EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

NOTE: The data below represents sediment samples that were collected on June 4, 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, and selenium. 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[2]		Transect Duke 1A Left Descending		Transect Duke 1H Right Descending		Transect FWS 2B Right Descending	
Sample Information								
Sample ID	-		EDEN-DUKE1A-L-SD-20140604		EDEN-DUKE1H-R-SD-20140604		EDEN-FWS2B-R-SD-20140604	
Date	-		6/4/2014		6/4/2014		6/4/2014	
Time	-		1050		1145		1240	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	5700	mg/Kg	8600	mg/Kg	4900	mg/Kg
Antimony	2[a]	mg/kg	1.5UJ	mg/Kg	1.4UJ	mg/Kg	1.3UJ	mg/Kg
Arsenic	9.8	mg/kg	1.2J	mg/Kg	2.3J	mg/Kg	1.4J	mg/Kg
Barium	60[b]	mg/kg	63	mg/Kg	82	mg/Kg	52	mg/Kg
Beryllium	-	-	0.35J	mg/Kg	0.52J	mg/Kg	0.3J	mg/Kg
Boron	-	-	15U	mg/Kg	14U	mg/Kg	14U	mg/Kg
Cadmium	0.99	mg/kg	0.02J	mg/Kg	0.035J	mg/Kg	0.026J	mg/Kg
Calcium	-	-	450	mg/Kg	760	mg/Kg	480	mg/Kg
Chromium	43.4	mg/kg	16	mg/Kg	19	mg/Kg	13	mg/Kg
Cobalt	50	mg/kg	5.9	mg/Kg	6.4	mg/Kg	4.4	mg/Kg
Copper	31.6	mg/kg	6.1	mg/Kg	9.5	mg/Kg	5.2	mg/Kg
Iron	6,800 (bkg)	mg/kg	11000	mg/Kg	14000	mg/Kg	9200	mg/Kg
Lead	35.8	mg/kg	3.3	mg/Kg	5.8	mg/Kg	4.1	mg/Kg
Magnesium	-	-	2100	mg/Kg	2400	mg/Kg	1500	mg/Kg
Manganese	460[c]	mg/kg	180	mg/Kg	280	mg/Kg	200	mg/Kg
Mercury	0.18	mg/kg	0.029U	mg/Kg	0.027U	mg/Kg	0.025U	mg/Kg
Molybdenum	-	-	1.5U	mg/Kg	1.4U	mg/Kg	1.4U	mg/Kg
Nickel	22.7	mg/kg	6.6	mg/Kg	8.1	mg/Kg	5J	mg/Kg
Potassium	-	-	1800	mg/Kg	1900	mg/Kg	1200	mg/Kg
Selenium	2[d]	mg/kg	0.8	mg/Kg	1.7	mg/Kg	0.82	mg/Kg
Silver	0.733	mg/kg	0.15U	mg/Kg	0.14U	mg/Kg	0.13U	mg/Kg
Sodium	-	-	300U	mg/Kg	280U	mg/Kg	280U	mg/Kg
Thallium	-	mg/kg	0.12J	mg/Kg	0.16	mg/Kg	0.099J	mg/Kg
Vanadium	57[c]	mg/kg	18	mg/Kg	26	mg/Kg	16	mg/Kg
Zinc	121	mg/kg	25	mg/Kg	33	mg/Kg	21	mg/Kg
Physical Properties								
Percent Ash	-	-	ND	%	ND	%	ND	%

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.

[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 low 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.

