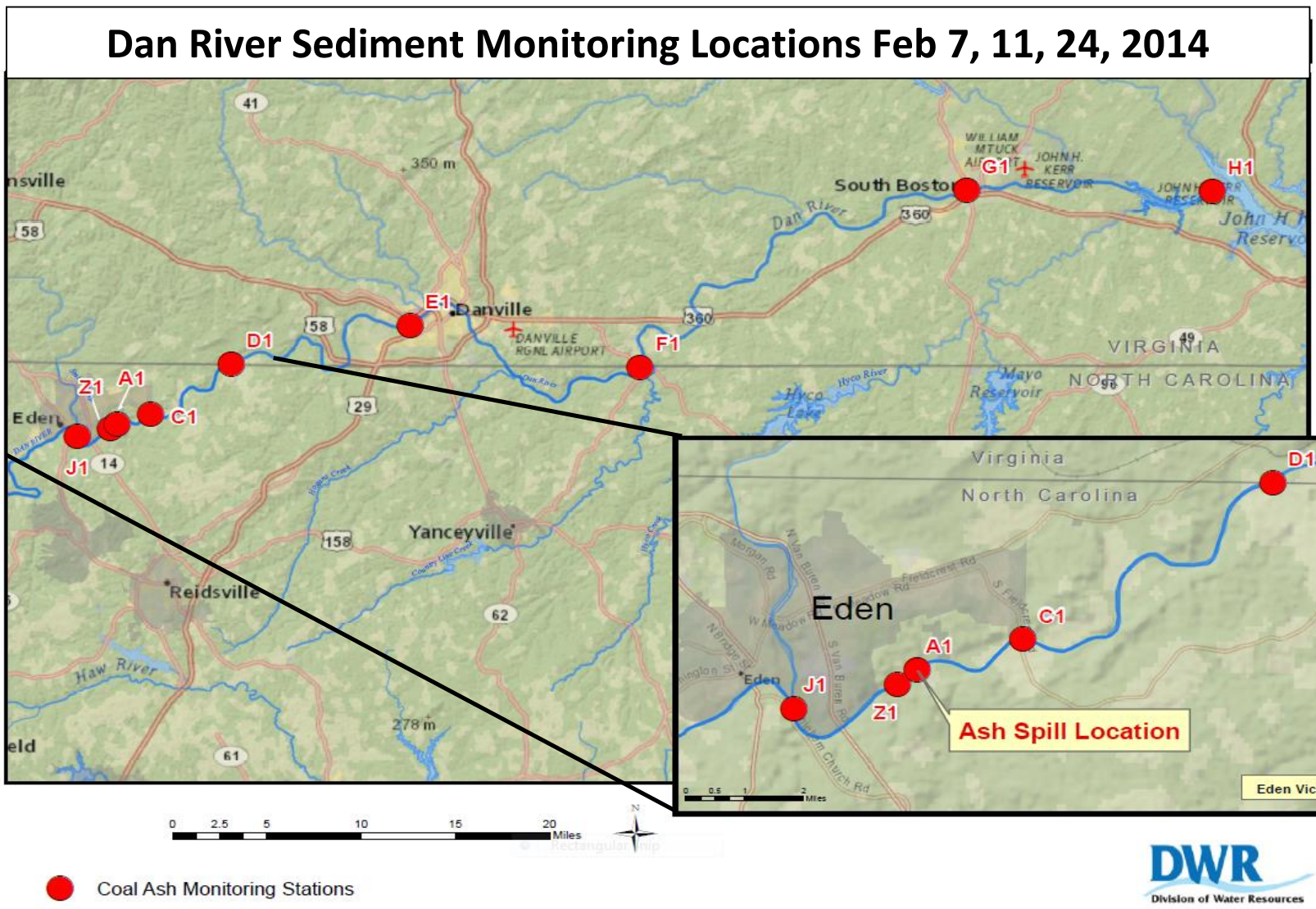
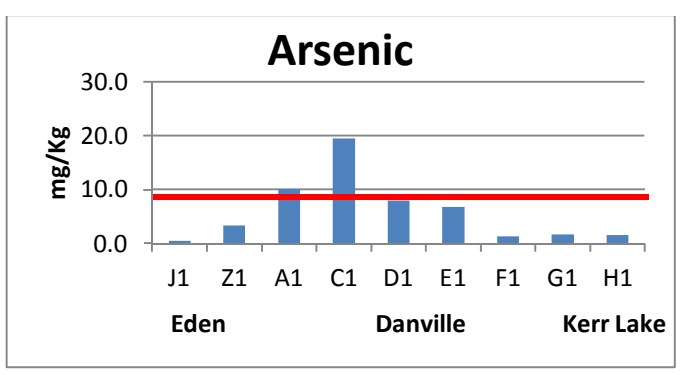
NCDWR Dan River Coal Ash Sediment Sampling Results

