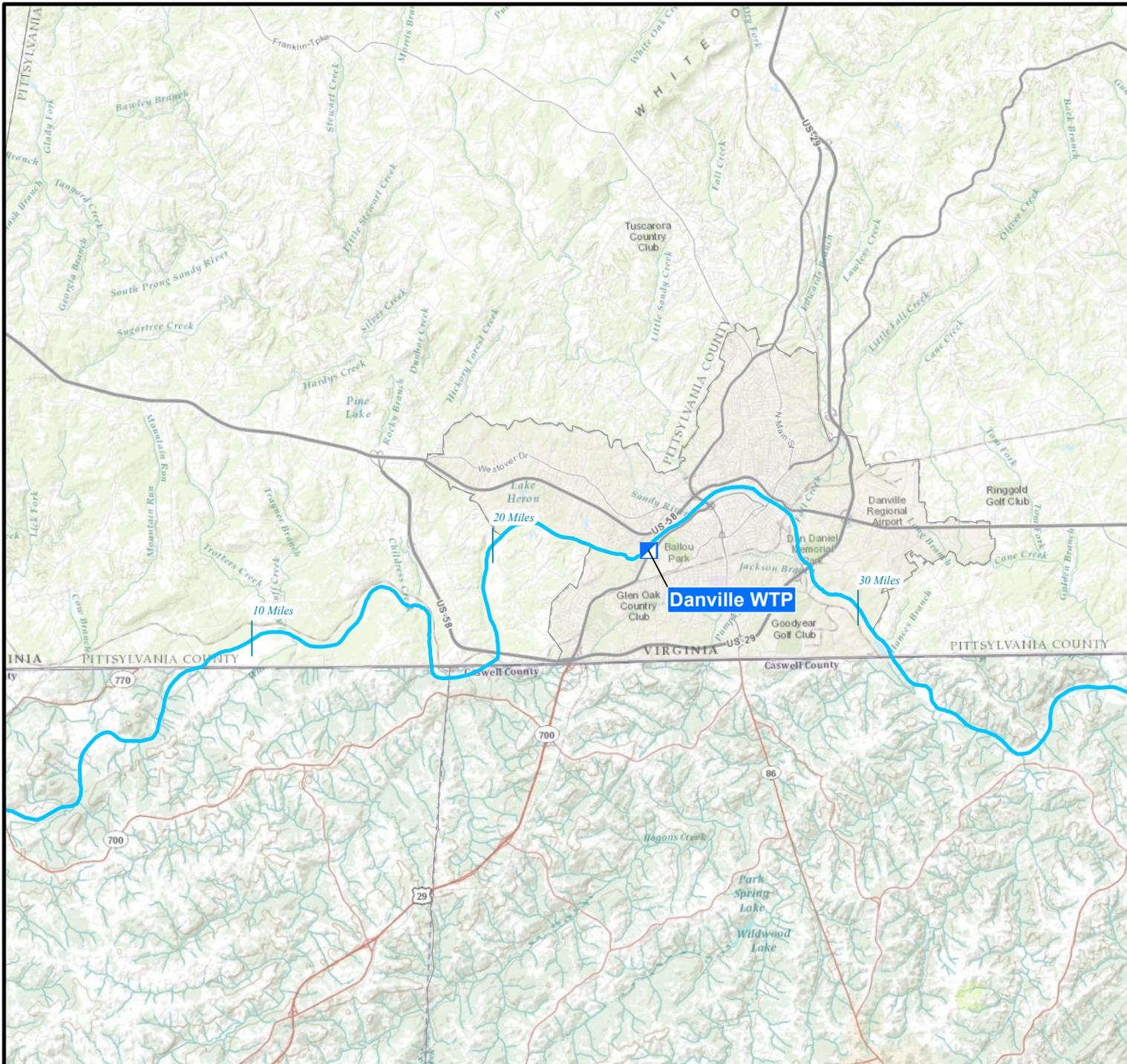
Notes

¹ Value obtained from the GL Tier 2 Values; National Recommended Water Quality Criteria; Suter and Tsao (1996); Reference condition for EcoRegion XI (25 percentile); NCDENR State Standards for surface water

EPA U.S. Environmental Protection Agency
μg/L micrograms per liter
mg/L milligrams per liter
ng/L nanograms per liter

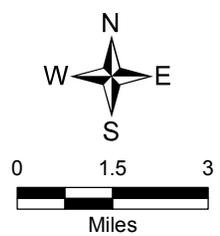
DATA QUALIFIER DEFINITIONS

B-2	Reporting level elevated due to trace amounts of analyte present in the method blank
B-3	Level in blank does not impact data quality
B-4	Level in blank impacts MRLs
B-5	Qualitative evidence of contamination in the blank at a concentration less than the MDL
C-2	Improper sample container used
H-1	Recommended holding time exceeded
J	The identification of the analyte is acceptable; the reported value is an estimate
MRL-1	MRL verification for Potable Water matrix (Drinking Water)
MRL-2	MRL verification for Non-Potable Water matrix
MRL-3	MRL verification for Soil matrix
MRL-6	MRL verification for Waste matrix
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification
NA-5	Not Analyzed. Cannot exceed TCLP regulatory levels based on Total Scan analyses
NA-9	Not Analyzed. No sample container received.
NJ	Presumptive evidence that the analyte is present; reported as a tentative identification with an estimated value
P-6	Incorrect reagent or technique used to preserve sample
Q-2	Result greater than MDL but less than MRL
QC-1	Analyte concentration low in continuing calibration verification standard
QC-2	Analyte concentration high in continuing calibration verification standard
QC-5	Calibration check standard less than method control limits
QC-6	Calibration check standard greater than method control limits
QI-1	Internal standard was outside of method control limits
QL-1	Laboratory Control Spike Recovery less than method control limits
QL-2	Laboratory Control Spike Recovery greater than method control limits
QL-3	Laboratory Control Spike Precision outside of method control limits
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits
QM-3	Matrix Spike Precision outside method control limits
QR-1	MRL verification recovery less than lower control limits
QR-2	MRL verification recovery greater than upper control limits
TIC	Tentatively Identified Compound - AN analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.
U	The analyte was not detected at or above the reporting limit
XD-2	Duplicate results less than 5X MRL
XM-1	Sample background/spike ratio higher than method evaluation criteria



Legend

-  River Miles Downstream from 48" Outfall
-  Surface Water Sample Location
-  Approximate Spill Location
-  Dan River



Map Source: ArcGIS Online World Map Topo, 2014

**Surface Water
Sample Locations
February 20, 2014**

