

APPENDIX G

SUMMARY STATISTICS FOR BACKGROUND MEDIA, FORT McCLELLAN, ALABAMA

Table 4-12. Summary Statistics for Surface Soil (0 -1 BLS)
Fort McClellan, Alabama

| Run Time: 8:18:07 AM | | | | | | | | | | | | | | |
|----------------------|-----------|-------|-------------------|-------------------|-----------|----------|-------|--------|-----------|------------------------------|---------------------------------|-------------------------------------|----------------------------------|---------------------------------|
| Run Date: 7/10/98 | | Total | | Total | | Exposure | | | | | | | | |
| Exposure Unit: SS | Parameter | Units | Number of Samples | Number of Detects | Frequency | NonDects | | Dectcs | | Arithmetic Mean ^a | Standard Deviation ^a | 95% UCL of Arith. Mean ^a | Point Concentration ^c | 2x Arithmetic Mean ^a |
| Aluminum | ug/g | 70 | 70 | 100% | -- | -- | 2,400 | 39,900 | 8,153.00 | 6.095 | Lognormal | 11,187 | 11,187 | 16,306 |
| Antimony | ug/g | 69 | 47 | 68% | 0.082 | 7.1 | 0.11 | 2.6 | 0.99 | 1.3 | Lognormal | 3.4 | 2.6 | # 1.99 |
| Arsenic | ug/g | 66 | 66 | 100% | -- | -- | 0.82 | 49 | 6.86 | 8.0 | Lognormal | 13 | 13 | 13.73 |
| Barium | ug/g | 70 | 70 | 100% | -- | -- | 11 | 288 | 61.97 | 54 | Lognormal | 99 | 99 | 123.94 |
| Beryllium | ug/g | 54 | 54 | 100% | -- | -- | 0.062 | 0.87 | 0.40 | 0.22 | Lognormal | 0.61 | 0.61 | 0.80 |
| Cadmium | ug/g | 70 | 45 | 64% | 0.016 | 1.2 | 0.024 | 0.21 | 0.14 | 0.16 | Lognormal | 0.36 | 0.21 | # 0.29 |
| Calcium | ug/g | 70 | 66 | 94% | 75 | 100 | 63 | 17,900 | 861.37 | 2,265 | Lognormal | 1,942 | 1,942 | 1,723 |
| Chromium | ug/g | 70 | 70 | 100% | -- | -- | 2.0 | 134 | 18.52 | 20 | Lognormal | 31 | 31 | 37.04 |
| Cobalt | ug/g | 70 | 68 | 97% | 1.4 | 1.4 | 0.39 | 71 | 7.57 | 12 | Lognormal | 18 | 18 | 15.15 |
| Copper | ug/g | 70 | 69 | 99% | 0.50 | 0.50 | 1.3 | 24 | 6.36 | 4.4 | Lognormal | 11 | 11 | 12.71 |
| Iron | ug/g | 70 | 70 | 100% | -- | -- | 2,510 | 56,300 | 17,076.86 | 11,577 | Lognormal | 27,000 | 27,000 | 34,154 |
| Lead | ug/g | 70 | 70 | 100% | -- | -- | 2.9 | 83 | 20.02 | 15 | Lognormal | 33 | 33 | 40.05 |
| Magnesium | ug/g | 70 | 70 | 100% | -- | -- | 60 | 9,600 | 516.49 | 1,266 | Lognormal | 768 | 768 | 1,033 |
| Manganese | ug/g | 70 | 70 | 100% | -- | -- | 8.0 | 6,850 | 789.46 | 1,192 | Lognormal | 3,183 | 3,183 | 1,579 |
| Mercury | ug/g | 70 | 23 | 33% | 0.023 | 0.050 | 0.031 | 0.32 | 0.04 | 0.046 | Lognormal | 0.058 | 0.058 | 0.08 |
| Nickel | ug/g | 70 | 56 | 80% | 1.6 | 2.3 | 1.8 | 22 | 5.17 | 4.2 | Lognormal | 9.7 | 9.7 | 10.33 |
| Potassium | ug/g | 70 | 60 | 86% | 82 | 116 | 104 | 6,010 | 399.88 | 946 | Lognormal | 607 | 607 | 799.76 |
| Selenium | ug/g | 70 | 1 | 1% | 0.25 | 0.58 | 1.3 | 1.3 | 0.24 | 0.14 | Lognormal | 0.29 | 0.29 | 0.48 |
| Silver | ug/g | 70 | 42 | 60% | 0.016 | 0.80 | 0.019 | 1.9 | 0.18 | 0.34 | Lognormal | 0.70 | 0.70 | 0.36 |
| Sodium | ug/g | 70 | 66 | 94% | 39 | 39 | 76 | 563 | 317.14 | 98 | Lognormal | 562 | 562 | 634.28 |
| Thallium | ug/g | 68 | 55 | 81% | 6.6 | 6.6 | 0.015 | 34 | 1.71 | 5.9 | Lognormal | 12 | 12 | 3.43 |
| Vanadium | ug/g | 70 | 70 | 100% | -- | -- | 4.7 | 158 | 29.42 | 26 | Lognormal | 48 | 48 | 58.84 |
| Zinc | ug/g | 70 | 64 | 91% | 4.9 | 11 | 4.6 | 209 | 20.32 | 26 | Lognormal | 35 | 35 | 40.64 |