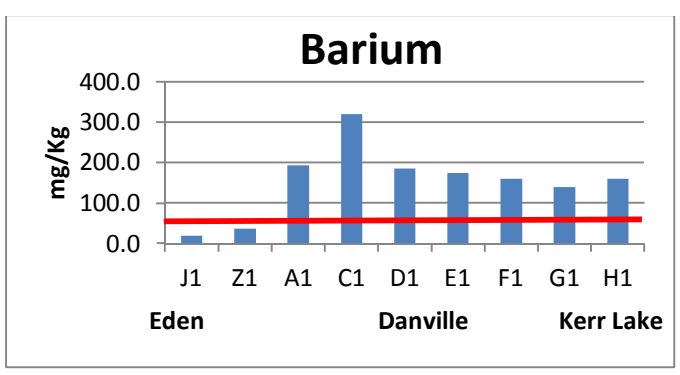
The North Carolina Division of Water Resources (NCDWR) collected sediment samples in response to the Dan River Coal Ash Spill in Eden North Carolina from February 7th, 11th, and 24th. The information included in this summary report represents metals found in sediment from the Dan River that exceeded EPA screening levels during the initial monitoring phase. At the nine stations sampled, sediment samples were collected and analyzed for 27 metals of concern. In total, eight metals were detected above EPA ecological screening levels in the Dan River (Al, As, Ba, Ca, Mn, Fe, Se, Sr). Three of these: Calcium (Ca), Aluminum (Al) and Iron (Fe) are likely related to natural geologic conditions found in the surrounding watershed and are not shown in the graphs. Surface sediments were collected from the bottom of the Dan River using either Ekman Dredge or Van Veen samplers. Sediment sample analysis followed EPA methods 200.7, 200.8, and 200.9.

In the following graphs, sediment metals concentrations which exceeded screening levels are illustrated. Most indicate an increase in concentration immediately downstream of the coal ash spill site, which resembles data collected from both US EPA and Duke Energy. Results for sites visited more than once have been averaged. Sediment chemistry data from individual sampling events is included in Tables 1-7.

