ATTACHMENT 2-1 SOIL PROUCL RESULTS

|  | UCL Statist                  | ics for Data      | Sets with Non-Detects                                       |    |
|--|------------------------------|-------------------|---|----|
|  |                              |                   |   |    |
| User Selected Options                    |                              |                   |   |    |
|  | ProUCL 5.2 11/30/2023 6      |                   |   |    |
|  | ProUCL_Export_SO_Avg         | <u>j_20231012</u> | 2_a.xls   |    |
|  | OFF                          |                   |   |    |
|  | 95%                          |                   |   |    |
| Number of Bootstrap Operations           | 10000                        |                   |   |    |
| C (soil   1,1,1,2-tetrachloroethane   63 | 20.20.6)                     |                   |   |    |
|  | -0-20-0)                     |                   |   |    |
|  |                              | General           | Statistics  |    |
| Total                                    | Number of Observations       | 11                | Number of Distinct Observations                             | 8  |
|  | Number of Detects            | 0                 | Number of Non-Detects                                       | 11 |
| Nu                                       | mber of Distinct Detects     | 0                 | Number of Distinct Non-Detects                              | 8  |
|  |                              |                   |   |    |
| Warning: All obse                        | vations are Non-Detects      | (NDs), ther       | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample                     | mean, UCLs, UPLs, and        | other statis      | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may dec                 | ide to use alternative site  | e specific va     | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                              |                   |   |    |
| The data                                 | set for variable C (soil   1 | ,1,1,2-tetra      | chloroethane   630-20-6) was not processed!                 |    |
|  |                              |                   |   |    |
|  |                              |                   |   |    |
| C (soil   1,1,1-trichloroethane   71-55- | 6)                           |                   |   |    |
|  |                              |                   |   |    |
|  |                              | General           | Statistics  |    |
| Total                                    | Number of Observations       | 11                | Number of Distinct Observations                             | 8  |
|  | Number of Detects            | 0                 | Number of Non-Detects                                       | 11 |
| Nu                                       | mber of Distinct Detects     | 0                 | Number of Distinct Non-Detects                              | 8  |
|  |                              |                   |   |    |
| •  |                              | · · · ·           | efore all statistics and estimates should also be NDs!      |    |
|  |                              |                   | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may dec                 | ide to use alternative site  | e specific va     | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                              |                   |   |    |
| l he da                                  | ata set for variable C (soil | 1,1,1-tricf       | nloroethane   71-55-6) was not processed!                   |    |
|  |                              |                   |   |    |
| C (soil   1,1,2,2-tetrachloroethane   79 | 24 5)                        |                   |   |    |
|  |                              |                   |   |    |
|  |                              | General           | Statistics  |    |
| Total                                    | Number of Observations       | 11                | Number of Distinct Observations                             | 10 |
|  | Number of Detects            | 0                 | Number of Non-Detects                                       | 11 |
| Nu                                       | mber of Distinct Detects     | 0                 | Number of Distinct Non-Detects                              | 10 |
|  |                              |                   |   |    |
| Warning: All obse                        | vations are Non-Detects      | (NDs), ther       | efore all statistics and estimates should also be NDs!      |    |
|  |                              |                   | tics are also NDs lying below the largest detection limit!  |    |
|  |                              |                   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                              | -                 |   |    |
| The data                                 | set for variable C (soil     | 1,1,2,2-tetra     | achloroethane   79-34-5) was not processed!                 |    |

| bil   1,1,2-trichloro-1,2,2-trifluoroethane   76-13-1) |                 |   |     |
|--|-----------------|---|-----|
|  | General         | Statistics  |     |
| Total Number of Observations                           | 11              | Number of Distinct Observations                             | 10  |
| Number of Detects                                      | 0               | Number of Non-Detects                                       | 11  |
| Number of Distinct Detects                             | 0               | Number of Distinct Non-Detects                              | 10  |
| Warning: All observations are Non Detects              | (NDc) that      | efore all statistics and estimates should also be NDs!      |     |
| -  | •               | tics are also NDs lying below the largest detection limit!  |     |
| · · · · · · · · · · · · · · · · · · ·                  |                 | lues to estimate environmental parameters (e.g., EPC, BTV). |     |
