# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Staunton River State Park Boat Ramp | | Staunton River State Park Boat Ramp | | Buffalo Swim Beach - Public Swimming Area | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-SRSPBR-L-SD-20140308 | | EDEN-SRSPBR-L-SD-20140308-DUP | | EDEN-BSB-R-SD-20140308 | |
| Date | - | | 3/8/2014 | | 3/8/2014 | | 3/8/2014 | |
| Time | - | | 11:10 | | 11:15 | | 14:11 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 20200 | mg/kg | 15100 | mg/kg | 498 | mg/kg |
| Antimony | 2[a] | mg/kg | 0.51 J | mg/kg | 0.225 J | mg/kg | 5.85 U | mg/kg |
| Arsenic | 9.8 | mg/kg | 0.307 J | mg/kg | 0.465 J | mg/kg | 0.178 J | mg/kg |
| Barium | 60[b] | mg/kg | 121 | mg/kg | 106 | mg/kg | 4.56 J | mg/kg |
| Beryllium | - | - | 0.452 J | mg/kg | 0.451 J | mg/kg | 2.93 U | mg/kg |
| Boron | - | - | 33 U | mg/kg | 32 U | mg/kg | 29 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 3.3 U | mg/kg | 3.17 U | mg/kg | 2.93 U | mg/kg |
| Calcium | - | - | 5180 | mg/kg | 4880 | mg/kg | 120 | mg/kg |
| Chromium | 43.4 | mg/kg | 57.2 | mg/kg | 50.4 | mg/kg | 1.66 J | mg/kg |
| Cobalt | 50 | mg/kg | 23.4 | mg/kg | 24.1 | mg/kg | 0.254 J | mg/kg |
| Copper | 31.6 | mg/kg | 38 | mg/kg | 36.4 | mg/kg | 0.646 J | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 29300 | mg/kg | 30100 | mg/kg | 1130 | mg/kg |
| Lead | 35.8 | mg/kg | 3.89 J | mg/kg | 3.14 J | mg/kg | 0.822 J | mg/kg |
| Magnesium | - | - | 8180 | mg/kg | 8080 | mg/kg | 56.9 J | mg/kg |
| Manganese | 460[c] | mg/kg | 745 | mg/kg | 659 | mg/kg | 33.8 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.137 U | mg/kg | 0.131 U | mg/kg | 0.121 U | mg/kg |
| Molybdenum | - | - | 0.668 J | mg/kg | 0.447 J | mg/kg | 0.115 J | mg/kg |
| Nickel | 22.7 | mg/kg | 22.3 | mg/kg | 21.8 | mg/kg | 0.176 J | mg/kg |
| Potassium | - | - | 1170 | mg/kg | 1440 | mg/kg | 34.6 J | mg/kg |
| Selenium | 2[d] | mg/kg | 6.59 U | mg/kg | 6.33 U | mg/kg | 5.85 U | mg/kg |
| Silver | 0.733 | mg/kg | 3.3 U | mg/kg | 0.0379 J | mg/kg | 2.93 U | mg/kg |
| Sodium | - | - | 189 | mg/kg | 168 | mg/kg | 7.83 J | mg/kg |
| Thallium | - | mg/kg | 2.13 J | mg/kg | 0.957 J | mg/kg | 5.85 U | mg/kg |
| Vanadium | 57[c] | mg/kg | 83.9 | mg/kg | 72.6 | mg/kg | 2.3 J | mg/kg |
| Zinc | 121 | mg/kg | 51.7 | mg/kg | 52.6 | mg/kg | 5.85 U | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | - | - | - | - | - | - |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Bluestone Location on Kerr Reservoir | | Mud Flats at Kerr Reservoir | | Buffalo Creek Point at Kerr Reservoir | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-BLST-L-SD-20140308 | | EDEN-MF-C-SD-20140311 | | EDEN-BCP-C-SD-20140311 | |
| Date | - | | 3/8/2014 | | 3/11/2014 | | 3/11/2014 | |
| Time | - | | 13:26 | | 11:15 | | 11:15 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 12800 | mg/kg | 21500 | mg/kg | 3370 | mg/kg |
| Antimony | 2[a] | mg/kg | 6.8 U | mg/kg | 0.884 J- | mg/kg | 6.3 UJ | mg/kg |
| Arsenic | 9.8 | mg/kg | 1.27 J | mg/kg | 1.2 J | mg/kg | 6.3 U | mg/kg |
| Barium | 60[b] | mg/kg | 25.6 | mg/kg | 219 | mg/kg | 37.6 | mg/kg |
| Beryllium | - | - | 0.171 J | mg/kg | 1.01 J | mg/kg | 0.12 J | mg/kg |
| Boron | - | - | 34 U | mg/kg | 55 U | mg/kg | 32 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 3.4 U | mg/kg | 5.53 U | mg/kg | 3.15 U | mg/kg |
| Calcium | - | - | 1560 | mg/kg | 3620 | mg/kg | 794 | mg/kg |
| Chromium | 43.4 | mg/kg | 36.6 | mg/kg | 41.5 | mg/kg | 5.79 | mg/kg |
| Cobalt | 50 | mg/kg | 2.89 J | mg/kg | 18.6 | mg/kg | 2.55 J | mg/kg |
| Copper | 31.6 | mg/kg | 8.25 | mg/kg | 25.8 | mg/kg | 4.91 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 23600 | mg/kg | 37600 | mg/kg | 5350 | mg/kg |