^aResults of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

^bFor the calculation of exposure point concentrations (EPCs):

If fewer than four samples are available, or the standard deviation of the data set is zero, the distribution is undetermined.

If the probability plot correlation coefficient of the untransformed data is > or = to the critical value, the distribution is normal.

In all other cases, the distribution assumed for the EPC calculation was lognormal.

^cThe exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value.

If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

-- Parameter detected in all samples.

**Table 4-13. Summary Statistics for Subsurface Soil (>1-10 feet BLS)
Fort McClellan, Alabama**

| Exposure | | | | | | | | | | | | | |
|-------------------|-------|-------------------------|-------------------------|------------------------|------------|-------|---------|--------|------------------------------|---------------------------------|-------------------------------------|----------------------------------|---------------------------------|
| Exposure Unit: SD | Units | Total Number of Samples | Total Number of Detects | Frequency of Detection | NonDetects | | Detects | | Arithmetic Mean ^a | Standard Deviation ^a | 95% UCL of Arith. Mean ^b | Point Concentration ^c | 2x Arithmetic Mean ^b |
| Aluminum | ug/g | 64 | 64 | 100% | -- | -- | 1,690 | 24,600 | 6,795.47 | 3.552 | Lognormal | 9,068 | 9,068 |
| Antimony | ug/g | 63 | 46 | 73% | 0.079 | 7.1 | 0.082 | 0.99 | 0.65 | 0.98 | Lognormal | 1.8 | 0.99 |
| Arsenic | ug/g | 64 | 61 | 95% | 0.25 | 0.45 | 0.77 | 38 | 9.15 | 9.7 | Lognormal | 36 | 36 |
| Barium | ug/g | 64 | 64 | 100% | -- | -- | 4.1 | 4,500 | 116.81 | 562 | Lognormal | 161 | 161 |
| Beryllium | ug/g | 59 | 57 | 97% | 0.051 | 0.053 | 0.041 | 2.0 | 0.43 | 0.43 | Lognormal | 0.94 | 0.94 |
| Cadmium | ug/g | 64 | 35 | 55% | 0.015 | 1.2 | 0.020 | 1.3 | 0.11 | 0.21 | Lognormal | 0.30 | 0.30 |
| Calcium | ug/g | 64 | 44 | 69% | 57 | 200 | 67 | 3,650 | 318.58 | 606 | Lognormal | 772 | 772 |
| Chromium | ug/g | 64 | 64 | 100% | -- | -- | 5.5 | 55 | 19.13 | 11 | Lognormal | 27 | 27 |
| Cobalt | ug/g | 64 | 60 | 94% | 0.23 | 1.4 | 0.28 | 96 | 8.77 | 16 | Lognormal | 34 | 34 |
| Copper | ug/g | 64 | 64 | 100% | -- | -- | 1.3 | 61 | 9.72 | 9.1 | Lognormal | 16 | 16 |
| Iron | ug/g | 64 | 64 | 100% | -- | -- | 4,840 | 48,000 | 22,408.44 | 10,436 | Normal | 24,586 | 24,586 |
| Lead | ug/g | 64 | 64 | 100% | -- | -- | 0.96 | 500 | 19.27 | 61 | Lognormal | 27 | 27 |
| Magnesium | ug/g | 64 | 60 | 94% | 100 | 200 | 35 | 5,940 | 383.12 | 885 | Lognormal | 638 | 638 |
| Manganese | ug/g | 64 | 63 | 98% | 4.1 | 4.1 | 7.3 | 19,000 | 677.67 | 2,417 | Lognormal | 3,864 | 3,864 |
| Mercury | ug/g | 64 | 31 | 48% | 0.022 | 0.050 | 0.022 | 0.12 | 0.03 | 0.025 | Lognormal | 0.053 | 0.053 |
| Nickel | ug/g | 64 | 51 | 80% | 1.6 | 2.2 | 2.2 | 38 | 6.45 | 7.8 | Lognormal | 13 | 13 |
| Potassium | ug/g | 64 | 52 | 81% | 75 | 110 | 98 | 6,150 | 355.37 | 774 | Lognormal | 660 | 660 |
| Selenium | ug/g | 64 | 1 | 2% | 0.25 | 0.58 | 0.55 | 0.55 | 0.24 | 0.060 | Lognormal | 0.27 | 0.27 |
| Silver | ug/g | 64 | 40 | 63% | 0.016 | 1.2 | 0.021 | 0.66 | 0.12 | 0.15 | Lognormal | 0.47 | 0.47 |
| Sodium | ug/g | 64 | 63 | 98% | 39 | 39 | 203 | 643 | 351.05 | 118 | Lognormal | 471 | 471 |
| Thallium | ug/g | 63 | 55 | 87% | 0.0090 | 6.6 | 0.0090 | 24 | 0.70 | 3.0 | Lognormal | 2.0 | 2.0 |
| Vanadium | ug/g | 64 | 64 | 100% | -- | -- | 8.7 | 99 | 32.45 | 20 | Lognormal | 47 | 47 |
| Zinc | ug/g | 64 | 50 | 78% | 4.0 | 8.0 | 5.6 | 89 | 17.43 | 17 | Lognormal | 39 | 39 |

