

Laboratory Results For MAPEP-09-MaW21
 (SEML01) SRS Environmental Monitoring Laboratory
 Bldg 735-B
 Aiken, SC 29808

| Inorganic | | | | | | | Units: (mg/L) | |
|---------------|--------|-----------|------|-------|----------|-----------------------|---------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Antimony | 2.191 | 2.120 | A | | 3.3 | 1.484 - 2.756 | 0.145 | |
| Arsenic | 2.352 | 2.346 | A | | 0.3 | 1.642 - 3.050 | 0.179 | |
| Barium | 1.423 | 1.415 | A | | 0.6 | 0.991 - 1.840 | 0.057 | |
| Beryllium | 0.554 | 0.567 | A | | -2.3 | 0.397 - 0.737 | 0.023 | |
| Cadmium | 0.288 | 0.2989 | A | | -3.6 | 0.2092 - 0.3886 | 0.019 | |
| Chromium | <0.01 | <0.01 | A | | | | 0.01 | |
| Cobalt | 1.464 | 1.479 | A | | -1.0 | 1.035 - 1.923 | 0.059 | |
| Copper | <0.025 | <0.025 | A | | | | 0.025 | |
| Lead | 1.953 | 1.998 | A | | -2.3 | 1.399 - 2.597 | 0.148 | |
| Mercury | 0.0109 | 0.01075 | A | | 1.4 | 0.00753 - 0.01398 | 0.0008 | |
| Nickel | 1.937 | 1.964 | A | | -1.4 | 1.375 - 2.553 | 0.077 | |
| Selenium | 0.294 | 0.3209 | A | | -8.4 | 0.2246 - 0.4172 | 0.021 | |
| Silver | NR | | | | | | | |
| Technetium-99 | NR | 0.0000159 | | | | 0.0000111 - 0.0000207 | | |
| Thallium | 2.505 | 2.431 | A | | 3.0 | 1.702 - 3.160 | 0.20 | |
| Uranium-235 | NR | 0.00175 | | | | 0.00123 - 0.00228 | | |
| Uranium-238 | NR | 0.244 | | | | 0.171 - 0.317 | | |
| Uranium-Total | NR | 0.245 | | | | 0.172 - 0.319 | | |
| Vanadium | 3.031 | 2.946 | A | | 2.9 | 2.062 - 3.830 | 0.037 | L |
| Zinc | 7.644 | 8.12 | A | | -5.9 | 5.68 - 10.56 | 0.306 | |

| Radiological | | | | | | | Units: (Bq/L) | |
|-------------------|--------|-----------|------|-------|----------|------------------|---------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Americium-241 | 1.11 | 1.04 | A | | 6.7 | 0.73 - 1.35 | 0.077 | |
| Cesium-134 | 27.9 | 32.2 | A | | -13.4 | 22.5 - 41.9 | 0.55 | L |
| Cesium-137 | 41.6 | 41.2 | A | | 1.0 | 28.8 - 53.6 | 1.29 | |
| Cobalt-57 | 36.8 | 36.6 | A | | 0.5 | 25.6 - 47.6 | .97 | L |
| Cobalt-60 | 15.4 | 15.4 | A | | 0.0 | 10.8 - 20.0 | 0.32 | L |
| Hydrogen-3 | 628 | 634.1 | A | | -1.0 | 443.9 - 824.3 | 10.8 | L |
| Iron-55 | NR | 60.8 | | | | 42.6 - 79.0 | | |
| Manganese-54 | 0.027 | | A | | | | 0.072 | |
| Nickel-63 | NR | 44.2 | | | | 30.9 - 57.5 | | |
| Plutonium-238 | 0.02 | 0.018 | A | (17) | | | 0.01 | |
| Plutonium-239/240 | 1.68 | 1.64 | A | | 2.4 | 1.15 - 2.13 | 0.12 | |
| Strontium-90 | 14.2 | 12.99 | A | | 9.3 | 9.09 - 16.89 | 0.65 | |
| Technetium-99 | 10.79 | 10.0 | A | | 7.9 | 7.0 - 13.0 | 0.71 | |