| Lead | 35.8 | mg/kg | 9.75 | mg/kg | 14.5 | mg/kg | 1.52 J | mg/kg |
| Magnesium | - | - | 455 | mg/kg | 4070 | mg/kg | 1290 | mg/kg |
| Manganese | 460[c] | mg/kg | 83.9 | mg/kg | 680 | mg/kg | 74.8 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0387 J | mg/kg | 0.0495 J | mg/kg | 0.132 U | mg/kg |
| Molybdenum | - | - | 1.14 J | mg/kg | 0.95 J | mg/kg | 0.113 J | mg/kg |
| Nickel | 22.7 | mg/kg | 2.7 J | mg/kg | 15.9 | mg/kg | 2.9 J | mg/kg |
| Potassium | - | - | 375 | mg/kg | 4060 J+ | mg/kg | 1120 J+ | mg/kg |
| Selenium | 2[d] | mg/kg | 6.8 U | mg/kg | 11.1 U | mg/kg | 6.3 U | mg/kg |
| Silver | 0.733 | mg/kg | 3.4 U | mg/kg | 5.53 U | mg/kg | 3.15 U | mg/kg |
| Sodium | - | - | 25.8 J | mg/kg | 110 J | mg/kg | 94.1 J | mg/kg |
| Thallium | - | mg/kg | 6.8 U | mg/kg | 1.31 J | mg/kg | 6.3 U | mg/kg |
| Vanadium | 57[c] | mg/kg | 63.1 | mg/kg | 65.4 | mg/kg | 17.7 | mg/kg |
| Zinc | 121 | mg/kg | 11.1 | mg/kg | 95.1 | mg/kg | 11.9 | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | - | - | - | - | - | - |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Confluence of Dan and Staunton Kerr Reservoir | | Transect EPA 12 Left Descending | | Transect EPA 12 Mid-Channel | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-KRCON-L-SD-20140327 | | EDEN-EPA12-L-SD-20140402 | | EDEN-EPA12-C-SD-20140402 | |
| Date | - | | 3/27/2014 | | 4/2/2014 | | 4/2/2014 | |
| Time | - | | 12:06 | | 12:05 | | 12:45 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 726 J | mg/kg | 13500 | mg/kg | 2150 | mg/kg |
| Antimony | 2[a] | mg/kg | 5.7 U | mg/kg | 7.19 U | mg/kg | 0.808 J | mg/kg |
| Arsenic | 9.8 | mg/kg | 5.7 U | mg/kg | 0.994 J | mg/kg | 1.65 J | mg/kg |
| Barium | 60[b] | mg/kg | 5.17 J | mg/kg | 115 | mg/kg | 62.6 | mg/kg |
| Beryllium | - | - | 0.0615 J | mg/kg | 0.647 J | mg/kg | 0.379 J | mg/kg |
| Boron | - | - | 29 U | mg/kg | 36 U | mg/kg | 29 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 2.85 U | mg/kg | 3.59 U | mg/kg | 2.94 U | mg/kg |
| Calcium | - | - | 8990 J- | mg/kg | 2010 | mg/kg | 567 | mg/kg |
| Chromium | 43.4 | mg/kg | 241 J- | mg/kg | 28.4 | mg/kg | 56.4 | mg/kg |
| Cobalt | 50 | mg/kg | 11.2 | mg/kg | 11.4 | mg/kg | 6.19 | mg/kg |
| Copper | 31.6 | mg/kg | 3.85 | mg/kg | 15.7 | mg/kg | 1.98 J | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 270000 J | mg/kg | 20700 | mg/kg | 9360 | mg/kg |
| Lead | 35.8 | mg/kg | 13.3 | mg/kg | 9.76 | mg/kg | 6.21 | mg/kg |
| Magnesium | - | - | 189 | mg/kg | 3040 | mg/kg | 427 | mg/kg |
| Manganese | 460[c] | mg/kg | 267 J | mg/kg | 577 | mg/kg | 448 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.111 U | mg/kg | 0.0136 J | mg/kg | 0.127 U | mg/kg |
| Molybdenum | - | - | 5.7 U | mg/kg | 7.19 U | mg/kg | 5.87 U | mg/kg |
| Nickel | 22.7 | mg/kg | 17.3 | mg/kg | 10.9 | mg/kg | 4.78 J | mg/kg |
| Potassium | - | - | 114 U | mg/kg | 2270 | mg/kg | 274 | mg/kg |
| Selenium | 2[d] | mg/kg | 5.7 U | mg/kg | 7.19 U | mg/kg | 5.87 U | mg/kg |
| Silver | 0.733 | mg/kg | 0.216 J | mg/kg | 3.59 U | mg/kg | 2.94 U | mg/kg |
| Sodium | - | - | 12.9 J | mg/kg | 81.1 J | mg/kg | 29.9 J | mg/kg |
| Thallium | - | mg/kg | 5.7 U | mg/kg | 2.98 J | mg/kg | 5.87 U | mg/kg |
| Vanadium | 57[e] | mg/kg | 540 J- | mg/kg | 41.1 | mg/kg | 16.6 | mg/kg |
| Zinc | 121 | mg/kg | 23.5 | mg/kg | 43.8 | mg/kg | 18.9 | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | - | - | 1 | % | ND | % |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 12 Right Descending | | Transect EPA 13 Left Descending | | Transect EPA 13 Mid-Channel | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA12-R-SD-20140402 | | EDEN-EPA13-L-SD-20140402 | | EDEN-EPA13-C-SD-20140402 | |
| Date | - | | 4/2/2014 | | 4/2/2014 | | 4/2/2014 | |