^aResults of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

^bFor the calculation of exposure point concentrations (EPCs):

If fewer than four samples are available, or the standard deviation of the data set is zero, the distribution is undetermined.

If the probability plot correlation coefficient of the untransformed data is > or = to the critical value, the distribution is normal.

In all other cases, the distribution assumed for the EPC calculation was lognormal.

^cThe exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value.

If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

-- Parameter detected in all samples.

**Table 4-9. Summary Statistics for Background Groundwater
Fort McClellan, Alabama**

| Run Time: 4:50:27 PM Run Date: 7/9/98 | | | | | | | | | | | | | | | |
|--|-------|----------------------|--------------------|---------------------------|----------|---------|---------|---------|------------|---------------------------------|------------------------------------|---------------------------|-------------------------------------|------------------------------------|--|
| Exposure Unit: WD Parameter | Units | Total | | Frequency of Detection | NonDects | | | Dects | | Arithmetic Mean ^a | Standard Deviation ^a | Distribution ^b | Exposure | | |
| | | Number of Samples | Number of Dects | | Min CRL | Max CRL | Minimum | Maximum | | | | | Point Concentration ^c | 2x Arithmetic Mean ^a | |
| Alkalinity-phenolphthalein | µg/L | 33 | 2 | 6% | 5,000 | 5,000 | 104,000 | 132,000 | 9,500.00 | 28,204 | Lognormal | 9,763 | 9,763 | 19,000 | |
| Aluminum | µg/L | 57 | 34 | 60% | 50 | 141 | 59 | 9,600 | 1,167.66 | 2,030 | Lognormal | 19,988 | 9,600 | # 2,335 | |
| Antimony | µg/L | 57 | 2 | 4% | 0.60 | 10.0 | 0.70 | 0.80 | 1.60 | 1.7 | Lognormal | 4.4 | 0.80 | # 3.191 | |
| Arsenic | µg/L | 57 | 10 | 18% | 1.1 | 2.5 | 1.5 | 224 | 8.88 | 41 | Lognormal | 6.1 | 6.1 | 17.764 | |
| Barium | µg/L | 57 | 53 | 93% | 6.5 | 18 | 5.5 | 401 | 63.73 | 88 | Lognormal | 144 | 144 | 127.458 | |
| Beryllium | µg/L | 57 | 15 | 26% | 0.20 | 5.0 | 0.20 | 2.4 | 0.62 | 0.74 | Lognormal | 1.8 | 1.8 | 1.247 | |
| Bicarbonate | µg/L | 33 | 22 | 67% | 5,000 | 172,000 | 9,000 | 392,000 | 100,818.18 | 93,836 | Lognormal | 831,264 | 392,000 | # 201,636 | |
| Bromide | µg/L | 33 | 4 | 12% | 200 | 200 | 278 | 715 | 138.03 | 121 | Lognormal | 171 | 171 | 276.06 | |
| Cadmium | µg/L | 57 | 22 | 39% | 0.100 | 5.0 | 0.100 | 5.3 | 1.26 | 1.2 | Lognormal | 10 | 5.3 | # 2.51 | |