Laboratory Results For MAPEP-09-RdV21
(SEML01) SRS Environmental Monitoring Laboratory
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| Inorganic | | | | | | Units: (ug/sample) | |
|---------------|--------|-----------|------|-------|----------|--------------------|-----------------------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value Unc Flag |
| Uranium-235 | NR | 0.315 | | | | 0.221 - 0.410 | |
| Uranium-238 | NR | 43.7 | | | | 30.6 - 56.8 | |
| Uranium-Total | NR | 44.1 | | | | 30.9 - 57.3 | |

| Radiological | | | | | | Units: (Bq/sample) | |
|-------------------|--------|-----------|------|-------|----------|--------------------|-----------------------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value Unc Flag |
| Americium-241 | .156 | 0.171 | A | | -8.8 | 0.120 - 0.222 | 0.01 |
| Cesium-134 | -0.17 | | A | | | | 0.06 |
| Cesium-137 | 2.317 | 2.43 | A | | -4.7 | 1.70 - 3.16 | 0.109 |
| Cobalt-57 | 7.53 | 8.0 | A | | -5.9 | 5.6 - 10.4 | 0.20 L |
| Cobalt-60 | 2.43 | 2.57 | A | | -5.4 | 1.80 - 3.34 | 0.08 |
| Manganese-54 | 7.63 | 7.9 | A | | -3.4 | 5.5 - 10.3 | 0.25 |
| Plutonium-238 | 0.004 | 0.0016 | A | (17) | | | 0.002 |
| Plutonium-239/240 | 0.255 | 0.258 | A | | -1.2 | 0.181 - 0.335 | 0.018 |
| Strontium-90 | 1.70 | 1.78 | A | | -4.5 | 1.25 - 2.31 | 0.042 L |
| Uranium-234/233 | .504 | 0.525 | A | | -4.0 | 0.368 - 0.683 | 0.035 |
| Uranium-238 | 0.510 | 0.544 | A | | -6.3 | 0.381 - 0.707 | 0.036 |
| Zinc-65 | -0.16 | | A | | | | 0.096 |

Radiological Reference Date: July 1, 2009

Flags:

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- L = Uncertainty potentially too low (for information purposes only)
- H = Uncertainty potentially too high (for information purposes only)
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Notes:

(17) = NOT DETECTED - reported a statistically zero result

Laboratory Results For MAPEP-09-RdF21
(SEML01) SRS Environmental Monitoring Laboratory
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Aiken, SC 29808

| Inorganic | | | | | | Units: (ug/sample) | |
|---------------|--------|-----------|------|-------|----------|--------------------|-----------------------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value Unc Flag |
| Uranium-235 | NR | 0.178 | | | | 0.125 - 0.231 | |
| Uranium-238 | NR | 25.1 | | | | 17.6 - 32.6 | |
| Uranium-Total | NR | 25.3 | | | | 17.7 - 32.9 | |

| Radiological | | | | | | Units: (Bq/sample) | |
|-------------------|--------|-----------|------|-------|----------|--------------------|-----------------------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value Unc Flag |
| Americium-241 | 0.0002 | | A | | | | 0.0001 |
| Cesium-134 | -0.1 | | A | | | | 0.04 |
| Cesium-137 | 1.37 | 1.40 | A | | -2.1 | 0.98 - 1.82 | 0.095 |
| Cobalt-57 | 6.13 | 6.48 | A | | -5.4 | 4.54 - 8.42 | 0.19 |
| Cobalt-60 | 1.056 | 1.03 | A | | 2.5 | 0.72 - 1.34 | 0.058 |
| Manganese-54 | 5.24 | 5.49 | A | | -4.6 | 3.84 - 7.14 | 0.32 |
| Plutonium-238 | 0.095 | 0.091 | A | | 4.4 | 0.064 - 0.118 | 0.0066 |
| Plutonium-239/240 | 0.136 | 0.138 | A | | -1.4 | 0.097 - 0.179 | 0.0095 |
| Strontium-90 | 0.765 | 0.835 | A | | -8.4 | 0.585 - 1.086 | 0.027 |
| Uranium-234/233 | 0.304 | 0.300 | A | | 1.3 | 0.210 - 0.390 | 0.021 |
| Uranium-238 | 0.316 | 0.312 | A | | 1.3 | 0.218 - 0.406 | 0.022 |
| Zinc-65 | 3.92 | 3.93 | A | | -0.3 | 2.75 - 5.11 | 0.257 |