| Time | - | | 13:00 | | 14:50 | | 15:20 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 11900 | mg/kg | 27200 | mg/kg | 25200 | mg/kg |
| Antimony | 2[a] | mg/kg | 0.283 J | mg/kg | 0.781 J | mg/kg | 1.05 J | mg/kg |
| Arsenic | 9.8 | mg/kg | 0.75 J | mg/kg | 1.67 J | mg/kg | 1.37 J | mg/kg |
| Barium | 60[b] | mg/kg | 110 | mg/kg | 215 | mg/kg | 196 | mg/kg |
| Beryllium | - | - | 0.586 J | mg/kg | 1.31 J | mg/kg | 1.28 J | mg/kg |
| Boron | - | - | 35 U | mg/kg | 54 U | mg/kg | 52 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 3.51 U | mg/kg | 5.43 U | mg/kg | 5.21 U | mg/kg |
| Calcium | - | - | 1970 | mg/kg | 3610 | mg/kg | 2830 | mg/kg |
| Chromium | 43.4 | mg/kg | 25.8 | mg/kg | 49.4 | mg/kg | 46.5 | mg/kg |
| Cobalt | 50 | mg/kg | 11 | mg/kg | 21.3 | mg/kg | 18 | mg/kg |
| Copper | 31.6 | mg/kg | 13.6 | mg/kg | 36 | mg/kg | 31.2 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 19600 | mg/kg | 44700 | mg/kg | 41500 | mg/kg |
| Lead | 35.8 | mg/kg | 8.28 | mg/kg | 19.8 | mg/kg | 19.7 | mg/kg |
| Magnesium | - | - | 3060 | mg/kg | 4800 | mg/kg | 4230 | mg/kg |
| Manganese | 460[c] | mg/kg | 578 | mg/kg | 598 | mg/kg | 546 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0172 J | mg/kg | 0.0568 J | mg/kg | 0.0584 J | mg/kg |
| Molybdenum | - | - | 7.02 U | mg/kg | 10.9 U | mg/kg | 10.4 U | mg/kg |
| Nickel | 22.7 | mg/kg | 10.5 | mg/kg | 18.8 | mg/kg | 17.8 | mg/kg |
| Potassium | - | - | 2320 | mg/kg | 2870 | mg/kg | 3130 | mg/kg |
| Selenium | 2[d] | mg/kg | 7.02 U | mg/kg | 10.9 U | mg/kg | 10.4 U | mg/kg |
| Silver | 0.733 | mg/kg | 3.51 U | mg/kg | 5.43 U | mg/kg | 5.21 U | mg/kg |
| Sodium | - | - | 77.8 J | mg/kg | 162 J | mg/kg | 137 J | mg/kg |
| Thallium | - | mg/kg | 2.89 J | mg/kg | 4.3 J | mg/kg | 5.01 J | mg/kg |
| Vanadium | 57[c] | mg/kg | 35.3 | mg/kg | 84 | mg/kg | 73.9 | mg/kg |
| Zinc | 121 | mg/kg | 42.4 | mg/kg | 93.9 | mg/kg | 91.6 | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | 1 | % | ND | % | ND | % |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 13 Right Descending | | Transect EPA 14 Right Descending | | Transect EPA 14 Mid-Channel | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA13-R-SD-20140402 | | EDEN-EPA14-R-DN-SD-20140402 | | EDEN-EPA14-C-SD-20140402 | |
| Date | - | | 4/2/2014 | | 4/2/2014 | | 4/2/2014 | |
| Time | - | | 15:50 | | 17:40 | | 17:30 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 27100 | mg/kg | 5560 | mg/kg | 35200 | mg/kg |
| Antimony | 2[a] | mg/kg | 0.458 J | mg/kg | 5.97 U | mg/kg | 1.47 J | mg/kg |
| Arsenic | 9.8 | mg/kg | 2.51 J | mg/kg | 5.97 U | mg/kg | 2.39 J | mg/kg |
| Barium | 60[b] | mg/kg | 191 | mg/kg | 44.1 | mg/kg | 267 | mg/kg |
| Beryllium | - | - | 1.23 J | mg/kg | 0.347 J | mg/kg | 1.54 J | mg/kg |
| Boron | - | - | 49 U | mg/kg | 30 U | mg/kg | 60 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 4.87 U | mg/kg | 2.98 U | mg/kg | 6 U | mg/kg |
| Calcium | - | - | 2920 | mg/kg | 886 | mg/kg | 3320 | mg/kg |
| Chromium | 43.4 | mg/kg | 47 | mg/kg | 19.6 | mg/kg | 50.3 | mg/kg |
| Cobalt | 50 | mg/kg | 18.9 | mg/kg | 5.19 | mg/kg | 22.2 | mg/kg |
| Copper | 31.6 | mg/kg | 32.8 | mg/kg | 7.29 | mg/kg | 36.9 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 41100 | mg/kg | 20300 | mg/kg | 52300 | mg/kg |
| Lead | 35.8 | mg/kg | 20.7 | mg/kg | 5.04 J | mg/kg | 23.7 | mg/kg |
| Magnesium | - | - | 4120 | mg/kg | 1910 | mg/kg | 4570 | mg/kg |
| Manganese | 460[c] | mg/kg | 699 | mg/kg | 114 | mg/kg | 907 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0608 J | mg/kg | 0.125 U | mg/kg | 0.0588 J | mg/kg |
| Molybdenum | - | - | 9.74 U | mg/kg | 5.97 U | mg/kg | 12 U | mg/kg |
| Nickel | 22.7 | mg/kg | 17.5 | mg/kg | 5.12 J | mg/kg | 19.5 | mg/kg |