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standards for Sediment[2]		Transect FWS 3A Left Descending		Transect EPA 01 Mid-Channel		Transect FWS SFI1 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWS3A-L-SD-20140604		EDEN-EPA01-C-SD-20140604		EDEN-FWSSFI1-L-SD-20140604	
Date	-		6/4/2014		6/4/2014		6/4/2014	
Time	-		1340		1500		740	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	14000	mg/Kg	10000	mg/Kg	9400	mg/Kg
Antimony	2[a]	mg/kg	1.3UJ	mg/Kg	1.6UJ	mg/Kg	1.9UJ	mg/Kg
Arsenic	9.8	mg/kg	2.4J	mg/Kg	2J	mg/Kg	4.7	mg/Kg
Barium	60[b]	mg/kg	120	mg/Kg	99	mg/Kg	120	mg/Kg
Beryllium	-	-	0.73	mg/Kg	0.58	mg/Kg	0.76	mg/Kg
Boron	-	-	15U	mg/Kg	14U	mg/Kg	16U	mg/Kg
Cadmium	0.99	mg/kg	0.08	mg/Kg	0.039J	mg/Kg	0.074J	mg/Kg
Calcium	-	-	780	mg/Kg	880	mg/Kg	1000	mg/Kg
Chromium	43.4	mg/kg	27	mg/Kg	22	mg/Kg	19	mg/Kg
Cobalt	50	mg/kg	10	mg/Kg	8	mg/Kg	7.5	mg/Kg
Copper	31.6	mg/kg	18	mg/Kg	12	mg/Kg	14	mg/Kg
Iron	6,800 (bkg)	mg/kg	21000	mg/Kg	17000	mg/Kg	15000	mg/Kg
Lead	35.8	mg/kg	11	mg/Kg	6.7	mg/Kg	7.1	mg/Kg
Magnesium	-	-	3200	mg/Kg	2800	mg/Kg	2,300J-	mg/Kg
Manganese	460[c]	mg/kg	420	mg/Kg	370	mg/Kg	270	mg/Kg
Mercury	0.18	mg/kg	0.035	mg/Kg	0.016J	mg/Kg	0.038	mg/Kg
Molybdenum	-	-	1.5U	mg/Kg	1.4U	mg/Kg	1.6U	mg/Kg
Nickel	22.7	mg/kg	12	mg/Kg	9.9	mg/Kg	9.6	mg/Kg
Potassium	-	-	2500	mg/Kg	2300	mg/Kg	1900	mg/Kg
Selenium	2[d]	mg/kg	2.6	mg/Kg	1.5	mg/Kg	3.6	mg/Kg
Silver	0.733	mg/kg	0.092J	mg/Kg	0.16U	mg/Kg	0.19U	mg/Kg
Sodium	-	-	290U	mg/Kg	280U	mg/Kg	330U	mg/Kg
Thallium	-	mg/kg	0.2	mg/Kg	0.14J	mg/Kg	0.31	mg/Kg
Vanadium	57[c]	mg/kg	42	mg/Kg	31	mg/Kg	30J-	mg/Kg
Zinc	121	mg/kg	52	mg/Kg	40	mg/Kg	36J	mg/Kg
Physical Properties								
Percent Ash	-	-	ND	%	ND	%	20	%

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.

[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 low 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.