|  |                 |   |     |
| The data set for variable C (soil   1,1,2              | -trichloro-1,   | 2,2-trifluoroethane   76-13-1) was not processed!           |     |
| oil   1,1,2-trichloroethane   79-00-5)                 |                 |   |     |
|  |                 |   |     |
|  |                 | Statistics  | 0   |
| Total Number of Observations<br>Number of Detects      | 11<br>0         | Number of Distinct Observations<br>Number of Non-Detects    | 8   |
| Number of Detects                                      | 0               | Number of Non-Detects Number of Distinct Non-Detects        | 8   |
|  | 0               |   | - 0 |
| Warning: All observations are Non-Detects              | (NDe) ther      | efore all statistics and estimates should also be NDs!      |     |
| The data set for variable C (soil                      | 1,1,2-trich     | loroethane   79-00-5) was not processed!                    |     |
| oil   1,1-dichloroethane   75-34-3)                    |                 |   |     |
|  | Conorol         | Statiation  |     |
| Total Number of Observations                           | 11              | Statistics Number of Distinct Observations                  | 8   |
| Number of Detects                                      | 0               | Number of Non-Detects                                       | 11  |
| Number of Distinct Detects                             | 0               | Number of Distinct Non-Detects                              | 8   |
|  |                 |   |     |
| Warning: All observations are Non-Detects              | (NDs), ther     | efore all statistics and estimates should also be NDs!      |     |
| Specifically, sample mean, UCLs, UPLs, and             | other statis    | ics are also NDs lying below the largest detection limit!   |     |
| The Project Team may decide to use alternative site    | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |     |
| The data set for variable C (so                        | il I 1 1 dich   | oroethane   75-34-3) was not processed!                     |     |
|  | ir [ 1, 1-dichi |   |     |
| oil   1,1-dichloroethene   75-35-4)                    |                 |   |     |
|  | General         | Statistics  |     |
| Total Number of Observations                           | 11              | Number of Distinct Observations                             | 11  |
|  | 0               | Number of Non-Detects                                       |     |
| Number of Detects                                      |                 |   | 1   |

| Number of Distinct Detects                | 0          | Number of Distinct Non-Detects  | 11 |
|---|------------|---|----|
| Warning: All abaan/ations are Non Dataste |            | profere all statistics and estimates should also be NDal  |    |
| -   |            | erefore all statistics and estimates should also be NDs!  |    |
|   |            | tistics are also NDs lying below the largest detection limit!   |    |
|   |            | values to estimate environmental parameters (e.g., EPC, BTV).<br>chloroethene   75-35-4) was not processed! |    |
| soil   1,1-dichloropropene   563-58-6)    |            |   |    |
|   | Gener      | ral Statistics  |    |
| Total Number of Observations              | 11         | Number of Distinct Observations   | 8  |
| Number of Detects                         | 0          | Number of Non-Detects   | 11 |
| Number of Distinct Detects                | 0          | Number of Distinct Non-Detects  | 8  |
| Warning: All observations are Non-Detects | (NDs), th  | erefore all statistics and estimates should also be NDs!  |    |
| -   |            | tistics are also NDs lying below the largest detection limit!   |    |
|   |            | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |            |   |    |
| The data set for variable C (soil         | 1,1-dict   | nloropropene   563-58-6) was not processed!   |    |
|   |            |   |    |
|   |            |   |    |
| soil   1,2,3-trichlorobenzene   87-61-6)  |            |   |    |
|   |            |   |    |
|   | Gener      | ral Statistics  |    |
| Total Number of Observations              | 11         | Number of Distinct Observations   | 8  |
| Number of Detects                         | 0          | Number of Non-Detects   | 11 |
| Number of Distinct Detects                | 0          | Number of Distinct Non-Detects  | 8  |
| Warning: All observations are Non-Detects | (NDs), th  | erefore all statistics and estimates should also be NDs!  |    |
| -   | · · · · ·  | tistics are also NDs lying below the largest detection limit!   |    |
|   |            | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
| · ·                                       | <u> </u>   |   |    |
| The data set for variable C (soil         | 1,2,3-trie | chlorobenzene   87-61-6) was not processed!   |    |
| · · · · · · · · · · · · · · · · · · ·     |            |   |    |
|   |            |   |    |
| soil   1,2,3-trichloropropane   96-18-4)  |            |   |    |
|   |            |   |    |
|   | Gener      | ral Statistics  |    |
| Total Number of Observations              | 11         | Number of Distinct Observations   | 8  |
| Number of Detects                         | 0          | Number of Non-Detects   | 11 |
| Number of Distinct Detects                | 0          | Number of Distinct Non-Detects  | 8  |
| Warning: All observations are Non-Detects | (NDs). th  | erefore all statistics and estimates should also be NDs!  |    |
| -   |            | tistics are also NDs lying below the largest detection limit!   |    |
|   |            | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |            |   |    |
| The data set for variable C (soil         | 1,2 3-tri  | chloropropane   96-18-4) was not processed!   |    |
|   | 1.1,0-01   | energe spans los is il nuo nor prococoda  |    |

|   | General Statistics  |   |   |