Radiological Reference Date: July 1, 2009

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Laboratory Results For MAPEP-09-MaS21
(SEML01) SRS Environmental Monitoring Laboratory
Bldg 735-B
Aiken, SC 29808

| Inorganic | | | | | | | Units: (mg/kg) | |
|---------------|--------|-----------|------|-------|----------|-------------------|----------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Antimony | NR | 173.0 | | | | 121.1 - 224.9 | | |
| Arsenic | NR | 64.0 | | | | 44.8 - 83.2 | | |
| Barium | NR | 252 | | | | 176 - 328 | | |
| Beryllium | NR | 25.3 | | | | 17.7 - 32.9 | | |
| Cadmium | NR | 14.42 | | | | 10.09 - 18.75 | | |
| Chromium | NR | 76.4 | | | | 53.5 - 99.3 | | |
| Cobalt | NR | 66.8 | | | | 46.8 - 86.8 | | |
| Copper | NR | 63.1 | | | | 44.2 - 82.0 | | |
| Lead | NR | 23.6 | | | | 16.5 - 30.7 | | |
| Mercury | NR | 0.1093 | | | | 0.0765 - 0.1421 | | |
| Nickel | NR | 65.5 | | | | 45.9 - 85.2 | | |
| Selenium | NR | 11.60 | | | | 8.12 - 15.08 | | |
| Silver | NR | <0.2 | | | | | | |
| Technetium-99 | NR | 0.00071 | | | | 0.00050 - 0.00092 | | |
| Thallium | NR | 65.9 | | | | 46.1 - 85.7 | | |
| Uranium-235 | NR | 0.119 | | | | 0.083 - 0.155 | | |
| Uranium-238 | NR | 17.4 | | | | 12.2 - 22.6 | | |
| Uranium-Total | NR | 17.6 | | | | 12.3 - 22.9 | | |
| Vanadium | NR | 71.1 | | | | 49.8 - 92.4 | | |
| Zinc | NR | 225 | | | | 158 - 293 | | |

| Organic | | | | | | | Units: (ug/kg) | |
|---------------------|--------|-----------|------|-------|---------|------------------|----------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Z-Score | Acceptance Range | Unc Value | Unc Flag |
| 4,4'-DDD | NR | 260 | | | | 103 - 417 | | |
| 4,4'-DDE | NR | 369 | | | | 154 - 584 | | |
| 4,4'-DDT | NR | 405 | | | | 124 - 685 | | |
| Aldrin | NR | 155 | | | | 55 - 255 | | |
| alpha-BHC | NR | 344 | | | | 128 - 560 | | |
| beta-BHC | NR | 270 | | | | 67 - 474 | | |
| Dieldrin | NR | 306 | | | | 133 - 479 | | |
| Endosulfan II | NR | 312 | | | | 113 - 512 | | |
| Endrin | NR | 296 | | | | 147 - 445 | | |
| Endrin Ketone | NR | 25.56 | | | | 2.56 - 50.53 | | |
| gamma-BHC (Lindane) | NR | 377 | | | | 138 - 617 | | |
| Heptachlor | NR | 80 | | | | 26 - 133 | | |
| Methoxychlor | NR | 269 | | | | 33 - 504 | | |