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standards for Sediment[2]		Transect FWS SFI2 Right Descending		Transect FWS SFI3 Left Descending		Transect FWS SFI4 Left Descending	
Sample Information								
Sample ID	-		EDEN-FWSSFI2-R-SD-20140604		EDEN-FWSSFI3-L-SD-20140604		EDEN-FWSSFI4-L-SD-20140604	
Date	-		6/4/2014		6/4/2014		6/4/2014	
Time	-		835		910		950	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	14000	mg/Kg	14000	mg/Kg	16000	mg/Kg
Antimony	2[a]	mg/kg	2UJ	mg/Kg	1.6UJ	mg/Kg	1.6UJ	mg/Kg
Arsenic	9.8	mg/kg	3.4J	mg/Kg	3.6	mg/Kg	4.1	mg/Kg
Barium	60[b]	mg/kg	110	mg/Kg	120	mg/Kg	150	mg/Kg
Beryllium	-	-	0.75	mg/Kg	0.82	mg/Kg	1	mg/Kg
Boron	-	-	18U	mg/Kg	18U	mg/Kg	17U	mg/Kg
Cadmium	0.99	mg/kg	0.062J	mg/Kg	0.081	mg/Kg	0.099	mg/Kg
Calcium	-	-	980	mg/Kg	840	mg/Kg	1700	mg/Kg
Chromium	43.4	mg/kg	26	mg/Kg	31	mg/Kg	30	mg/Kg
Cobalt	50	mg/kg	9.2	mg/Kg	10	mg/Kg	11	mg/Kg
Copper	31.6	mg/kg	15	mg/Kg	16	mg/Kg	19	mg/Kg
Iron	6,800 (bkg)	mg/kg	20000	mg/Kg	22000	mg/Kg	24000	mg/Kg
Lead	35.8	mg/kg	11	mg/Kg	11	mg/Kg	12	mg/Kg
Magnesium	-	-	2,700J-	mg/Kg	2,700J-	mg/Kg	3,600J-	mg/Kg
Manganese	460[c]	mg/kg	440	mg/Kg	410	mg/Kg	610	mg/Kg
Mercury	0.18	mg/kg	0.027J	mg/Kg	0.027J	mg/Kg	0.042	mg/Kg
Molybdenum	-	-	1.8U	mg/Kg	1.8U	mg/Kg	0.63J	mg/Kg
Nickel	22.7	mg/kg	10	mg/Kg	11	mg/Kg	13	mg/Kg
Potassium	-	-	2000	mg/Kg	2100	mg/Kg	2700	mg/Kg
Selenium	2[d]	mg/kg	2.2	mg/Kg	2.1	mg/Kg	3	mg/Kg
Silver	0.733	mg/kg	0.2U	mg/Kg	0.16U	mg/Kg	0.08J	mg/Kg
Sodium	-	-	360U	mg/Kg	350U	mg/Kg	330U	mg/Kg
Thallium	-	mg/kg	0.23	mg/Kg	0.19	mg/Kg	0.3	mg/Kg
Vanadium	57[c]	mg/kg	40J-	mg/Kg	43J-	mg/Kg	46J-	mg/Kg
Zinc	121	mg/kg	48J	mg/Kg	49J	mg/Kg	56J	mg/Kg
Physical Properties								
Percent Ash	-	-	ND	%	ND	%	2	%

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.

[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 low 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.

