EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on Feb 15, 2014 by EPA Sample Team 2. Sediment sample measurement is in micrograms per kilogram (ug/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, selenium, strontium, and yttrium. 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 Standard for Sediment Samples[2]**		**Approximately 3.2 mile downstream of US Hwy 360 Bridge (John Randolph Blvd.)**		**Approximately 6.2 mile downstream of US Hwy 360 Bridge (John Randolph Blvd.)**		**Approximately 8.6 mile downstream of US Hwy 360 Bridge (John Randolph Blvd.)**	
Sample Information								
Sample ID	-		DR34-0214SD		DR35-0214SD		DR36-0214SD	
Date	-		02/15/2014		02/15/2014		02/15/2014	
Time	-		1230		1400		1530	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Media	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	3,600	mg/kg	2,800	mg/kg	4,000J,QM-1	mg/kg
Antimony	2[a]	mg/kg	0.2U	mg/kg	0.2U	mg/kg	0.2U,J,QM-1	mg/kg
Arsenic	9.8	mg/kg	0.72	mg/kg	0.56	mg/kg	1	mg/kg
Barium	60[b]	mg/kg	52	mg/kg	39	mg/kg	49	mg/kg
Beryllium	-	-	0.3U	mg/kg	0.3U	mg/kg	0.3	mg/kg
Boron	-	-	5U	mg/kg	5U	mg/kg	5U	mg/kg
Cadmium	0.99	mg/kg	0.1U	mg/kg	0.1U	mg/kg	0.099U	mg/kg
Calcium	-	-	570	mg/kg	500	mg/kg	660J,QM-1,QM-3	mg/kg
Chromium	43.4	mg/kg	14	mg/kg	10	mg/kg	14	mg/kg
Cobalt	50	mg/kg	4.8	mg/kg	3.4	mg/kg	4.8	mg/kg
Copper	31.6	mg/kg	4.2	mg/kg	3.1	mg/kg	5.1	mg/kg
Iron	6,800 (bkg)	mg/kg	7,900	mg/kg	5,700	mg/kg	9,000	mg/kg
Lead	35.8	mg/kg	3.8	mg/kg	2.8	mg/kg	5.2	mg/kg
Magnesium	-	-	1,900	mg/kg	1,400	mg/kg	1,500J,QM-1	mg/kg
Manganese	460[c]	mg/kg	240	mg/kg	170	mg/kg	330	mg/kg
Mercury	0.18	mg/kg	0.037U	mg/kg	0.05U	mg/kg	0.043U	mg/kg
Molybdenum	-	-	1U	mg/kg	1U	mg/kg	0.99U	mg/kg
Nickel	22.7	mg/kg	5.4	mg/kg	3.9	mg/kg	4.7	mg/kg
Potassium	-	-	1,300	mg/kg	980	mg/kg	880	mg/kg
Selenium	2[d]	mg/kg	0.83	mg/kg	0.71	mg/kg	1.2	mg/kg
Silver	0.733	mg/kg	0.5U	mg/kg	0.5U	mg/kg	0.5U	mg/kg
Sodium	-	-	100U	mg/kg	100U	mg/kg	99U	mg/kg
Strontium	3.1 (bkg)	mg/kg	6.8	mg/kg	5.4	mg/kg	6.7	mg/kg
Thallium	-	-	0.2U	mg/kg	0.2U	mg/kg	0.2U	mg/kg
Tin	-	-	1.5U	mg/kg	1.5U	mg/kg	1.5U	mg/kg
Titanium	-	-	380	mg/kg	280	mg/kg	280J,QM-1	mg/kg
Vanadium	57[c]	mg/kg	14	mg/kg	11	mg/kg	16	mg/kg
Yttrium	3.8 (bkg)	mg/kg	3.4	mg/kg	2.6	mg/kg	5.7	mg/kg
Zinc	121	mg/kg	20	mg/kg	14	mg/kg	20	mg/kg
Physical Properties								
% Solids	-	-	68	%	70	%	66	%

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 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.

EPA	U.S. Environmental Protection Agency
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
%	percent

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standard for Sediment Samples[2]		Approximately 0.4 mile SW of Staunton River State Park boat ramp	
Sample Information				
Sample ID	-		DR37-0214SD	
Date	-		02/15/2014	
Time	-		1252	
Status	-		Validation Complete	
Media	-		Sediment	
Total Metals				
Aluminum	3,200 (bkg)	mg/kg	9,700	mg/kg
Antimony	2[a]	mg/kg	0.2U	mg/kg
Arsenic	9.8	mg/kg	2	mg/kg
Barium	60[b]	mg/kg	110	mg/kg
Beryllium	-	-	0.78	mg/kg
Boron	-	-	10U	mg/kg
Cadmium	0.99	mg/kg	0.1	mg/kg
Calcium	-	-	1,500	mg/kg
Chromium	43.4	mg/kg	26	mg/kg
Cobalt	50	mg/kg	9.9	mg/kg
Copper	31.6	mg/kg	15	mg/kg
Iron	6,800 (bkg)	mg/kg	21,000	mg/kg
Lead	35.8	mg/kg	12	mg/kg
Magnesium	-	-	3,200	mg/kg
Manganese	460[c]	mg/kg	420	mg/kg
Mercury	0.18	mg/kg	0.053	mg/kg
Molybdenum	-	-	2U	mg/kg
Nickel	22.7	mg/kg	9.3	mg/kg
Potassium	-	-	1,800	mg/kg
Selenium	2[d]	mg/kg	3.4	mg/kg
Silver	0.733	mg/kg	-	-
Sodium	-	-	200U	mg/kg
Strontium	3.1 (bkg)	mg/kg	17	mg/kg
Thallium	-	-	0.2U	mg/kg
Tin	-	-	3U	mg/kg
Titanium	-	-	480	mg/kg
Vanadium	57[c]	mg/kg	37	mg/kg
Yttrium	3.8 (bkg)	mg/kg	16	mg/kg
Zinc	121	mg/kg	45	mg/kg
Physical Properties				
% Solids	-	-	48	%