| Potassium | - | - | 2780 | mg/kg | 1510 | mg/kg | 3640 | mg/kg |
| Selenium | 2[d] | mg/kg | 9.74 U | mg/kg | 5.97 U | mg/kg | 12 U | mg/kg |
| Silver | 0.733 | mg/kg | 4.87 U | mg/kg | 2.98 U | mg/kg | 6 U | mg/kg |
| Sodium | - | - | 144 J | mg/kg | 33.5 J | mg/kg | 148 J | mg/kg |
| Thallium | - | mg/kg | 4.21 J | mg/kg | 0.774 J | mg/kg | 4.82 J | mg/kg |
| Vanadium | 57[c] | mg/kg | 75.6 | mg/kg | 50.3 | mg/kg | 101 | mg/kg |
| Zinc | 121 | mg/kg | 87.7 | mg/kg | 20.2 | mg/kg | 98.5 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 14 Right Descending | | Dan River Mudflats | | Mud Flats at Kerr Reservoir | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA14-R-UP-SD-20140402 | | EDEN-DANMF-C-SD-20140404 | | EDEN-MF-C-SD-20140404 | |
| Date | - | | 4/2/2014 | | 4/4/2014 | | 4/4/2014 | |
| Time | - | | 17:00 | | 16:50 | | 17:39 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 12200 | mg/kg | -- | -- | -- | -- |
| Antimony | 2[a] | mg/kg | 0.453 J | mg/kg | -- | -- | -- | -- |
| Arsenic | 9.8 | mg/kg | 6.11 U | mg/kg | -- | -- | -- | -- |
| Barium | 60[b] | mg/kg | 101 | mg/kg | -- | -- | -- | -- |
| Beryllium | - | - | 0.273 J | mg/kg | -- | -- | -- | -- |
| Boron | - | - | 31 U | mg/kg | -- | -- | -- | -- |
| Cadmium | 0.99 | mg/kg | 3.06 U | mg/kg | -- | -- | -- | -- |
| Calcium | - | - | 853 | mg/kg | -- | -- | -- | -- |
| Chromium | 43.4 | mg/kg | 11.4 | mg/kg | -- | -- | -- | -- |
| Cobalt | 50 | mg/kg | 5.55 | mg/kg | -- | -- | -- | -- |
| Copper | 31.6 | mg/kg | 14.7 | mg/kg | -- | -- | -- | -- |
| Iron | 6,800 (bkg) | mg/kg | 15500 | mg/kg | -- | -- | -- | -- |
| Lead | 35.8 | mg/kg | 6.15 | mg/kg | -- | -- | -- | -- |
| Magnesium | - | - | 3110 | mg/kg | -- | -- | -- | -- |
| Manganese | 460[c] | mg/kg | 120 | mg/kg | -- | -- | -- | -- |
| Mercury | 0.18 | mg/kg | 0.125 U | mg/kg | -- | -- | -- | -- |
| Molybdenum | - | - | 6.11 U | mg/kg | -- | -- | -- | -- |
| Nickel | 22.7 | mg/kg | 7.05 | mg/kg | -- | -- | -- | -- |
| Potassium | - | - | 3140 | mg/kg | -- | -- | -- | -- |
| Selenium | 2[d] | mg/kg | 6.11 U | mg/kg | -- | -- | -- | -- |
| Silver | 0.733 | mg/kg | 3.06 U | mg/kg | -- | -- | -- | -- |
| Sodium | - | - | 49.7 J | mg/kg | -- | -- | -- | -- |
| Thallium | - | mg/kg | 4.61 J | mg/kg | -- | -- | -- | -- |
| Vanadium | 57[e] | mg/kg | 39.2 | mg/kg | -- | -- | -- | -- |
| Zinc | 121 | mg/kg | 28.1 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 15 Left Descending | | Transect EPA 15 Mid-Channel | | Transect EPA 15 Right Descending | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA15-L-SD-20140404 | | EDEN-EPA15-C-SD-20140404 | | EDEN-EPA15-R-SD-20140404 | |
| Date | - | | 4/4/2014 | | 4/4/2014 | | 4/4/2014 | |
| Time | - | | 11:40 | | 10:10 | | 11:00 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 15000 | mg/kg | 35100 | mg/kg | 9140 | mg/kg |
| Antimony | 2[a] | mg/kg | 0.454 J | mg/kg | 0.79 J | mg/kg | 6.96 U | mg/kg |
| Arsenic | 9.8 | mg/kg | 1.22 J | mg/kg | 2.67 J | mg/kg | 0.269 J | mg/kg |
| Barium | 60[b] | mg/kg | 37 | mg/kg | 247 | mg/kg | 84.7 | mg/kg |
| Beryllium | - | - | 0.26 J | mg/kg | 1.5 J | mg/kg | 0.26 J | mg/kg |
| Boron | - | - | 35 U | mg/kg | 67 U | mg/kg | 35 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 3.51 U | mg/kg | 6.68 U | mg/kg | 3.48 U | mg/kg |
| Calcium | - | - | 1930 J- | mg/kg | 3650 J- | mg/kg | 2110 J- | mg/kg |
| Chromium | 43.4 | mg/kg | 29.6 | mg/kg | 54.1 | mg/kg | 12.1 | mg/kg |
| Cobalt | 50 | mg/kg | 5.96 | mg/kg | 21.3 | mg/kg | 7.47 | mg/kg |
| Copper | 31.6 | mg/kg | 13.8 | mg/kg | 35.6 | mg/kg | 16.9 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 31000 | mg/kg | 61500 | mg/kg | 21300 | mg/kg |
| Lead | 35.8 | mg/kg | 7.8 | mg/kg | 23.9 | mg/kg | 3.98 J | mg/kg |