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standards for Sediment[2]		Transect EPA 03 Left Descending		Transect FWS SFI5 Left Descending		Transect DUKE SBD Left Descending	
Sample Information								
Sample ID	-		EDEN-EPA03-L-SD-20140604		EDEN-FWSSFI5-L-SD-20140604		EDEN-DUKESBD-L-SD-20140604	
Date	-		6/4/2014		6/4/2014		6/4/2014	
Time	-		1035		1135		1010	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	12000	mg/Kg	18000	mg/Kg	8900	mg/Kg
Antimony	2[a]	mg/kg	1.7UJ	mg/Kg	2.1UJ	mg/Kg	1.6UJ	mg/Kg
Arsenic	9.8	mg/kg	4.4	mg/Kg	4.4	mg/Kg	2J	mg/Kg
Barium	60[b]	mg/kg	120	mg/Kg	150	mg/Kg	83	mg/Kg
Beryllium	-	-	0.85	mg/Kg	0.98	mg/Kg	0.56J	mg/Kg
Boron	-	-	17U	mg/Kg	21U	mg/Kg	16U	mg/Kg
Cadmium	0.99	mg/kg	0.064J	mg/Kg	0.087J	mg/Kg	0.035J	mg/Kg
Calcium	-	-	1000	mg/Kg	1400	mg/Kg	1000	mg/Kg
Chromium	43.4	mg/kg	24	mg/Kg	33	mg/Kg	17	mg/Kg
Cobalt	50	mg/kg	9.3	mg/Kg	12	mg/Kg	6.6	mg/Kg
Copper	31.6	mg/kg	16	mg/Kg	21	mg/Kg	9.4	mg/Kg
Iron	6,800 (bkg)	mg/kg	18000	mg/Kg	26000	mg/Kg	13000	mg/Kg
Lead	35.8	mg/kg	9	mg/Kg	14	mg/Kg	6.8	mg/Kg
Magnesium	-	-	2,700J-	mg/Kg	3,500J-	mg/Kg	2,400J-	mg/Kg
Manganese	460[c]	mg/kg	350	mg/Kg	620	mg/Kg	420	mg/Kg
Mercury	0.18	mg/kg	0.035	mg/Kg	0.044J	mg/Kg	0.015J	mg/Kg
Molybdenum	-	-	1.7U	mg/Kg	2.1U	mg/Kg	1.6U	mg/Kg
Nickel	22.7	mg/kg	11	mg/Kg	14	mg/Kg	6.9	mg/Kg
Potassium	-	-	2100	mg/Kg	2600	mg/Kg	1900	mg/Kg
Selenium	2[d]	mg/kg	2.7	mg/Kg	2.6	mg/Kg	1.9	mg/Kg
Silver	0.733	mg/kg	0.17U	mg/Kg	0.21U	mg/Kg	0.16U	mg/Kg
Sodium	-	-	350U	mg/Kg	410U	mg/Kg	330U	mg/Kg
Thallium	-	mg/kg	0.21	mg/Kg	0.23	mg/Kg	0.18	mg/Kg
Vanadium	57[c]	mg/kg	37J-	mg/Kg	50J-	mg/Kg	29J-	mg/Kg
Zinc	121	mg/kg	43J	mg/Kg	64J	mg/Kg	28J	mg/Kg
Physical Properties								
Percent Ash	-	-	4	%	3	%	ND	%

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.

[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 low 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.

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standards for Sediment[2]		Transect EPA 06 Mid-Channel		Transect EPA 07 Left Descending		Transect EPA 08 Right Descending	
Sample Information								
Sample ID	-		EDEN-EPA06-C-SD-20140604		EDEN-EPA07-L-SD-20140604		EDEN-EPA08-R-SD-20140604	
Date	-		6/4/2014		6/4/2014		6/4/2014	
Time	-		1140		1331		1500	
Status	-		Validation Complete		Validation Complete		Validation Complete	
Type	-		Sediment		Sediment		Sediment	
Total Metals								
Aluminum	3,200 (bkg)	mg/kg	5400	mg/Kg	8900	mg/Kg	11000	mg/Kg
Antimony	2[a]	mg/kg	1.4UJ	mg/Kg	1.5UJ	mg/Kg	1.3UJ	mg/Kg
Arsenic	9.8	mg/kg	1.4J	mg/Kg	1.8J	mg/Kg	2J	mg/Kg
Barium	60[b]	mg/kg	55	mg/Kg	84	mg/Kg	93	mg/Kg
Beryllium	-	-	0.36J	mg/Kg	0.53J	mg/Kg	0.59	mg/Kg
Boron	-	-	13U	mg/Kg	15U	mg/Kg	12U	mg/Kg
Cadmium	0.99	mg/kg	0.026J	mg/Kg	0.04J	mg/Kg	0.038J	mg/Kg
Calcium	-	-	840	mg/Kg	870	mg/Kg	920	mg/Kg
Chromium	43.4	mg/kg	14	mg/Kg	23	mg/Kg	25	mg/Kg
Cobalt	50	mg/kg	5.6	mg/Kg	6.7	mg/Kg	8.7	mg/Kg
Copper	31.6	mg/kg	6.1	mg/Kg	9.7	mg/Kg	12	mg/Kg
Iron	6,800 (bkg)	mg/kg	9300	mg/Kg	16000	mg/Kg	17000	mg/Kg
Lead	35.8	mg/kg	5.1	mg/Kg	7.4	mg/Kg	9.8	mg/Kg
Magnesium	-	-	1,500J-	mg/Kg	2,400J-	mg/Kg	2,300J-	mg/Kg
Manganese	460[c]	mg/kg	360	mg/Kg	220	mg/Kg	360	mg/Kg
Mercury	0.18	mg/kg	0.028U	mg/Kg	0.019J	mg/Kg	0.025U	mg/Kg
Molybdenum	-	-	1.3U	mg/Kg	1.5U	mg/Kg	0.46J	mg/Kg
Nickel	22.7	mg/kg	5.7	mg/Kg	8.6	mg/Kg	9.2	mg/Kg
Potassium	-	-	990	mg/Kg	1700	mg/Kg	1600	mg/Kg
Selenium	2[d]	mg/kg	1.2	mg/Kg	1.5	mg/Kg	1.4	mg/Kg
Silver	0.733	mg/kg	0.14U	mg/Kg	0.15U	mg/Kg	0.13U	mg/Kg
Sodium	-	-	260U	mg/Kg	310U	mg/Kg	230U	mg/Kg
Thallium	-	mg/kg	0.099J	mg/Kg	0.14J	mg/Kg	0.13	mg/Kg
Vanadium	57[c]	mg/kg	19J-	mg/Kg	30J-	mg/Kg	35J-	mg/Kg
Zinc	121	mg/kg	23J	mg/Kg	34J	mg/Kg	50J	mg/Kg
Physical Properties								
Percent Ash	-	-	ND	%	ND	%	ND	%