| Organic | | | | | | | Units: (ug/kg) | |
|----------------------------|--------|-----------|------|-------|---------|------------------|----------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Z-Score | Acceptance Range | Unc Value | Unc Flag |
| 1,2,4-Trichlorobenzene | NR | 1127 | | | | 152 - 2102 | | |
| 1,2-Dichlorobenzene | NR | 451 | | | | 45 - 1074 | | |
| 1,3-Dichlorobenzene | NR | 1242 | | | | 124 - 3117 | | |
| 2,4,5-Trichlorophenol | NR | 3505 | | | | 736 - 6275 | | |
| 2,4,6-Trichlorophenol | NR | 1736 | | | | 226 - 3245 | | |
| 2,4-Dichlorophenol | NR | 2570 | | | | 452 - 4689 | | |
| 2,4-Dinitrophenol | NR | 2158 | | | | 216 - 5828 | | |
| 2,4-Dinitrotoluene | NR | 1924 | | | | 192 - 3658 | | |
| 2-Methylphenol | NR | 383 | | | | 38 - 1105 | | |
| 2-Nitrophenol | NR | 3258 | | | | 425 - 6092 | | |
| 3-Methyl & 4-Methylphenol | NR | | | | | | | |
| 4,6-Dinitro-2-methylphenol | NR | 3616 | | | | 362 - 8664 | | |
| 4-Bromophenyl-phenylether | NR | 6044 | | | | 2351 - 9737 | | |
| 4-Chloro-3-methylphenol | NR | 1677 | | | | 225 - 3130 | | |
| 4-Chlorophenyl-phenylether | NR | 4709 | | | | 1668 - 7751 | | |
| Acenaphthene | NR | 1356 | | | | 321 - 2391 | | |
| Anthracene | NR | 574 | | | | 57 - 1098 | | |
| Benzo(a)pyrene | NR | 262 | | | | 67 - 457 | | |
| Benzo(b)fluoranthene | NR | 3037 | | | | 995 - 5080 | | |
| Benzo(g,h,i)perylene | NR | 1769 | | | | 419 - 3118 | | |
| Benzo(k)fluoranthene | NR | 1360 | | | | 451 - 2270 | | |
| bis(2-chloroethoxy)methane | NR | 2849 | | | | 715 - 4982 | | |
| bis(2-chloroethyl)ether | NR | 588 | | | | 241 - 935 | | |
| Bis(2-ethylhexyl)phthalate | NR | 2909 | | | | 767 - 5051 | | |
| Butylbenzylphthalate | NR | 5851 | | | | 1635 - 10067 | | |
| Chrysene | NR | 964 | | | | 337 - 1591 | | |
| Di-n-butylphthalate | NR | 5991 | | | | 1796 - 10185 | | |
| Dibenzo(a,h)anthracene | NR | 914 | | | | 91 - 1844 | | |
| Dibenzofuran | NR | 1286 | | | | 458 - 2113 | | |
| Dimethylphthalate | NR | 6080 | | | | 2272 - 9888 | | |
| Fluoranthene | NR | 3910 | | | | 1588 - 6232 | | |
| Hexachlorobutadiene | NR | 546 | | | | 55 - 1120 | | |
| Hexachlorocyclopentadiene | NR | 1409 | | | | 141 - 3646 | | |
| Hexachloroethane | NR | 573 | | | | 57 - 1205 | | |
| Indeno(1,2,3-c,d)pyrene | NR | 940 | | | | 94 - 1846 | | |
| Isophorone | NR | 2234 | | | | 1322 - 3147 | | |
| Nitrobenzene | NR | 3587 | | | | 778 - 6396 | | |
| Phenanthrene | NR | 1368 | | | | 380 - 2357 | | |
| Phenol | NR | 3143 | | | | 442 - 5844 | | |

| Radiological | | | | | | | Units: (Bq/kg) | |
|---------------|--------|-----------|------|-------|----------|------------------|----------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Americium-241 | 86.7 | 89.8 | A | | -3.5 | 62.9 - 116.7 | 6.1 | |
| Cesium-134 | 0.48 | | A | | | | 0.87 | |
| Cesium-137 | 624.9 | 669 | A | | -6.6 | 468 - 870 | 19.3 | |
| Cobalt-57 | 542.4 | 586 | A | | -7.4 | 410 - 762 | 17.5 | |