|---|---|---|---|
| Total Number of Observations  | 20  | Number of Distinct Observations   | 15  |
| Number of Detects   | 0   | Number of Non-Detects   | 20  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 15  |
| Warning: All observations are Non-Detects   |   |   |   |
| Specifically, sample mean, UCLs, UPLs, and o  |   |   |   |
| The Project Team may decide to use alternative site   | specific values to estir  | nate environmental parameters (e.g., EPC, BTV).   |   |
| The data set for variable C (soil   1,  | 2,4,5-tetrachlorobenze  | ne   95-94-3) was not processed!  |   |
| soil   1,2,4-trichlorobenzene   120-82-1)   |   |   |   |
|   | General Statistics  |   |   |
| Total Number of Observations  | 20  | Number of Distinct Observations   | 18  |
| Number of Detects   | 0   | Number of Non-Detects   | 20  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 18  |
|   | 0   |   |   |
|   |   | tistics and estimates should also be NDsI   |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site  | (NDs), therefore all sta<br>other statistics are also   | NDs lying below the largest detection limit!  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).   |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site  | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).   |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).   |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).   | 8   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estir<br>1,2,4-trichlorobenzene<br>General Statistics   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!   |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene<br>General Statistics<br>11   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations  | 8   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects  | (NDs), therefore all sta<br>other statistics are also<br>specific values to estir<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2  | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects   | 896   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 8 9 6   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96   | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect   | 8<br>9<br>6<br>6.4000E                                    |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | (NDs), therefore all sta<br>pther statistics are also<br>specific values to estim<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96<br>4.4                                      | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 8<br>9<br>6<br>6.4000E<br>0.001                           |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96<br>4.4<br>5.917                             | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Percent Non-Detects   | 8<br>9<br>6<br>6.4000E<br>0.001<br>81.82                  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | (NDs), therefore all sta<br>pther statistics are also<br>specific values to estimation<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96<br>4.4<br>5.917<br>2.68                | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>[120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects  | 8<br>9<br>6.4000E<br>0.001<br>81.82<br>2.43               |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | (NDs), therefore all sta<br>other statistics are also<br>specific values to estin<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96<br>4.4<br>5.917<br>2.68<br>2.68             | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects                             | 8<br>9<br>6.4000E<br>0.001<br>81.8<br>2.43<br>0.90<br>N/A |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>Soil   1,2,4-trimethylbenzene   95-63-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects | (NDs), therefore all sta<br>pther statistics are also<br>specific values to estimation<br>1,2,4-trichlorobenzene<br>General Statistics<br>11<br>2<br>2<br>0.96<br>4.4<br>5.917<br>2.68<br>2.68<br>N/A | NDs lying below the largest detection limit!<br>nate environmental parameters (e.g., EPC, BTV).<br>  120-82-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects | 8<br>9<br>6.4000E<br>0.001<br>81.8<br>2.43<br>0.90        |

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| Not Enough Data to Perfor   | rm GOF Test   |         |
|---|---|---------|
| Kaplan-Meier (KM) Statistics using Normal Critical Va   | alues and other Nonnarametric LICI s  |         |
| KM Mean 0.488   | KM Standard Error of Mean   | 0.54    |
| 90KM SD 1.267   | 95% KM (BCA) UCL  | N/A     |
| 95% KM (t) UCL 1.467  | 95% KM (Percentile Bootstrap) UCL   | N/A     |
| 95% KM (t) UCL 1.377  | 95% KM Bootstrap t UCL  | N/A     |
|   | 95% KM Chebyshev UCL  | 2.843   |
|   | -   | 5.864   |
| 97.5% KM Chebyshev UCL 3.862  | 99% KM Chebyshev UCL  | 5.804   |
| Gamma GOF Tests on Detected   | Observations Only   |         |
| Not Enough Data to Perfor   | rm GOF Test   |         |
| Gamma Statistics on Detect  | ted Data Only   |         |
| k hat (MLE) 2.035   | k star (bias corrected MLE)   | N/A     |
| Theta hat (MLE) 1.317   | Theta star (bias corrected MLE)   | N/A     |
| nu hat (MLE) 8.139  | nu star (bias corrected)  | N/A     |
| Mean (detects) 2.68   |   |         |
| Estimates of Gamma Parameters   | using KM Estimates  |         |
| Mean (KM) 0.488   | SD (KM)   | 1.267   |
| Variance (KM) 1.606   | SE of Mean (KM)   | 0.54    |
| k hat (KM) 0.148  | k star (KM)   | 0.168   |
| nu hat (KM) 3.26  | nu star (KM)  | 3.704   |
| theta hat (KM) 3.292  | theta star (KM)   | 2.897   |
| 80% gamma percentile (KM) 0.579   | 90% gamma percentile (KM)   | 1.465   |
| 95% gamma percentile (KM) 2.621   | 99% gamma percentile (KM)   | 5.9     |
|   |   |         |
| Gamma Kaplan-Meier (KM  | · · · · · · · · · · · · · · · · · · ·   | 0.0070  |
|   | Adjusted Level of Significance ( $\beta$ )  | 0.0278  |
| Approximate Chi Square Value (3.70, α) 0.608  | Adjusted Chi Square Value (3.70, $\beta$ )  | 0.44    |