| Magnesium | - | - | 603 J- | mg/kg | 3400 J- | mg/kg | 3230 J- | mg/kg |
| Manganese | 460[c] | mg/kg | 227 J- | mg/kg | 833 J- | mg/kg | 158 J- | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0418 J | mg/kg | 0.0713 J | mg/kg | 0.00406J | mg/kg |
| Molybdenum | - | - | 7.02 U | mg/kg | 13.4 U | mg/kg | 6.96 U | mg/kg |
| Nickel | 22.7 | mg/kg | 3.96 J | mg/kg | 19.1 | mg/kg | 6.3 J | mg/kg |
| Potassium | - | - | 398 J- | mg/kg | 2700 J- | mg/kg | 3060 J- | mg/kg |
| Selenium | 2[d] | mg/kg | 7.02 U | mg/kg | 13.4 U | mg/kg | 6.96 U | mg/kg |
| Silver | 0.733 | mg/kg | 3.51 U | mg/kg | 6.68 U | mg/kg | 3.48 U | mg/kg |
| Sodium | - | - | 34.1 J | mg/kg | 140 J | mg/kg | 73.5 J | mg/kg |
| Thallium | - | mg/kg | 7.02 U | mg/kg | 3.05 J | mg/kg | 3.02 J | mg/kg |
| Vanadium | 57[e] | mg/kg | 79 | mg/kg | 103 | mg/kg | 44.4 | mg/kg |
| Zinc | 121 | mg/kg | 15.7 | mg/kg | 97.6 | mg/kg | 33 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | SW of Staunton River State Park | | Staunton River State Park Boat Ramp | | Staunton River State Park Boat Ramp | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-SWSRSP-R-SD-20140408 | | EDEN-SRSP-L-SD-20140408 | | EDEN-SRSP-L-SD-20140408-DUP | |
| Date | - | | 4/8/2014 | | 4/8/2014 | | 4/8/2014 | |
| Time | - | | 09:50 | | 13:30 | | 13:35 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 26500 | mg/kg | 14100 | mg/kg | 15500 | mg/kg |
| Antimony | 2[a] | mg/kg | 1.8 J- | mg/kg | 0.498 J- | mg/kg | 0.493 J- | mg/kg |
| Arsenic | 9.8 | mg/kg | 1.4 J | mg/kg | 0.804 J | mg/kg | 0.463 J | mg/kg |
| Barium | 60[b] | mg/kg | 212 J- | mg/kg | 155 J- | mg/kg | 217 J- | mg/kg |
| Beryllium | - | - | 0.854 J | mg/kg | 0.802 J | mg/kg | 0.477 J | mg/kg |
| Boron | - | - | 66 U | mg/kg | 33 U | mg/kg | 34 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 6.61 U | mg/kg | 3.26 U | mg/kg | 3.39 U | mg/kg |
| Calcium | - | - | 3030 J- | mg/kg | 5570 J- | mg/kg | 5420 J- | mg/kg |
| Chromium | 43.4 | mg/kg | 74.5 | mg/kg | 70.3 | mg/kg | 80.1 | mg/kg |
| Cobalt | 50 | mg/kg | 19.6 | mg/kg | 34.9 | mg/kg | 30.6 | mg/kg |
| Copper | 31.6 | mg/kg | 43.5 | mg/kg | 57.6 | mg/kg | 40.9 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 35700 | mg/kg | 41300 | mg/kg | 31300 | mg/kg |
| Lead | 35.8 | mg/kg | 13.1 J | mg/kg | 7.43 | mg/kg | 6.02 J | mg/kg |
| Magnesium | - | - | 6350 | mg/kg | 8150 | mg/kg | 9260 | mg/kg |
| Manganese | 460[c] | mg/kg | 606 | mg/kg | 926 | mg/kg | 1210 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0395 J | mg/kg | 0.13 U | mg/kg | 0.135 U | mg/kg |
| Molybdenum | - | - | 13.2 U | mg/kg | 6.52 U | mg/kg | 6.77 U | mg/kg |
| Nickel | 22.7 | mg/kg | 22.2 | mg/kg | 23.2 | mg/kg | 25.8 | mg/kg |
| Potassium | - | - | 3450 J+ | mg/kg | 615 J+ | mg/kg | 726 J+ | mg/kg |
| Selenium | 2[d] | mg/kg | 13.2 U | mg/kg | 6.52 U | mg/kg | 6.77 U | mg/kg |
| Silver | 0.733 | mg/kg | 6.61 U | mg/kg | 0.0444 J | mg/kg | 3.39 U | mg/kg |
| Sodium | - | - | 118 J | mg/kg | 169 | mg/kg | 178 | mg/kg |
| Thallium | - | mg/kg | 13.2 U | mg/kg | 6.52 U | mg/kg | 6.77 U | mg/kg |
| Vanadium | 57[c] | mg/kg | 77.7 | mg/kg | 120 | mg/kg | 87.6 | mg/kg |
| Zinc | 121 | mg/kg | 81.6 | mg/kg | 48 | mg/kg | 50.9 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | E of Staunton River State Park | | SE of Staunton River State Park | | Mud Flats at Kerr Reservoir | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-ESRSP-L-SD-20140408 | | EDEN-SESRSP-R-SD-20140408 | | EDEN-MF-R-SD-20140408 | |
| Date | - | | 4/8/2014 | | 4/8/2014 | | 4/8/2014 | |
| Time | - | | 10:47 | | 11:31 | | 11:04 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 32400 | mg/kg | 38000 | mg/kg | 24000 | mg/kg |
| Antimony | 2[a] | mg/kg | 0.569 J- | mg/kg | 11.2 UJ | mg/kg | 0.73 J- | mg/kg |