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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[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 low 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.

EDEN NORTH CAROLINA COAL ASH SPILL
SEDIMENT RESULTS

Analyte	Ecological Screening Standards for Sediment[2]		Transect EPA 08 Right Descending	
Sample Information				
Sample ID	-		EDEN-EPA08-R-SD-20140604-DUP	
Date	-		6/4/2014	
Time	-		1505	
Status	-		Validation Complete	
Type	-		Sediment	
Total Metals				
Aluminum	3,200 (bkg)	mg/kg	7200	mg/Kg
Antimony	2[a]	mg/kg	1.5UJ	mg/Kg
Arsenic	9.8	mg/kg	1.7J	mg/Kg
Barium	60[b]	mg/kg	65	mg/Kg
Beryllium	-	-	0.42J	mg/Kg
Boron	-	-	14U	mg/Kg
Cadmium	0.99	mg/kg	0.09	mg/Kg
Calcium	-	-	670	mg/Kg
Chromium	43.4	mg/kg	18	mg/Kg
Cobalt	50	mg/kg	5.9	mg/Kg
Copper	31.6	mg/kg	9	mg/Kg
Iron	6,800 (bkg)	mg/kg	13000	mg/Kg
Lead	35.8	mg/kg	7.5	mg/Kg
Magnesium	-	-	1,500J-	mg/Kg
Manganese	460[c]	mg/kg	290	mg/Kg
Mercury	0.18	mg/kg	0.027U	mg/Kg
Molybdenum	-	-	1.4U	mg/Kg
Nickel	22.7	mg/kg	6.6	mg/Kg
Potassium	-	-	1000	mg/Kg
Selenium	2[d]	mg/kg	1.4	mg/Kg
Silver	0.733	mg/kg	0.15U	mg/Kg
Sodium	-	-	280U	mg/Kg
Thallium	-	mg/kg	0.11J	mg/Kg
Vanadium	57[c]	mg/kg	25J-	mg/Kg
Zinc	121	mg/kg	43J	mg/Kg
Physical Properties				
Percent Ash	-	-	ND	%

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.