| 95% KM Approximate Gamma UCL 2.97   | 95% KM Adjusted Gamma UCL   | 4.106   |
| Lognormal GOF Test on Detected  | Observations Only   |         |
| Not Enough Data to Perfor   | rm GOF Test   |         |
| Lognormal ROS Statistics Using In   | nputed Non-Detects  |         |
| Mean in Original Scale 0.493  | Mean in Log Scale   | -4.518  |
| SD in Original Scale 1.327  | SD in Log Scale   | 2.869   |
|   | 95% Percentile Bootstrap UCL  | 1.208   |
|   |   | 79.41   |
| 95% H-UCL (Log ROS) 451.1   |   |         |
| Statistics using KM estimates on Logged Data and  | d Assuming Lognormal Distribution   |         |
| KM Mean (logged) -5.886   | KM Geo Mean   | 0.00278 |
|   |   | 7.798   |
|   |   | 843.1   |
| KM SD (logged) 3.131  | 95% Critical H Value (KM-Log)   | 7.798   |
| KM Standard Error of Mean (logged) 1.335  |   |         |
| 95% KM Approximate Gamma UCL       2.97         Lognormal GOF Test on Detected         Not Enough Data to Perfor         Lognormal ROS Statistics Using In         Mean in Original Scale       0.493         SD in Original Scale       1.327         95% t UCL (assumes normality of ROS data)       1.218         95% BCA Bootstrap UCL       1.691         95% H-UCL (Log ROS)       451.1         KM Mean (logged)         KM Mean (logged)         KM SD (logged)         KM SD (logged)         KM SD (logged) | 95% KM Adjusted Gamma UCL<br>d Observations Only<br>rm GOF Test<br>mputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL<br>05% Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log) |         |

|  | ם <i>ניו</i> וח        | itatistics  |        |
|--|------------------------|---|--------|
| DL/2 Normal  |                        | DL/2 Log-Transformed  |        |
|  | 0.488                  |   | -5.717 |
| Mean in Original Scale                                 |                        | Mean in Log Scale   | -      |
| SD in Original Scale                                   |                        | SD in Log Scale   | 3.215  |
| 95% t UCL (Assumes normality)                          |                        | 95% H-Stat UCL  | 1963   |
| DL/2 is not a recommended me                           | ethod, provid          | led for comparisons and historical reasons                            |        |
| Nonparame  | tric Distribu          | tion Free UCL Statistics  |        |
| -  |                        |   |        |
|  |                        |   |        |
|  | Suggested              | UCL to Use  |        |
| 95% KM (t) UCL   | 1.467                  |   |        |
|  |                        |   |        |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are p            | rovided to help the user to select the most appropriate 95% UCI       | L.     |
| Recommendations are based upon data size               | , data distrit         | oution, and skewness using results from simulation studies.           |        |
| However, simulations results will not cover all Real W | /orld data se          | ets; for additional insight the user may want to consult a statistici | ian.   |
|  |                        |   |        |
| C (soil   1,2-dibromo-3-chloropropane   96-12-8)       |                        |   |        |
|  |                        |   |        |
|  | General                | Statistics  |        |
| Total Number of Observations                           | 11                     | Number of Distinct Observations                                       | 8      |
| Number of Detects                                      | 0                      | Number of Non-Detects   | 11     |
| Number of Distinct Detects                             | 0                      | Number of Distinct Non-Detects  | 8      |
|  |                        |   |        |
| Warning: All observations are Non-Detects              | (NDs), ther            | efore all statistics and estimates should also be NDs!                |        |
| Specifically, sample mean, UCLs, UPLs, and             | other statis           | tics are also NDs lying below the largest detection limit!            |        |
| The Project Team may decide to use alternative site    | e specific va          | alues to estimate environmental parameters (e.g., EPC, BTV).          |        |
| · ·  | •                      |   |        |
| The data set for variable C (soil   1.                 | 2-dibromo-3            | B-chloropropane   96-12-8) was not processed!                         |        |
|  |                        |   |        |
|  |                        |   |        |
| C (soil   1,2-dibromoethane   106-93-4)                |                        |   |        |
|  |                        |   |        |
|  | Canaral                | Statistics  |        |
| Tatal Number of Observations                           |                        |   | 10     |
| Total Number of Observations                           |                        | Number of Distinct Observations                                       | -      |
| Number of Detects                                      |                        | Number of Non-Detects   | 11     |
| Number of Distinct Detects                             | 0                      | Number of Distinct Non-Detects  | 10     |
| Warning: All observations are Non-Detects              | (NDs), ther            | efore all statistics and estimates should also be NDs!                |        |
|  |                        | tics are also NDs lying below the largest detection limit!            |        |
|  |                        | alues to estimate environmental parameters (e.g., EPC, BTV).          |        |
| The Project realiting decide to use alternative sit    | e specific ve          | ndes to estimate environmental parameters (e.g., Er O, DTV).          |        |
| The data set for variable C (se                        | il I 1 2 dibro         | moethane   106-93-4) was not processed!                               |        |