| Arsenic | 9.8 | mg/kg | 1.96 J | mg/kg | 2.35 J | mg/kg | 0.929 J | mg/kg |
| Barium | 60[b] | mg/kg | 245 J- | mg/kg | 258 J- | mg/kg | 237 J- | mg/kg |
| Beryllium | - | - | 1.31 J | mg/kg | 1.74 J | mg/kg | 1.19 J | mg/kg |
| Boron | - | - | 52 U | mg/kg | 56 U | mg/kg | 51 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 5.18 U | mg/kg | 5.61 U | mg/kg | 5.13 U | mg/kg |
| Calcium | - | - | 4190 J- | mg/kg | 4160 J- | mg/kg | 3880 J- | mg/kg |
| Chromium | 43.4 | mg/kg | 53.6 | mg/kg | 60.7 | mg/kg | 44.5 | mg/kg |
| Cobalt | 50 | mg/kg | 25.3 | mg/kg | 22 | mg/kg | 19 | mg/kg |
| Copper | 31.6 | mg/kg | 43.1 | mg/kg | 41.7 | mg/kg | 27.9 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 51100 | mg/kg | 55800 | mg/kg | 43600 | mg/kg |
| Lead | 35.8 | mg/kg | 19.6 | mg/kg | 24.7 | mg/kg | 16.3 | mg/kg |
| Magnesium | - | - | 6030 | mg/kg | 4710 | mg/kg | 4260 | mg/kg |
| Manganese | 460[c] | mg/kg | 794 | mg/kg | 729 | mg/kg | 714 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.0543 J | mg/kg | 0.0728 J | mg/kg | 0.0572 J | mg/kg |
| Molybdenum | - | - | 10.4 U | mg/kg | 11.2 U | mg/kg | 10.3 U | mg/kg |
| Nickel | 22.7 | mg/kg | 21.1 | mg/kg | 22.1 | mg/kg | 16.5 | mg/kg |
| Potassium | - | - | 3430 J+ | mg/kg | 3440 J+ | mg/kg | 3920 J+ | mg/kg |
| Selenium | 2[d] | mg/kg | 10.4 U | mg/kg | 11.2 U | mg/kg | 10.3 U | mg/kg |
| Silver | 0.733 | mg/kg | 5.18 U | mg/kg | 5.61 U | mg/kg | 5.13 U | mg/kg |
| Sodium | - | - | 169 J | mg/kg | 165 J | mg/kg | 113 J | mg/kg |
| Thallium | - | mg/kg | 10.4 U | mg/kg | 11.2 U | mg/kg | 10.3 U | mg/kg |
| Vanadium | 57[c] | mg/kg | 94.5 | mg/kg | 104 | mg/kg | 69.9 | mg/kg |
| Zinc | 121 | mg/kg | 106 | mg/kg | 100 | mg/kg | 97.5 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Buffalo Swim Beach - Public Swimming Area | | Bluestone Location on Kerr Reservoir | | Confluence of Dan and Staunton Kerr Reservoir | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-BSB-L-SD-20140408 | | EDEN-BLST-L-SD-20140408 | | EDEN-DSS-L-SD-20140424 | |
| Date | - | | 4/8/2014 | | 4/8/2014 | | 4/24/2014 | |
| Time | - | | 11:58 | | 12:30 | | 12:00 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 1300 | mg/kg | 22500 | mg/kg | -- | -- |
| Antimony | 2[a] | mg/kg | 0.212 J- | mg/kg | 0.288 J- | mg/kg | -- | -- |
| Arsenic | 9.8 | mg/kg | 0.364 J | mg/kg | 2.11 J | mg/kg | -- | -- |
| Barium | 60[b] | mg/kg | 12.9 J- | mg/kg | 39 J- | mg/kg | -- | -- |
| Beryllium | - | - | 0.0666 J | mg/kg | 0.311 J | mg/kg | -- | -- |
| Boron | - | - | 29 U | mg/kg | 33 U | mg/kg | -- | -- |
| Cadmium | 0.99 | mg/kg | 2.9 U | mg/kg | 3.27 U | mg/kg | -- | -- |
| Calcium | - | - | 224 J- | mg/kg | 1890 J- | mg/kg | -- | -- |
| Chromium | 43.4 | mg/kg | 3.18 | mg/kg | 32.7 | mg/kg | -- | -- |
| Cobalt | 50 | mg/kg | 3.36 | mg/kg | 3.32 | mg/kg | -- | -- |
| Copper | 31.6 | mg/kg | 1.41 J | mg/kg | 12.4 | mg/kg | -- | -- |
| Iron | 6,800 (bkg) | mg/kg | 2480 | mg/kg | 35900 | mg/kg | -- | -- |
| Lead | 35.8 | mg/kg | 3.03 J | mg/kg | 12.4 | mg/kg | -- | -- |
| Magnesium | - | - | 138 | mg/kg | 703 | mg/kg | -- | -- |
| Manganese | 460[c] | mg/kg | 162 | mg/kg | 78 | mg/kg | -- | -- |
| Mercury | 0.18 | mg/kg | 0.127 U | mg/kg | 0.0583 J | mg/kg | -- | -- |
| Molybdenum | - | - | 5.8 U | mg/kg | 6.54 U | mg/kg | -- | -- |
| Nickel | 22.7 | mg/kg | 0.5 J | mg/kg | 4.51 J | mg/kg | -- | -- |
| Potassium | - | - | 116 U | mg/kg | 616 J+ | mg/kg | -- | -- |
| Selenium | 2[d] | mg/kg | 5.8 U | mg/kg | 6.54 U | mg/kg | -- | -- |
| Silver | 0.733 | mg/kg | 2.9 U | mg/kg | 3.27 U | mg/kg | -- | -- |
| Sodium | - | - | 11.1 J | mg/kg | 41.9 J | mg/kg | -- | -- |
| Thallium | - | mg/kg | 5.8 U | mg/kg | 6.54 U | mg/kg | -- | -- |