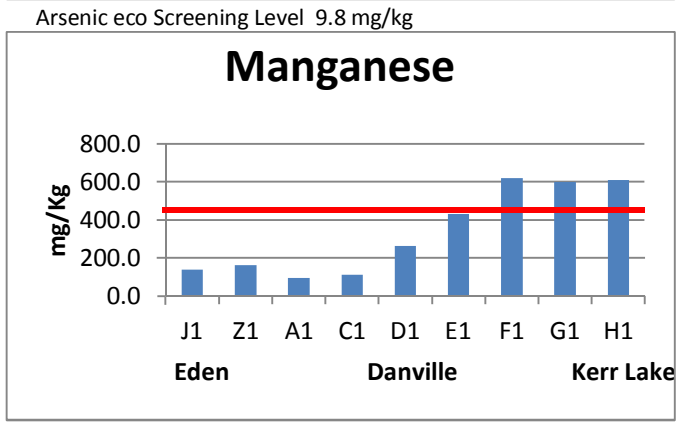




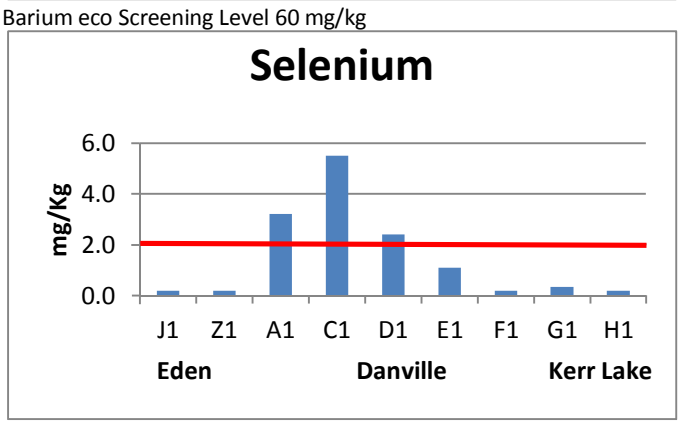
Arsenic eco Screening Level 9.8 mg/kg



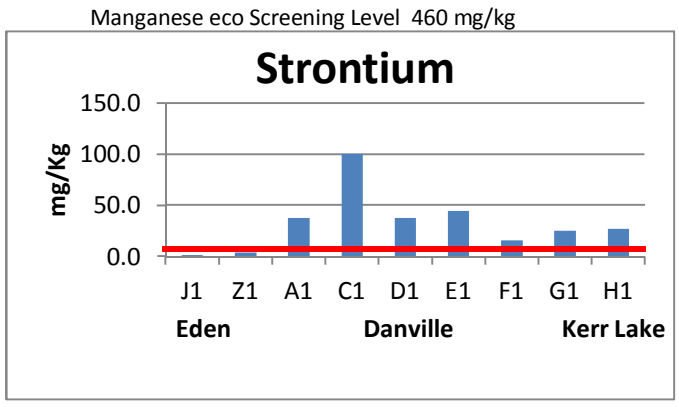
Barium eco Screening Level 60 mg/kg



Manganese eco Screening Level 460 mg/kg



Selenium eco Screening Level 2 mg/kg



Strontium eco Screening Level 3.1 mg/kg

Sample Location

J1 Dan River Downstream of Smith River @ Eden
Z1 Dan River at Station Boat Ramp
A1 Right Bank 100 YDS Downstream of Outfall
B1 RB 300 YDS N Angler
C1 Dan River @ NC 700
D1 Dan River @NC/VA state line, Berry Hill
E1 Dan River @ Danville WTP Intake
F1 Dan River @ NC57 near Milton
G1 Dan River @ South Boston WTP Intake
H1 Headwaters of John H Kerr Reservoir

Table1.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		Right Bank 100 YDS Downstream of Outfall		Center of Channel 100 YDS Downstream of Outfall		Left Bank 100 YDS Downstream of Outfall		
Sample Information									
Location Code			A1		A2		A3		
Date			2/7/2014		2/7/2014		2/7/2014		
Sample Type			Sediment		Sediment		Sediment		
Status			Approved		Approved		Approved		
Total Metals									
Aluminum	3200	mg/kg	7700	mg/kg	2300	mg/kg	3400	mg/kg	
Antimony	2	mg/kg	0.20	mg/kg	0.2 U, J2	mg/kg	0.20	mg/kg	
Arsenic	9.8	mg/kg	26	mg/kg	1.9	mg/kg	1.7	mg/kg	
Barium	60	mg/kg	360 U, J2	mg/kg	28 J2	mg/kg	41 J2	mg/kg	
Boron		mg/kg	31 J2	mg/kg	3.8 J2	mg/kg	8.8 J2	mg/kg	
Cadmium	0.99	mg/kg	0.37	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	
Calcium	50	mg/kg	1900 J2	mg/kg	780	mg/kg	680	mg/kg	
Chromium	43.4	mg/kg	14	mg/kg	12	mg/kg	15	mg/kg	
Cobalt	50	mg/kg	12	mg/kg	5.0 U	mg/kg	5.8	mg/kg	
Copper	31.6	mg/kg	44	mg/kg	2.5	mg/kg	3.4	mg/kg	
Iron	6800	mg/kg	9800	mg/kg	5700	mg/kg	8200	mg/kg	
Lead	35.8	mg/kg	10	mg/kg	3.1	mg/kg	3.0	mg/kg	
Magnesium		mg/kg	690 J2	mg/kg	610	mg/kg	720	mg/kg	
Manganese	460	mg/kg	56 J2	mg/kg	110	mg/kg	180	mg/kg	
Mercury	0.18	mg/kg	0.23	mg/kg	0.02 U	mg/kg	0.02 U	mg/kg	
Molybdenum		mg/kg	1.4 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	
Nickel	22.7	mg/kg	13	mg/kg	2.8	mg/kg	3.0	mg/kg	
Potasium		mg/kg	1400	mg/kg	440 J2	mg/kg	660 J2	mg/kg	
Selenium	2	mg/kg	8.6 J2	mg/kg	0.20 U	mg/kg	0.28	mg/kg	
Silver	0.73	mg/kg	0.20	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	
Sodium		mg/kg	180	mg/kg	27	mg/kg	37	mg/kg	
Stronium	3.1	mg/kg	96 J2	mg/kg	4.3 J2	mg/kg	4.8 J2	mg/kg	
Thallium		mg/kg	0.92 J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	
Tin		mg/kg	0.24	mg/kg	0.20 U	mg/kg	0.20 U, J2	mg/kg	
Titanium		mg/kg	430 J2	mg/kg	160 J2	mg/kg	230 J2	mg/kg	
Vanadium	57	mg/kg	47 J2	mg/kg	11 J2	mg/kg	15 J2	mg/kg	
Zinc	121	mg/kg	21	mg/kg	9.2	mg/kg	11	mg/kg	
% Dry Solids			47.7	%	69.5	%	80.5	%	