| Radiological | | | | | | | Units: (Bq/kg) | |
|-------------------|--------|-----------|------|-------|----------|------------------|----------------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Cobalt-60 | 308.6 | 327 | A | | -5.6 | 229 - 425 | 6.0 | L |
| Iron-55 | NR | 796 | | | | 557 - 1035 | | |
| Manganese-54 | 769.4 | 796 | A | | -3.3 | 557 - 1035 | 24.3 | |
| Nickel-63 | NR | 680 | | | | 476 - 884 | | |
| Plutonium-238 | 65.2 | 63.2 | A | | 3.2 | 44.2 - 82.2 | 4.6 | |
| Plutonium-239/240 | 113.6 | 116.3 | A | | -2.3 | 81.4 - 151.2 | 7.9 | |
| Potassium-40 | 347.7 | 375 | A | | -7.3 | 263 - 488 | 28.6 | |
| Strontium-90 | 473.8 | 455 | A | | 4.1 | 319 - 592 | 24 | |
| Technetium-99 | NR | 444 | | | | 311 - 577 | | |
| Uranium-234/233 | 192.6 | 209 | A | | -7.8 | 146 - 272 | 13.5 | |
| Uranium-238 | 197.2 | 217 | A | | -9.1 | 152 - 282 | 13.8 | |
| Zinc-65 | 1184 | 1178 | A | | 0.5 | 825 - 1531 | 34.6 | L |

Radiological Reference Date: July 1, 2009

Organic Flags:

Criteria based on FoPT Tables July 1, 2007

A = Result acceptable Z-score ≤ 3.0

N = Result not acceptable Z-score > 3.0

Other Flags:

A = Result acceptable Bias $\leq 20\%$

W = Result acceptable with warning $20\% < \text{Bias} < 30\%$

N = Result not acceptable Bias $> 30\%$

L = Uncertainty potentially too low (for information purposes only)

H = Uncertainty potentially too high (for information purposes only)

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Laboratory Results For MAPEP-09-GrW21
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| Radiological | | | | | | Units: (Bq/L) | | |
|--------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha | 1.24 | 1.047 | A | | 18.4 | >0.0 - 2.094 | 0.24 | |
| Gross beta | 8.75 | 7.53 | A | | 16.2 | 3.77 - 11.30 | 0.44 | |

Radiological Reference Date: July 1, 2009

Gross Alpha Flags:

A = Result acceptable, Bias \leq +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty > 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $>$ +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

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| Radiological | | | | | | Units: (Bq/sample) | | |
|--------------|--------|-----------|------|-------|----------|--------------------|-----------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Gross alpha | 0.35 | 0.659 | A | | -46.9 | >0.0 - 1.318 | 0.047 | |
| Gross beta | 1.35 | 1.32 | A | | 2.3 | 0.66 - 1.98 | 0.14 | |

Radiological Reference Date: July 1, 2009

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Gross Beta Flags:

A = Result acceptable, Bias \leq +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias $>$ +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty ≤ 2 , i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

| Radiological | | | | | | Units: (Bq/L) | | |
|-----------------|--------|-----------|------|-------|----------|------------------|-----------|----------|
| Analyte | Result | Ref Value | Flag | Notes | Bias (%) | Acceptance Range | Unc Value | Unc Flag |
| Uranium-234/233 | 3.10 | 2.96 | A | | 4.7 | 2.07 - 3.85 | 0.22 | |
| Uranium-238 | 3.18 | 3.03 | A | | 5.0 | 2.12 - 3.94 | 0.22 | |
| Zinc-65 | 29.0 | 26.9 | A | | 7.8 | 18.8 - 35.0 | 1.0 | |

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Notes:

(17) = NOT DETECTED - reported a statistically zero result