| Vanadium | 57[c] | mg/kg | 5.25 J | mg/kg | 84.7 | mg/kg | -- | -- |
| Zinc | 121 | mg/kg | 5.8 U | mg/kg | 18.1 | 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.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 12 Right Descending | | Transect EPA 13 Mid-Channel | | Transect EPA 14 Right Descending (upstream) | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA12-R-SD-20140428 | | EDEN-EPA13-C-SD-20140428 | | EDEN-EPA14-R-UP-SD-20140428 | |
| Date | - | | 4/28/2014 | | 4/28/2014 | | 4/28/2014 | |
| Time | - | | 09:25 | | 11:30 | | 10:38 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 3200 | mg/kg | 16000 | mg/kg | 4800 | mg/kg |
| Antimony | 2[a] | mg/kg | 1.3 UJ | mg/kg | 1.7 UJ | mg/kg | 1.3 UJ | mg/kg |
| Arsenic | 9.8 | mg/kg | 2.8 U | mg/kg | 3.2 J | mg/kg | 1 J | mg/kg |
| Barium | 60[b] | mg/kg | 36 J+ | mg/kg | 130 J+ | mg/kg | 64 J+ | mg/kg |
| Beryllium | - | - | 0.22 J | mg/kg | 0.92 | mg/kg | 0.22 J | mg/kg |
| Boron | - | - | 14 U | mg/kg | 17 U | mg/kg | 12 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 0.067 U | mg/kg | 0.071 J | mg/kg | 0.063 U | mg/kg |
| Calcium | - | - | 550 | mg/kg | 1300 | mg/kg | 730 | mg/kg |
| Chromium | 43.4 | mg/kg | 12 | mg/kg | 33 | mg/kg | 11 | mg/kg |
| Cobalt | 50 | mg/kg | 3.5 | mg/kg | 12 | mg/kg | 4 | mg/kg |
| Copper | 31.6 | mg/kg | 3.3 J | mg/kg | 20 | mg/kg | 8.8 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 6200 | mg/kg | 25000 | mg/kg | 9400 | mg/kg |
| Lead | 35.8 | mg/kg | 3.2 | mg/kg | 14 | mg/kg | 2 | mg/kg |
| Magnesium | - | - | 1100 | mg/kg | 3300 | mg/kg | 2800 | mg/kg |
| Manganese | 460[c] | mg/kg | 190 | mg/kg | 470 | mg/kg | 150 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.024 U | mg/kg | 0.043 | mg/kg | 0.026 U | mg/kg |
| Molybdenum | - | - | 1.4 U | mg/kg | 0.84 J | mg/kg | 3 | mg/kg |
| Nickel | 22.7 | mg/kg | 3.9 J | mg/kg | 14 | mg/kg | 10 | mg/kg |
| Potassium | - | - | 750 | mg/kg | 2200 | mg/kg | 2300 | mg/kg |
| Selenium | 2[d] | mg/kg | 0.67 U | mg/kg | 0.66 J | mg/kg | 0.63 U | mg/kg |
| Silver | 0.733 | mg/kg | 0.13 U | mg/kg | 0.17 U | mg/kg | 0.13 U | mg/kg |
| Sodium | - | - | 280 U | mg/kg | 350 U | mg/kg | 230 U | mg/kg |
| Thallium | - | mg/kg | 0.076 J | mg/kg | 0.25 | mg/kg | 0.048 J | mg/kg |
| Vanadium | 57[c] | mg/kg | 13 | mg/kg | 50 | mg/kg | 26 | mg/kg |
| Zinc | 121 | mg/kg | 15 | mg/kg | 58 | mg/kg | 21 | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | 1 | % | ND | % | ND | % |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 15 Right Descending | | Transect EPA 12 Right Descending | | Transect EPA 13 Left Descending | |
|---|---|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | | | |
| Sample ID | - | | EDEN-EPA15-R-SD-20140428 | | EDEN-EPA12-R-SD-20140603 | | EDEN-EPA13-L-SD-20140603 | |
| Date | - | | 4/28/2014 | | 6/3/2014 | | 6/3/2014 | |
| Time | - | | 09:33 | | 12:20 | | 11:25 | |
| Status | - | | Validation Complete | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | | Sediment | |
| **Total Metals** | | | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 10000 | mg/kg | 11000 | mg/kg | 17000 | mg/kg |
| Antimony | 2[a] | mg/kg | 1.4 UJ | mg/kg | 1.4 UJ | mg/kg | 1.8 UJ | mg/kg |
| Arsenic | 9.8 | mg/kg | 1.1 J | mg/kg | 0.94 J | mg/kg | 3.1 J | mg/kg |
| Barium | 60[b] | mg/kg | 120 J+ | mg/kg | 95 | mg/kg | 130 | mg/kg |
| Beryllium | - | - | 0.33 J | mg/kg | 0.57 J | mg/kg | 0.92 | mg/kg |
| Boron | - | - | 12 U | mg/kg | 15 U | mg/kg | 19 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 0.069 U | mg/kg | 0.04 J | mg/kg | 0.1 | mg/kg |
| Calcium | - | - | 1500 | mg/kg | 1200 | mg/kg | 1200 | mg/kg |
| Chromium | 43.4 | mg/kg | 18 | mg/kg | 24 | mg/kg | 34 | mg/kg |