|  | n   1, <b>∠-</b> uibr0 | 1100011010   100-20-7) was 1101 p100055001                            |        |
|  |                        |   |        |
|  |                        |   |        |
| C (soil   1,2-dichlorobenzene   95-50-1)               |                        |   |        |
|  |                        |   |        |
|  | General                | Statistics  |        |

| Total Number of Observations                          | 20              | Number of Distinct Observations                             | 18 |
|---|-----------------|---|----|
| Number of Detects                                     | 0               | Number of Non-Detects                                       | 20 |
| Number of Distinct Detects                            | 0               | Number of Distinct Non-Detects                              | 18 |
|   |                 |   |    |
| Warning: All observations are Non-Detects             | (NDs), ther     | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and            | other statis    | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative site   | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |                 |   |    |
| The data set for variable C (soi                      | I   1,2-dichlo  | probenzene   95-50-1) was not processed!                    |    |
|   |                 |   |    |
|   |                 |   |    |
| C (soil   1,2-dichloroethane   107-06-2)              |                 |   |    |
|   |                 |   |    |
|   | General         | Statistics  |    |
| Total Number of Observations                          | 11              | Number of Distinct Observations                             | 8  |
| Number of Detects                                     | 0               | Number of Non-Detects                                       | 11 |
| Number of Distinct Detects                            | 0               | Number of Distinct Non-Detects                              | 8  |
|   | 0               |   | 0  |
| Warning: All observations are Non-Detects             | (NDe) ther      | efore all statistics and estimates should also be NDs!      |    |
| _   |                 | tics are also NDs lying below the largest detection limit!  |    |
|   |                 |   |    |
|   | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |                 |   |    |
| I he data set for variable C (so                      | il   1,2-dichie | proethane   107-06-2) was not processed!                    |    |
|   |                 |   |    |
|   |                 |   |    |
| C (soil   1,2-dichloropropane   78-87-5)              |                 |   |    |
|   |                 |   |    |
|   |                 | Statistics  |    |
| Total Number of Observations                          | 11              | Number of Distinct Observations                             | 8  |
| Number of Detects                                     | 0               | Number of Non-Detects                                       | 11 |
| Number of Distinct Detects                            | 0               | Number of Distinct Non-Detects                              | 8  |
|   |                 |   |    |
| Warning: All observations are Non-Detects             | (NDs), ther     | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and            | other statis    | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative site   | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |                 |   |    |
| The data set for variable C (so                       | il   1,2-dichlo | propropane   78-87-5) was not processed!                    |    |
|   |                 |   |    |
|   |                 |   |    |
| C (soil   1,2-diphenylhydrazine   122-66-7)           |                 |   |    |
|   |                 |   |    |
|   | General         | Statistics  |    |
| Total Number of Observations                          | 20              | Number of Distinct Observations                             | 15 |
| Number of Detects                                     | 0               | Number of Non-Detects                                       | 20 |
| Number of Distinct Detects                            | 0               | Number of Distinct Non-Detects                              | 15 |
|   | -               |   | -  |
| Warning: All observations are Non-Detects             | (NDs) ther      | efore all statistics and estimates should also be NDs!      |    |
|   |                 | tics are also NDs lying below the largest detection limit!  |    |
|   |                 |   |    |
| i ne Project i eam may decide to use alternative site | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |

## The data set for variable C (soil | 1,2-diphenylhydrazine | 122-66-7) was not processed!

C (soil | 1,3,5-trichlorobenzene | 108-70-3)

|  | General       | Statistics  |         |
|--|---------------|---|---------|
| Total Number of Observations               | 11            | Number of Distinct Observations                                       | 8       |
| Number of Detects                          | 0             | Number of Non-Detects   | 11      |
| Number of Distinct Detects                 | 0             | Number of Distinct Non-Detects  | 8       |
| Warning: All observations are Non-Detects  | (NDs) ther    | efore all statistics and estimates should also be NDs!                |         |
| -  | · · · · ·     | tics are also NDs lying below the largest detection limit!            |         |
|  |               | lues to estimate environmental parameters (e.g., EPC, BTV).           |         |
|  |               |   |         |
| The data set for variable C (soil          | 1,3,5-trichlo | probenzene   108-70-3) was not processed!                             |         |
| (soil   1,3,5-trimethylbenzene   108-67-8) |               |   |         |
|  | General       | Statistics  |         |
| Total Number of Observations               | 11            | Number of Distinct Observations                                       | 8       |