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 2.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		RB 300 YDS N Angler Park		25% 300 YDS N. Angler Park		75% 300 YDS N. Angler Park		LB 300 YDS N. Angler Park	
Sample Information										
Location Code			B1		B2		B3		B4	
Date			2/7/2014		2/7/2014		2/7/2014		2/7/2014	
Sample Type			Sediment		Sediment		Sediment		Sediment	
Status			Approved		Approved		Approved		Approved	
Total metals										
Aluminum	3200	mg/kg	9000	mg/kg	7300	mg/kg	5400	mg/kg	8700	mg/kg
Antimony	2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg
Arsenic	9.8	mg/kg	1.3	mg/kg	0.56	mg/kg	1.2	mg/kg	1.1	mg/kg
Barium	60	mg/kg	82 J2	mg/kg	61 J2	mg/kg	52 J2	mg/kg	83 J2	mg/kg
Boron		mg/kg	15 J2	mg/kg	14 J2	mg/kg	10 J2	mg/kg	17 J2	mg/kg
Cadmium	0.99	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg
Calcium	50	mg/kg	960	mg/kg	720	mg/kg	700	mg/kg	900	mg/kg
Chromium	43.4	mg/kg	17	mg/kg	16	mg/kg	13	mg/kg	18	mg/kg
Cobalt	50	mg/kg	7.4	mg/kg	6.6	mg/kg	5.5	mg/kg	7.8	mg/kg
Copper	31.6	mg/kg	7.1	mg/kg	4.5	mg/kg	6.2	mg/kg	6.4	mg/kg
Iron	6800	mg/kg	12000	mg/kg	12000	mg/kg	8500	mg/kg	12000	mg/kg
Lead	35.8	mg/kg	7.2	mg/kg	4.7	mg/kg	5.7	mg/kg	6.0	mg/kg
Magnesium		mg/kg	2200	mg/kg	1900	mg/kg	1400	mg/kg	2400	mg/kg
Manganese	460	mg/kg	210	mg/kg	120	mg/kg	120	mg/kg	230	mg/kg
Mercury	0.18	mg/kg	0.02 U	mg/kg	0.02 U	mg/kg	0.02 U	mg/kg	0.02 U	mg/kg
Molybdenum		mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg
Nickel	22.7	mg/kg	6.1	mg/kg	4.6	mg/kg	5.5	mg/kg	5.6	mg/kg
Potasium		mg/kg	1600 J2	mg/kg	1300 J2	mg/kg	960 J2	mg/kg	1700 J2	mg/kg
Selenium	2	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg
Silver	0.73	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg
Sodium		mg/kg	68	mg/kg	68	mg/kg	56	mg/kg	64	mg/kg
Stronium	3.1	mg/kg	12 J2	mg/kg	4.7 J2	mg/kg	11 J2	mg/kg	10 J2	mg/kg
Thallium		mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg	0.20 U, J2	mg/kg
Tin		mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg	0.20 U	mg/kg
Titanium		mg/kg	540 J2	mg/kg	410 J2	mg/kg	390 J2	mg/kg	530 J2	mg/kg
Vanadium	57	mg/kg	25 J2	mg/kg	21 J2	mg/kg	19 J2	mg/kg	25 J2	mg/kg
Zinc	121	mg/kg	27	mg/kg	23	mg/kg	18	mg/kg	29	mg/kg
% Dry Solids			70.3	%	63.8	%	71.1	%	66.6	%
% Dry Solids			76.0	%	52.9	%	76	%	48.6	%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 3.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		DAN RIVER @ STEAM STATION BOAT RAMP		Right Bank 100 YDS Downstream of Outfall		DAN RIVER 2 MILES DOWNSTREAM AT NC 700		DAN RIVER 8.6 MILES DOWNSTREAM OF VA STATE LINE	
Sample Information										
Location Code			Z1		A1		C1		D1	
Date			2/11/2014		2/11/2014		2/11/2014		2/11/2014	
Sample Type			Sediment		Sediment		Sediment		Sediment	
Status			Approved		Approved		Approved		Approved	