[e] Cadmium from diet

[f] Chromium (VI)

[g] Methyl Mercury

[h] Thallium Chloride

%	Percent
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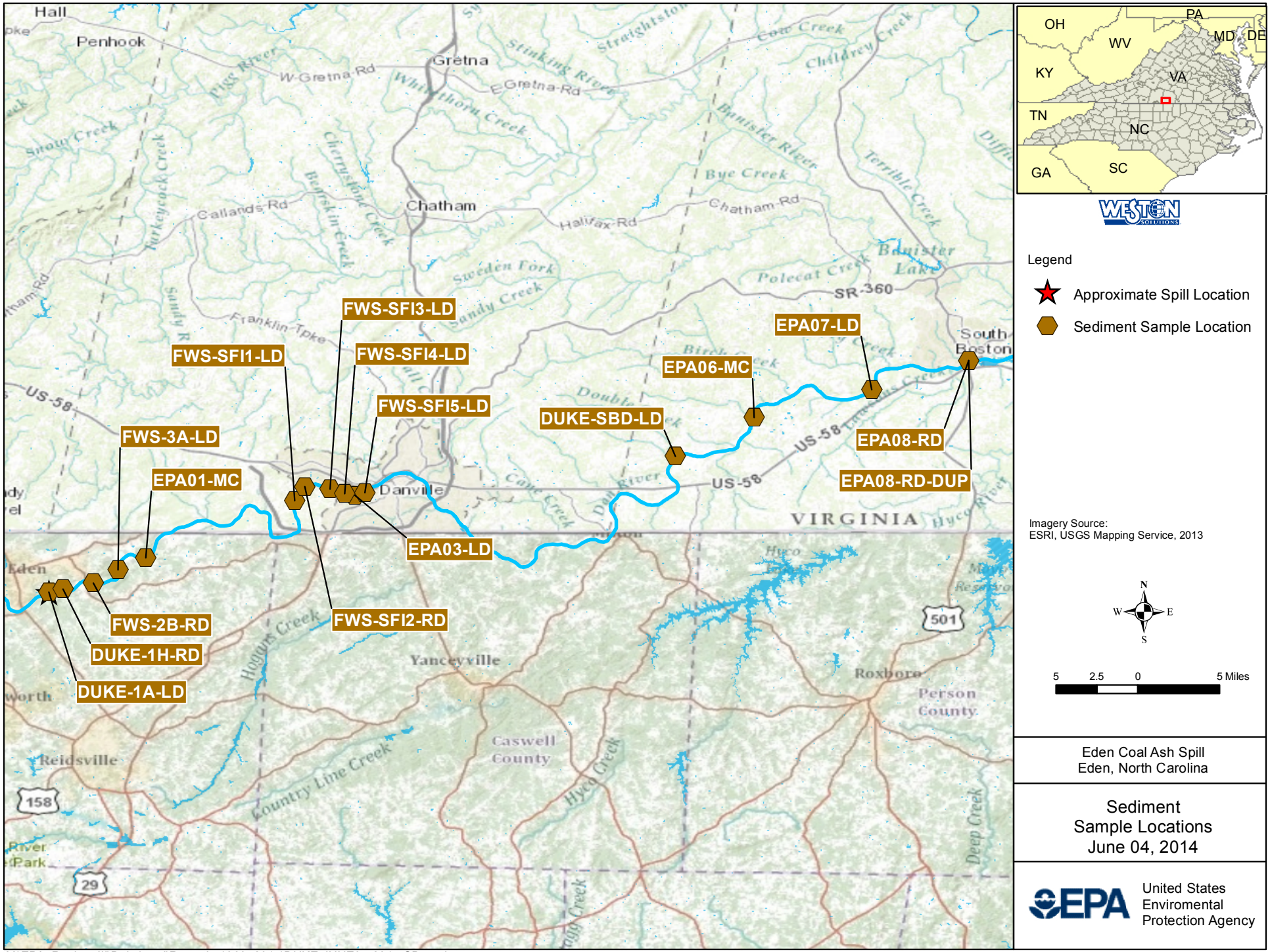

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