| Cobalt | 50 | mg/kg | 7.1 | mg/kg | 8.4 | mg/kg | 12 | mg/kg |
| Copper | 31.6 | mg/kg | 16 | mg/kg | 12 | mg/kg | 20 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 17000 | mg/kg | 17000 | mg/kg | 25000 | mg/kg |
| Lead | 35.8 | mg/kg | 4.2 | mg/kg | 8.1 J+ | mg/kg | 14 J+ | mg/kg |
| Magnesium | - | - | 4400 | mg/kg | 2900 | mg/kg | 3400 | mg/kg |
| Manganese | 460[c] | mg/kg | 270 | mg/kg | 440 | mg/kg | 460 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.024 U | mg/kg | 0.021 J | mg/kg | 0.041 | mg/kg |
| Molybdenum | - | - | 2.7 | mg/kg | 1.5 U | mg/kg | 1.9 U | mg/kg |
| Nickel | 22.7 | mg/kg | 12 | mg/kg | 9.9 | mg/kg | 14 | mg/kg |
| Potassium | - | - | 4000 | mg/kg | 2000 | mg/kg | 2400 | mg/kg |
| Selenium | 2[d] | mg/kg | 0.69 U | mg/kg | 2 | mg/kg | 2.6 | mg/kg |
| Silver | 0.733 | mg/kg | 0.14 U | mg/kg | 0.14 U | mg/kg | 0.093 J | mg/kg |
| Sodium | - | - | 130 J | mg/kg | 120 J | mg/kg | 150 J | mg/kg |
| Thallium | - | mg/kg | 0.15 | mg/kg | 0.18 | mg/kg | 0.26 | mg/kg |
| Vanadium | 57[c] | mg/kg | 46 | mg/kg | 34 J+ | mg/kg | 50 J+ | mg/kg |
| Zinc | 121 | mg/kg | 35 | mg/kg | 39 J+ | mg/kg | 58 J+ | mg/kg |
| **Physical Properties** | | | | | | | | |
| Percent Ash | - | - | ND | % | ND | % | 1 | % |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |

# EDEN NORTH CAROLINA COAL ASH SPILL
# SEDIMENT RESULTS

| Analyte | Ecological Screening Standards for Sediment[2] | | Transect EPA 13 Right Descending | | Transect EPA 15 Left Descending | |
|---|---|---|---|---|---|---|
| **Sample Information** | | | | | | |
| Sample ID | - | | EDEN-EPA14-R-UP-SD-20140603 | | EDEN-EPA15-L-SD-20140603 | |
| Date | - | | 6/3/2014 | | 6/3/2014 | |
| Time | - | | 10:15 | | 09:05 | |
| Status | - | | Validation Complete | | Validation Complete | |
| Type | - | | Sediment | | Sediment | |
| **Total Metals** | | | | | | |
| Aluminum | 3,200 (bkg) | mg/kg | 1700 | mg/kg | 9300 | mg/kg |
| Antimony | 2[a] | mg/kg | 1.3 UJ | mg/kg | 1.3 UJ | mg/kg |
| Arsenic | 9.8 | mg/kg | 2.4 U | mg/kg | 2.4 U | mg/kg |
| Barium | 60[b] | mg/kg | 19 | mg/kg | 110 | mg/kg |
| Beryllium | - | - | 0.098 J | mg/kg | 0.3 J | mg/kg |
| Boron | - | - | 12 U | mg/kg | 12 U | mg/kg |
| Cadmium | 0.99 | mg/kg | 0.067 U | mg/kg | 0.065 U | mg/kg |
| Calcium | - | - | 330 | mg/kg | 1700 | mg/kg |
| Chromium | 43.4 | mg/kg | 3.4 | mg/kg | 15 | mg/kg |
| Cobalt | 50 | mg/kg | 1.1 J | mg/kg | 7.5 | mg/kg |
| Copper | 31.6 | mg/kg | 2.5 J | mg/kg | 16 | mg/kg |
| Iron | 6,800 (bkg) | mg/kg | 3600 | mg/kg | 19000 | mg/kg |
| Lead | 35.8 | mg/kg | 1.4 J+ | mg/kg | 2.9 J+ | mg/kg |
| Magnesium | - | - | 790 | mg/kg | 4300 | mg/kg |
| Manganese | 460[c] | mg/kg | 46 | mg/kg | 240 | mg/kg |
| Mercury | 0.18 | mg/kg | 0.023 U | mg/kg | 0.025 U | mg/kg |
| Molybdenum | - | - | 1.2 U | mg/kg | 1.2 U | mg/kg |
| Nickel | 22.7 | mg/kg | 2 J | mg/kg | 8.3 | mg/kg |
| Potassium | - | - | 720 | mg/kg | 4000 | mg/kg |
| Selenium | 2[d] | mg/kg | 0.38 J | mg/kg | 0.58 J | mg/kg |
| Silver | 0.733 | mg/kg | 0.13 U | mg/kg | 0.13 U | mg/kg |
| Sodium | - | - | 240 U | mg/kg | 150 J | mg/kg |
| Thallium | - | mg/kg | 0.13 U | mg/kg | 0.076 J | mg/kg |
| Vanadium | 57[c] | mg/kg | 11 J+ | mg/kg | 47 J+ | mg/kg |
| Zinc | 121 | mg/kg | 6.7 J+ | mg/kg | 34 J+ | mg/kg |
| **Physical Properties** | | | | | | |
| Percent Ash | - | - | ND | % | ND | % |

Notes

[2] MacDonald, D.D.; Ingersoll, C.G.; Smorong, D.E.; Lindskoog, R.A.; Sloane, G; and T.

[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

[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

[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. |
| | Shaded values exceed the eco screening criteria and not human health. |
| | Reporting level is higher than the screening criteria. |