| Calcium | µg/L | 57 | 48 | 84% | 231 | 33,900 | 217 | 452,000 | 28,246.44 | 60,264 | Lognormal | 580,060 | 452,000 | # 56,493 | |
| Chloride | µg/L | 33 | 24 | 73% | 923 | 2,640 | 1,080 | 11,000 | 2,446.06 | 2,363 | Lognormal | 4,347 | 4,347 | 4,892 | |
| Cobalt | µg/L | 57 | 3 | 5% | 20 | 25 | 20 | 25 | 11.68 | 2.8 | Lognormal | 13 | 13 | 23.36 | |
| Copper | µg/L | 57 | 10 | 18% | 5.0 | 19 | 5.3 | 235 | 12.74 | 32 | Lognormal | 21 | 21 | 25.48 | |
| Fluoride | µg/L | 33 | 6 | 18% | 200 | 200 | 202 | 646 | 146.24 | 124 | Lognormal | 185 | 185 | 292.48 | |
| Iron | µg/L | 57 | 44 | 77% | 45 | 78 | 2.5 | 25,800 | 3,520.25 | 5,364 | Lognormal | 590,286 | 25,800 | # 7,040 | |
| Lead | µg/L | 57 | 25 | 44% | 0.60 | 4.5 | 0.60 | 27 | 4.00 | 6.1 | Lognormal | 13 | 13 | 7.998 | |
| Magnesium | µg/L | 57 | 47 | 82% | 100 | 18,400 | 176 | 149,000 | 10,640.88 | 19,972 | Lognormal | 146,372 | 146,372 | 21,282 | |
| Manganese | µg/L | 57 | 42 | 74% | 5.0 | 9.7 | 9.8 | 5,820 | 290.25 | 809 | Lognormal | 7,221 | 5,820 | # 580.5 | |
| Nitrate,Nitrite | µg/L | 33 | 4 | 12% | 10.0 | 1,110 | 430 | 771 | 141.26 | 219 | Lognormal | 1,192 | 771 | # 282.5 | |
| Potassium | µg/L | 57 | 43 | 75% | 270 | 1,240 | 1.0 | 68,500 | 3,597.54 | 9,508 | Lognormal | 18,602 | 18,602 | 7,195 | |
| Silver | µg/L | 57 | 1 | 2% | 0.100 | 10.0 | 0.40 | 0.40 | 2.00 | 2.4 | Lognormal | 141 | 0.40 | # 4.00 | |
| Sodium | µg/L | 57 | 52 | 91% | 892 | 1,180 | 555 | 64,700 | 7,423.18 | 11,765 | Lognormal | 23,173 | 23,173 | 14,846 | |
| Sulfate | µg/L | 33 | 25 | 76% | 1000 | 3,680 | 1,650 | 1.4E+06 | 51,628.33 | 242,827 | Lognormal | 88,195 | 88,195 | 103,257 | |
| Thallium | µg/L | 54 | 7 | 13% | 0.100 | 10.0 | 0.100 | 5.3 | 0.73 | 1.2 | Lognormal | 5.3 | 5.3 | 1.455 | |
| Total Alkalinity | µg/L | 33 | 22 | 67% | 5,000 | 172,000 | 9,000 | 392,000 | 103,424.24 | 93,707 | Lognormal | 880,230 | 392,000 | # 206,848 | |
| Total Phosphorous | µg/L | 33 | 21 | 64% | 10.0 | 10.0 | 10.0 | 282 | 44.30 | 70 | Lognormal | 140 | 140 | 88,594 | |
| Vanadium | µg/L | 57 | 2 | 4% | 10.0 | 28 | 11 | 11 | 8.49 | 4.3 | Lognormal | 11 | 11 | 16,975 | |
| Zinc | µg/L | 57 | 25 | 44% | 18 | 30 | 22 | 1,160 | 109.98 | 249 | Lognormal | 273 | 273 | 219.97 | |

^aResults of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation

of the arithmetic mean, standard deviation, and 95% UCL.

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If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

-- Parameter detected in all samples.