Total metals										
Aluminum	3200	mg/kg	6200	mg/kg	3500	mg/kg	8900	mg/kg	2300	mg/kg
Antimony	2	mg/kg	0.2 U,J2	mg/kg	0.2 U, J2	mg/kg	0.2 U,J2	mg/kg	0.2 U, J2	mg/kg
Arsenic	9.8	mg/kg	6.6	mg/kg	2.4	mg/kg	26.0	mg/kg	1.0	mg/kg
Barium	60	mg/kg	52 J2	mg/kg	88 J2	mg/kg	350 J2	mg/kg	21 J2	mg/kg
Boron		mg/kg	15 J2	mg/kg	16 J2	mg/kg	31 J2	mg/kg	10 J2	mg/kg
Cadmium	0.99	mg/kg	0.2 U	mg/kg	0.20 U	mg/kg	0.4	mg/kg	0.2 U	mg/kg
Calcium	50	mg/kg	670	mg/kg	770	mg/kg	2100	mg/kg	350	mg/kg
Chromium	43.4	mg/kg	13	mg/kg	11.0	mg/kg	14.0	mg/kg	13.0	mg/kg
Cobalt	50	mg/kg	5.5	mg/kg	5.0 U	mg/kg	12.0	mg/kg	5 U	mg/kg
Copper	31.6	mg/kg	4.2	mg/kg	5.1	mg/kg	38.0	mg/kg	1.6	mg/kg
Iron	6800	mg/kg	10000	mg/kg	10000	mg/kg	9900	mg/kg	6800	mg/kg
Lead	35.8	mg/kg	3.5	mg/kg	3.0	mg/kg	13.0	mg/kg	3.1	mg/kg
Magnesium		mg/kg	1900	mg/kg	930	mg/kg	700	mg/kg	390	mg/kg
Manganese	460	mg/kg	230 J2	mg/kg	85	mg/kg	62	mg/kg	230	mg/kg
Mercury	0.18	mg/kg	0.02 U	mg/kg	0.02 U	mg/kg	0.220	mg/kg	0.02 U	mg/kg
Molybdenum		mg/kg	0.45 J2	mg/kg	0.20 U, J2	mg/kg	0.93 J2	mg/kg	0.2 U, J2	mg/kg
Nickel	22.7	mg/kg	5.5	mg/kg	5.3	mg/kg	19.0	mg/kg	2.7	mg/kg
Potasium		mg/kg	1400 J2	mg/kg	700 J2	mg/kg	1600 J2	mg/kg	230 J2	mg/kg
Selenium	2	mg/kg	0.2 U, J2	mg/kg	0.60 J2	mg/kg	7.2 J2	mg/kg	0.2 U, J2	mg/kg
Silver	0.73	mg/kg	0.2 U	mg/kg	0.20	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg
Sodium		mg/kg	58	mg/kg	57	mg/kg	160.0	mg/kg	30.0	mg/kg
Stronium	3.1	mg/kg	4.5 J2	mg/kg	9.4 J2	mg/kg	130 J2	mg/kg	3.9 J2	mg/kg
Thallium		mg/kg	0.2 U, J2	mg/kg	0.20 U,J2	mg/kg	0.79 J2	mg/kg	0.2 U, J2	mg/kg
Tin		mg/kg	0.2 U	mg/kg	0.20 U, J2	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg
Titanium		mg/kg	460 J2	mg/kg	350 J2	mg/kg	490 J2	mg/kg	160 J2	mg/kg
Vanadium	57	mg/kg	17 J2	mg/kg	16 J2	mg/kg	45 J2	mg/kg	11 J2	mg/kg
Zinc	121	mg/kg	31	mg/kg	11	mg/kg	30.0	mg/kg	12.0	mg/kg
% Dry Solids			71.9	%	76.0	%	52.9 U	%	76.0	%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 4.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		DAN RIVER DOWNSTREAM AT DANVILLE WTP INTAKE							
Sample Information										
Location Code			E1							
Date			2/11/2014							
Sample Type			Sediment							
Status			Approved							
Total metals										
Aluminum	3200	mg/kg	19000	mg/kg		mg/kg		mg/kg		mg/kg
Antimony	2	mg/kg	0.2 U, J2	mg/kg		mg/kg		mg/kg		mg/kg
Arsenic	9.8	mg/kg	7.0	mg/kg		mg/kg		mg/kg		mg/kg
Barium	60	mg/kg	170 J2	mg/kg		mg/kg		mg/kg		mg/kg
Boron		mg/kg	31 J2	mg/kg		mg/kg		mg/kg		mg/kg
Cadmium	0.99	mg/kg	0.4	mg/kg		mg/kg		mg/kg		mg/kg
Calcium	50	mg/kg	1700	mg/kg		mg/kg		mg/kg		mg/kg
Chromium	43.4	mg/kg	26.0	mg/kg		mg/kg		mg/kg		mg/kg
Cobalt	50	mg/kg	12.0	mg/kg		mg/kg		mg/kg		mg/kg
Copper	31.6	mg/kg	19.0	mg/kg		mg/kg		mg/kg		mg/kg
Iron	6800	mg/kg	23000	mg/kg		mg/kg		mg/kg		mg/kg