| Number of Detects                          | 2             | Number of Non-Detects   | 9       |
| Number of Distinct Detects                 | 2             | Number of Distinct Non-Detects  | 6       |
| Minimum Detect                             | 0.31          | Minimum Non-Detect  | 4.3333E |
| Maximum Detect                             | 1.3           | Maximum Non-Detect  | 0.0019  |
| Variance Detects                           | 0.49          | Percent Non-Detects   | 81.829  |
| Mean Detects                               | 0.805         | SD Detects  | 0.7     |
| Median Detects                             | 0.805         | CV Detects  | 0.87    |
| Skewness Detects                           | N/A           | Kurtosis Detects  | N/A     |
| Mean of Logged Detects                     | -0.454        | SD of Logged Detects  | 1.014   |
| •  |               | only 2 Detected Values.<br>Iful or reliable statistics and estimates. |         |
|  |               | t on Detects Only   |         |
| Not End                                    | ough Data to  | Perform GOF Test  |         |
| Kaplan-Meier (KM) Statistics using         | g Normal Cr   | itical Values and other Nonparametric UCLs                            |         |
| KM Mean                                    | 0.147         | KM Standard Error of Mean   | 0.16    |
| 90KM SD                                    | 0.375         | 95% KM (BCA) UCL  | N/A     |
| 95% KM (t) UCL                             | 0.437         | 95% KM (Percentile Bootstrap) UCL                                     | N/A     |
| 95% KM (z) UCL                             | 0.41          | 95% KM Bootstrap t UCL  | N/A     |
| 90% KM Chebyshev UCL                       | 0.627         | 95% KM Chebyshev UCL  | 0.844   |
|  | 1.146         | 99% KM Chebyshev UCL  | 1.739   |
| 97.5% KM Chebyshev UCL                     |               |   |         |
| -  | Tests on De   | stected Observations Only   |         |

|               |  | N/A   |
|---------------|--|---|
|               |  | N/A   |
|               | nu star (bias corrected)   | N/A   |
| 0.805         |  |   |
|               |  |   |
|               |  | 0.375   |
| 0.141         | SE of Mean (KM)  | 0.16  |
|               | k star (KM)  | 0.172   |
| 3.362         | nu star (KM)   | 3.779   |
| 0.96          | theta star (KM)  | 0.854   |
| 0.177         | 90% gamma percentile (KM)  | 0.441   |
| 0.785         | 99% gamma percentile (KM)  | 1.756   |
| a Kaplan-M    | eier (KM) Statistics   |   |
|               | Adjusted Level of Significance (β)   | 0.0278  |
| 0.636         | Adjusted Chi Square Value (3.78, β)  | 0.462   |
| 0.871         | 95% KM Adjusted Gamma UCL  | 1.2   |
| F Test on D   | etected Observations Only  |   |
|               | -  |   |
|               |  |   |
| Statistics I  | Jsing Imputed Non-Detects  |   |
| 0.149         | Mean in Log Scale  | -5.387  |
| 0.393         | SD in Log Scale  | 2.702   |
| 0.363         | 95% Percentile Bootstrap UCL   | 0.358   |
| 0.502         | 95% Bootstrap t UCL  | 17.97   |
| 57.9          |  |   |
| n Logged D    | ata and Assuming Lognormal Distribution  |   |
| -6.419        | KM Geo Mean  | 0.00163   |
| 2.828         | 95% Critical H Value (KM-Log)  | 7.082   |
| 1.206         | 95% H-UCL (KM -Log)  | 50.12   |
| 2.828         | 95% Critical H Value (KM-Log)  | 7.082   |
| 1.206         |  |   |
| DL/2 S        | tatistics  |   |
|               |  |   |
| 0.147         | _  | -5.966  |
| 0.393         |  | 2.776   |
| 0.362         | 95% H-Stat UCL   | 54.32   |
|               | led for comparisons and historical reasons   |   |
| thoa, provid  | •  |   |
|               |  |   |
| tric Distribu | tion Free UCL Statistics   |   |
| tric Distribu |  |   |
|               | 2.258<br>0.357<br>9.032<br>0.805<br>mma Parar<br>0.147<br>0.141<br>0.153<br>3.362<br>0.96<br>0.177<br>0.785<br>a Kaplan-M<br>0.636<br>0.871<br>F Test on D<br>ugh Data to<br>0.871<br>F Test on D<br>ugh Data to<br>0.149<br>0.393<br>0.363<br>0.502<br>57.9<br>n Logged D<br>-6.419<br>2.828<br>1.206<br>2.828<br>1.206<br>2.828<br>1.206<br>2.828<br>1.206 | 0.357         Theta star (bias corrected MLE)           9.032         nu star (bias corrected)           0.805         nu star (bias corrected)           amma Parameters using KM Estimates         0.147           0.147         SD (KM)           0.141         SE of Mean (KM)           0.153         k star (KM)           0.153         k star (KM)           0.362         nu star (KM)           0.153         k star (KM)           0.177         90% gamma percentile (KM)           0.177         90% gamma percentile (KM)           0.785         99% gamma percentile (KM)           0.636         Adjusted Level of Significance (β)           0.636         Adjusted Chi Square Value (3.78, β)           0.871         95% KM Adjusted Gamma UCL           F Test on Detected Observations Only           ugh Data to Perform GOF Test         Statistics Using Imputed Non-Detects           0.149         Mean in Log Scale           0.393         SD in Log Scale           0.363         95% Percentile Bootstrap UCL           57.9         In Logged Data and Assuming Lognormal Distribution           -6.419         KM Geo Mean           2.828         95% Critical H Value (KM-Log) <td< td=""></td<> |

| 95% KM (t) UCL   | 0.437        |  |     |
|--|--------------|--|-----|
|  |              |  |     |
| Note: Suggestions regarding the selection of a 95%     | UCL are p    | rovided to help the user to select the most appropriate 95% UCL.       |     |
|  |              | oution, and skewness using results from simulation studies.            |     |
| However, simulations results will not cover all Real W | orld data se | ets; for additional insight the user may want to consult a statisticia | ın. |
| C (soil   1,3-dichlorobenzene   541-73-1)              |              |  |     |
|  | 0            | Obshishing   |     |