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 Inland Waters.

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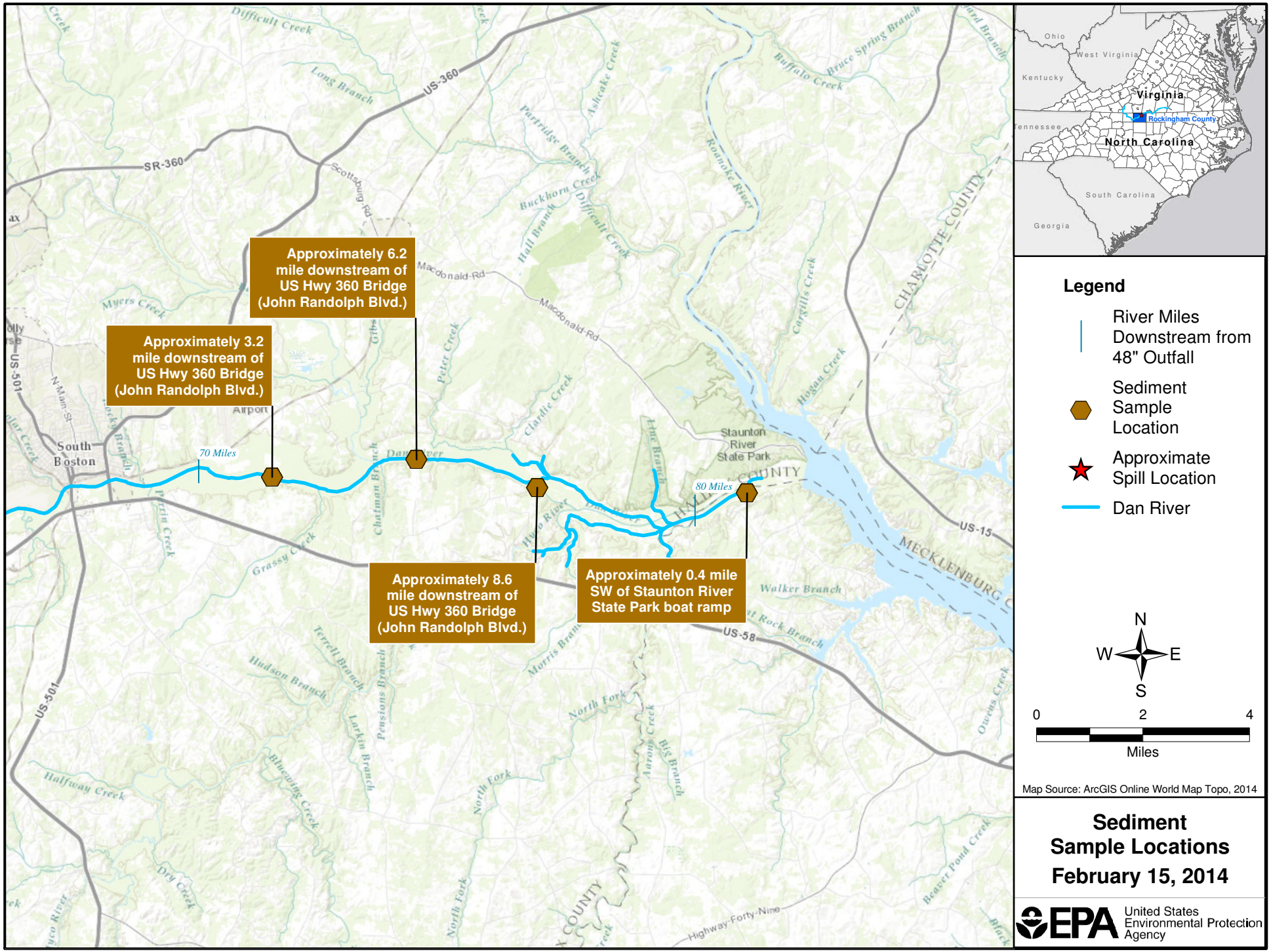
http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf

[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.

EPA	U.S. Environmental Protection Agency
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
%	percent

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



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