Lead	35.8	mg/kg	13.0	mg/kg		mg/kg		mg/kg		mg/kg
Magnesium		mg/kg	3000	mg/kg		mg/kg		mg/kg		mg/kg
Manganese	460	mg/kg	480	mg/kg		mg/kg		mg/kg		mg/kg
Mercury	0.18	mg/kg	0.080	mg/kg		mg/kg		mg/kg		mg/kg
Molybdenum		mg/kg	0.28 J2	mg/kg		mg/kg		mg/kg		mg/kg
Nickel	22.7	mg/kg	15.0	mg/kg		mg/kg		mg/kg		mg/kg
Potasium		mg/kg	2200 J2	mg/kg		mg/kg		mg/kg		mg/kg
Selenium	2	mg/kg	0.98 J2	mg/kg		mg/kg		mg/kg		mg/kg
Silver	0.73	mg/kg	0.2 U	mg/kg		mg/kg		mg/kg		mg/kg
Sodium		mg/kg	100.0	mg/kg		mg/kg		mg/kg		mg/kg
Stronium	3.1	mg/kg	43 J2	mg/kg		mg/kg		mg/kg		mg/kg
Thallium		mg/kg	0.36 J2	mg/kg		mg/kg		mg/kg		mg/kg
Tin		mg/kg	0.2 U	mg/kg		mg/kg		mg/kg		mg/kg
Titanium		mg/kg	750 J2	mg/kg		mg/kg		mg/kg		mg/kg
Vanadium	57	mg/kg	45 J2	mg/kg		mg/kg		mg/kg		mg/kg
Zinc	121	mg/kg	60.0	mg/kg		mg/kg		mg/kg		mg/kg
% Dry Solids			48.6	%		%		%		%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 5.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		DAN RIVER 100 YDS DOWNSTREAM OF OUTFALL		DAN RIVER 2 MILES DOWNSTREAM AT NC 700		DAN RIVER 8.6 MILES DOWNSTREAM OF VA STATE LINE		DAN RIVER DOWNSTREAM AT DANVILLE WTP INTAKE	
Sample Information										
Location Code			A1		C1		D1		E1	
Date			2/17/2014		2/17/2014		2/17/2014		2/17/2014	
Sample Type			Sediment		Sediment		Sediment		Sediment	
Status			Approved		Approved		Approved		Approved	
Total metals										
Aluminum	3200	mg/kg	6300	mg/kg	11000	mg/kg	16000	mg/kg	15000	mg/kg
Antimony	2	mg/kg	0.2 U, J2	mg/kg	0.2 U,J2	mg/kg	0.2 U,J2	mg/kg	0.2 U,J2	mg/kg
Arsenic	9.8	mg/kg	2	mg/kg	13	mg/kg	15	mg/kg	6.7	mg/kg
Barium	60	mg/kg	130 J2	mg/kg	290 J2	mg/kg	350 J2	mg/kg	180 J2	mg/kg
Boron		mg/kg	28 J2	mg/kg	33 J2	mg/kg	40 J2	mg/kg	30 J2	mg/kg
Cadmium	0.99	mg/kg	0.2 U	mg/kg	0.25	mg/kg	0.3	mg/kg	0.25	mg/kg
Calcium	50	mg/kg	520	mg/kg	1700	mg/kg	2600	mg/kg	1500	mg/kg
Chromium	43.4	mg/kg	14	mg/kg	14	mg/kg	21	mg/kg	23	mg/kg
Cobalt	50	mg/kg	5.2	mg/kg	11	mg/kg	13	mg/kg	11	mg/kg
Copper	31.6	mg/kg	7.5	mg/kg	20	mg/kg	32	mg/kg	20	mg/kg
Iron	6800	mg/kg	18000	mg/kg	16000	mg/kg	20000	mg/kg	19000	mg/kg
Lead	35.8	mg/kg	3.7	mg/kg	8.3	mg/kg	10	mg/kg	10	mg/kg
Magnesium		mg/kg	2100	mg/kg	2000	mg/kg	3000	mg/kg	2600	mg/kg
Manganese	460	mg/kg	150 J2	mg/kg	160 J2	mg/kg	300 J2	mg/kg	380 J2	mg/kg
Mercury	0.18	mg/kg	0.02 U	mg/kg	0.17	mg/kg	0.18	mg/kg	0.07	mg/kg
Molybdenum		mg/kg	0.2 U, J2	mg/kg	0.38 J2	mg/kg	0.49 J2	mg/kg	0.23 J2	mg/kg
Nickel	22.7	mg/kg	7.6	mg/kg	14	mg/kg	12	mg/kg	10	mg/kg
Potasium		mg/kg	1600 J2	mg/kg	1900 J2	mg/kg	2600 J2	mg/kg	1900 J2	mg/kg
Selenium	2	mg/kg	0.54	mg/kg	3.9	mg/kg	4.6	mg/kg	1.2	mg/kg
Silver	0.73	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg
Sodium		mg/kg	50	mg/kg	120	mg/kg	130	mg/kg	68	mg/kg
Stronium	3.1	mg/kg	7.7 J2	mg/kg	71 J2	mg/kg	72 J2	mg/kg	46 J2	mg/kg
Thallium		mg/kg	0.2 U, J2	mg/kg	0.52 J2	mg/kg	0.66 J2	mg/kg	0.33 J2	mg/kg
Tin		mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg	0.22 J2	mg/kg	0.2 U, J2	mg/kg
Titanium		mg/kg	500 J2	mg/kg	640 J2	mg/kg	780 J2	mg/kg	610 J2	mg/kg
Vanadium	57	mg/kg	17 J2	mg/kg	38 J2	mg/kg	47 J2	mg/kg	39 J2	mg/kg
Zinc	121	mg/kg	25	mg/kg	34	mg/kg	46	mg/kg	49	mg/kg
% Dry Solids			71	%	51.7	%	39.1	%	55.8	%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 6.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		DAN RIVER AT NC57 NEAR MILTON		DAN RIVER AT SOUTH BOSTON WTP INTAKE		HEADWATERS OF JOHN H. KERR RESERVOIR		DAN RIVER @ STEAM STATION BOAT RAMP	
Sample Information										
Location Code			F1		G1		H1		Z1	
Date			2/17/2014		2/17/2014		2/17/2014		2/17/2014	
Sample Type			Sediment		Sediment		Sediment		Sediment	
Status			Approved		Approved		Approved		Approved	
Total metals										
Aluminum	3200	mg/kg	22000	mg/kg	15000	mg/kg	23000	mg/kg	2600	mg/kg
Antimony	2	mg/kg	0.2 U,J2	mg/kg	0.2 U, J2	mg/kg	0.2 U,J2	mg/kg	0.2 U, J2	mg/kg
Arsenic	9.8	mg/kg	1.3	mg/kg	1.7	mg/kg	1.6	mg/kg	0.2 U	mg/kg
Barium	60	mg/kg	160 J2	mg/kg	140 J2	mg/kg	160 J2	mg/kg	22 J2	mg/kg
Boron		mg/kg	40 J2	mg/kg	34 J2	mg/kg	44 J2	mg/kg	10 J2	mg/kg
Cadmium	0.99	mg/kg	0.23	mg/kg	0.22	mg/kg	0.27	mg/kg	0.2 U	mg/kg
Calcium	50	mg/kg	1700	mg/kg	2100	mg/kg	2100	mg/kg	490	mg/kg
Chromium	43.4	mg/kg	32	mg/kg	25	mg/kg	32	mg/kg	9.6	mg/kg
Cobalt	50	mg/kg	14	mg/kg	13	mg/kg	14	mg/kg	5 U	mg/kg
Copper	31.6	mg/kg	13	mg/kg	11	mg/kg	13	mg/kg	2.2	mg/kg
Iron	6800	mg/kg	29000	mg/kg	22000	mg/kg	29000	mg/kg	7300	mg/kg
Lead	35.8	mg/kg	11	mg/kg	9.1	mg/kg	13	mg/kg	3.2	mg/kg
Magnesium		mg/kg	4900	mg/kg	4300	mg/kg	4100	mg/kg	650	mg/kg
Manganese	460	mg/kg	620 J2	mg/kg	600 J2	mg/kg	610 J2	mg/kg	95	mg/kg
Mercury	0.18	mg/kg	0.04	mg/kg	0.05	mg/kg	0.05	mg/kg	0.02 U	mg/kg
Molybdenum		mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg
Nickel	22.7	mg/kg	11	mg/kg	8.9	mg/kg	10	mg/kg	2.4	mg/kg
Potasium		mg/kg	3500 J2	mg/kg	2800 J2	mg/kg	2500 J2	mg/kg	440 J2	mg/kg
Selenium	2	mg/kg	0.2 U	mg/kg	0.35	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg
Silver	0.73	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg	0.2 U	mg/kg
Sodium		mg/kg	56	mg/kg	79	mg/kg	78	mg/kg	28	mg/kg
Stronium	3.1	mg/kg	16 J2	mg/kg	25 J2	mg/kg	27 J2	mg/kg	3.3 J2	mg/kg
Thallium		mg/kg	0.26 J2	mg/kg	0.2 U, J2	mg/kg	0.23 J2	mg/kg	0.2 U, J2	mg/kg
Tin		mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg	0.2 U, J2	mg/kg	0.22 J2	mg/kg
Titanium		mg/kg	960 J2	mg/kg	830 J2	mg/kg	700 J2	mg/kg	280 J2	mg/kg
Vanadium	57	mg/kg	45 J2	mg/kg	43 J2	mg/kg	52 J2	mg/kg	15 J2	mg/kg
Zinc	121	mg/kg	71	mg/kg	51	mg/kg	69	mg/kg	8.9	mg/kg
% Dry Solids			58	%	49.5	%	46.6	%	71.7	%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).

Table 7.

NC Division of Water Resources Water Sciences Section

Data included below represents samples collected from the Dan River in association with the release of coal ash from a wastewater pond at the Eden Steam Station. Samples were collected along the reach of the Dan River from Eden NC to John H. Kerr Reservoir. See associated map for sample sites.

Analyte	EPA Ecological Screening Concentration		DAN RIVER UPSTREAM OF SPILL AT HWY 14							
Sample Information										
Location Code			J1							
Date			2/24/2014							
Sample Type			Sediment							
Status			Approved							
Total metals										
Aluminum	3200	mg/kg	2300	mg/kg		mg/kg		mg/kg		mg/kg
Antimony	2	mg/kg	0.2 U, J2	mg/kg		mg/kg		mg/kg		mg/kg
Arsenic	9.8	mg/kg	0.54	mg/kg		mg/kg		mg/kg		mg/kg
Barium	60	mg/kg	19 J2	mg/kg		mg/kg		mg/kg		mg/kg
Boron		mg/kg	11 J2	mg/kg		mg/kg		mg/kg		mg/kg
Cadmium	0.99	mg/kg	0.2 U	mg/kg		mg/kg		mg/kg		mg/kg
Calcium	50	mg/kg	250	mg/kg		mg/kg		mg/kg		mg/kg
Chromium	43.4	mg/kg	8.9	mg/kg		mg/kg		mg/kg		mg/kg
Cobalt	50	mg/kg	5 U	mg/kg		mg/kg		mg/kg		mg/kg
Copper	31.6	mg/kg	2.2	mg/kg		mg/kg		mg/kg		mg/kg
Iron	6800	mg/kg	8200	mg/kg		mg/kg		mg/kg		mg/kg
Lead	35.8	mg/kg	2.3	mg/kg		mg/kg		mg/kg		mg/kg
Magnesium		mg/kg	400	mg/kg		mg/kg		mg/kg		mg/kg
Manganese	460	mg/kg	140 J2	mg/kg		mg/kg		mg/kg		mg/kg
Mercury	0.18	mg/kg	0.02 U	mg/kg		mg/kg		mg/kg		mg/kg
Molybdenum		mg/kg	0.2 U, J2	mg/kg		mg/kg		mg/kg		mg/kg
Nickel	22.7	mg/kg	1.7	mg/kg		mg/kg		mg/kg		mg/kg
Potasium		mg/kg	260 J2	mg/kg		mg/kg		mg/kg		mg/kg
Selenium	2	mg/kg	0.2 U	mg/kg		mg/kg		mg/kg		mg/kg
Silver	0.73	mg/kg	0.2 U	mg/kg		mg/kg		mg/kg		mg/kg
Sodium		mg/kg	18	mg/kg		mg/kg		mg/kg		mg/kg
Stronium	3.1	mg/kg	1.6 J2	mg/kg		mg/kg		mg/kg		mg/kg
Thallium		mg/kg	0.2 U, J2	mg/kg		mg/kg		mg/kg		mg/kg
Tin		mg/kg	0.2 U, J2	mg/kg		mg/kg		mg/kg		mg/kg
Titanium		mg/kg	120 J2	mg/kg		mg/kg		mg/kg		mg/kg
Vanadium	57	mg/kg	11 J2	mg/kg		mg/kg		mg/kg		mg/kg
Zinc	121	mg/kg	8.3	mg/kg		mg/kg		mg/kg		mg/kg
% Dry Solids			100	%		%		%		%

U = Indicates that the analyte was analyzed for but not detected above the practical quantitation limit.
J2 = Quality Control failure (estimated report value).