| Total Number of Observations                           | 20           | Statistics Number of Distinct Observations                             | 18  |
| Number of Detects                                      | 0            | Number of Non-Detects  | 20  |
| Number of Distinct Detects                             | 0            | Number of Distinct Non-Detects   | 18  |
|  |              |  |     |
| Warning: All observations are Non-Detects              | (NDs), ther  | refore all statistics and estimates should also be NDs!                |     |
|  |              | tics are also NDs lying below the largest detection limit!             |     |
| The Project Team may decide to use alternative site    | specific va  | alues to estimate environmental parameters (e.g., EPC, BTV).           |     |
|  |              |  |     |
| The data set for variable C (soil                      | 1,3-dichlo   | robenzene   541-73-1) was not processed!                               |     |
|  |              |  |     |
| C (soil   1,3-dichloropropane   142-28-9)              |              |  |     |
|  |              |  |     |
|  | General      | Statistics   |     |
| Total Number of Observations                           | 11           | Number of Distinct Observations  | 10  |
| Number of Detects                                      | 0            | Number of Non-Detects  | 11  |
| Number of Distinct Detects                             | 0            | Number of Distinct Non-Detects   | 10  |
|  |              | · · · ·  |     |
|  | <u> </u>     | refore all statistics and estimates should also be NDs!                |     |
|  |              | tics are also NDs lying below the largest detection limit!             |     |
| The Project Team may decide to use alternative site    | specific va  | alues to estimate environmental parameters (e.g., EPC, BTV).           |     |
| The data set for variable C (soil                      | 1 1 3-dichlc | propropane   142-28-9) was not processed!                              |     |
|  | 1,0 0,000    |  |     |
|  |              |  |     |
| C (soil   1,3-dichloropropene (total)   542-75-6)      |              |  |     |
|  |              |  |     |
|  | General      | Statistics   |     |
| Total Number of Observations                           | 11           | Number of Distinct Observations  | 10  |
| Number of Detects                                      | 0            | Number of Non-Detects  | 11  |
| Number of Distinct Detects                             | 0            | Number of Distinct Non-Detects   | 10  |
| Meming All cheer stiene are Nen Detecte                |              | efore all statistics and estimates should also be NDs!                 |     |
| -  |              | tics are also NDs lying below the largest detection limit!             |     |
|  |              | alues to estimate environmental parameters (e.g., EPC, BTV).           |     |
|  |              |  |     |
| The data set for variable C (soil   1,                 | 3-dichloror  | propene (total)   542-75-6) was not processed!                         |     |
|  | ··           |  |     |
|  |              |  |     |
| C (soil   1,4-dichlorobenzene   106-46-7)              |              |  |     |

| Number of Detects         0         Number of Non-Detects         2           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDal         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit           The Project Team may deckle to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil [ 1.4-dichlorobenzene ] 106-45-7) was not processed!           C (soil [ 1.4-dioxane ] 123-91-1)         Ceneral Statistics         Number of Distinct Observations in Number of Distinct Observations in Number of Distinct Non-Detects 0         Number of Non-Detects 1           Number of Distinct Detects         0         Number of Non-Detects 1           Warning: All observations are Non-Detects (NDs), therefore all statistics are also NDs lying below the largest detection limit!         The Project Team may deckle to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soil   1.4-dioxane   123-91-1) was not processed!         20         Number of Non-Detects 1           Total Number of Detects         20         Number of Non-Detects 2         2           Number of Detects         14         Number of Non-Detects 2         2           Number of Detects         14         Number  |   | Conorol                | Otatiotics  |       |
|---|---|------------------------|---|-------|
| Number of Detects         0         Number of Non-Detects         2           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, ample mean, UC1s, UP1s, and other statistics are also NDs lying below the largest detection limit           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1.4-dichlorobenzene   106-46-7) was not processed!           C (soil   1.4-dioxane   123-91-1)         Caneeral Statistics         Number of Distinct Observations 11         Number of Distinct Observations 11           Number of Distinct Detects         0         Number of Distinct Non-Detects 10         Number of Distinct Non-Detects 10           Warning: All observations are Non-Detects (NDs), therefore all statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soil   1.4-dioxane   123-91-1) was not processed!         Ceneral Statistics           C (soil   1-methylmaphthalene   90-12-0)         Ceneral Statistics           C (soil   1-methylmaphthalene   90-12-0)         20         Number of Non-Detects           C (soil   1-methylmaphthalene   90-12-0)         20         Number of Distenct Detects <th></th> <th></th> <th></th> <th>10</th>  |   |                        |   | 10    |
| Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects         (NDb), therefore all statistics and estimates should also be NDs!         3           Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may dedide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soll   1,4-dichlorobenzene   106-46-7) was not processed!         C(soll   1,4-dioxane   123-91-1)           Centeral Statistics           Total Number of Distinct Detects         0         Number of Non-Detects         1           Number of Distinct Detects         0         Number of Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may dedide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         Immediate of Non-Detects         1           C (soil   1-methylinaphthalene   90-12-0)         Centeral Statistics         20         Number of Distinct Observations         2           C (soil   1-methylinaphthalene   90-12-0)         20         Number of Distinct Observations         2         Number of Distinct Observations<   |   |                        |   | 18    |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!           Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soil   1,4-dichorobenzone   106-46-7) was not processed!           C (soil   1.4-dioxane   123-91-1)           Ceneral Statistics           Total Number of Detects         0           Number of Detects         0           Number of Distinct Detects         0           Number of Distinct Detects         0           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!           Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs tying below the largest detection limit           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!           C (soil   1-methylinaphthalene   90-12-0)           General Statistics           Total Number of Distor. Detects           Number of Distor. Detects         14           Number of Distor. Detects         14           Number of Distor. Detects   |   |                        |   | 20    |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soll   1,4-dichorobenzene   106-46-7) was not processed! C (soll   1,4-dioxane   123-91-1) Ceneral Statistics Total Number of Distinct Detects 0 Number of Non-Detects 1 Number of Distinct Detects 0 Number of Non-Detects 1 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed! C (soil   1-methylnephthalene   90-12-0) Ceneral Statistics C (soil   1-methylnephthalene   90-12-0) C (soil | Number of Distinct Detects                          | 0                      | Number of Distinct Non-Detects                              | 18    |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soil   1,4-dickloroberzene   106-46-7) was not processed! C (soil   1,4-dioxane   123-91-1) Ceneral Statistics Total Number of Distinct Detects 0 Number of Non-Detects 1 Number of Distinct Detects 0 Number of Instinct Non-Detects 1 Number of Distinct Detects 0 Number of Distinct Non-Detects 1 Number of Distinct Detects 1 Number |   |                        |   |       |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soil   1,4-dichlorobenzene   106-46-7) was not processed! C (soil   1,4-dioxane   123-91-1) was not processed C (soil   1-neithylnsphthalene   90-12-0) C (soil   1-neithylnsphthalene  | _   | · ·                    |   |       |
| The data set for variable C (soil   1,4-dichlorobenzene   108-46-7) was not processed!         C (soil   1,4-dioxane   123-91-1)         General Statistics         Total Number of Doservations       11       Number of Distinct Observations       11         Number of Distinct Detects       0       Number of Distinct Non-Detects       1         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLS, UPLS, and other statistics are also NDs tying below the largest detection limit         The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1,4-dioxane   123-91-1) was not processed! <t< th=""><th></th><th></th><th></th><th></th></t<>  |   |                        |   |       |
| C (soil   1,4-dioxane   123-91-1)  C (soil   1,methylnaphthalene   90-12-0)  C (soil   1-methylnaphthalene   90-12-0)  C | The Project Team may decide to use alternative site | specific va            | lues to estimate environmental parameters (e.g., EPC, BTV). |       |
| C (soil   1,4-dioxane   123-91-1)  C (soil   1,1-metrylnaphthalene   90-12-0)  C (soil   1-metrylnaphthalene   90-12-0)  |   |                        |   |       |
| General Statistics           Total Number of Observations         11         Number of Distinct Observations         11           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1.4-dioxane   123-91-1) was not processed!           C (soil   1-methylnaphthalene   90-12-0)         Ceneral Statistics         Number of Distinct Observations         20           Number of Distinct Detects         14         Number of Distinct Observations         20           Number of Distinct Detects         14         Number of Distinct Non-Detects         11           Minimum Detect         0.056         Minimum Non-Detect         11           Variance Detects         1.497         SD Detects         2           Meain Detects         0.105         CV Detects         2           Meain Detects         1.439         SD of Logged Detects         2           Meain Detects         1.439         SD of Logged Detects         2           Mean  | The data set for variable C (soil                   | 1,4-dichlo             | robenzene   106-46-7) was not processed!                    |       |
| General Statistics           Total Number of Observations         11         Number of Distinct Observations         11           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1.4-dioxane   123-91-1) was not processed!           C (soil   1-methylnaphthalene   90-12-0)         Ceneral Statistics         Number of Distinct Observations         20           Number of Distinct Detects         14         Number of Distinct Observations         20           Number of Distinct Detects         14         Number of Distinct Non-Detects         11           Minimum Detect         0.056         Minimum Non-Detect         11           Variance Detects         1.497         SD Detects         2           Meain Detects         0.105         CV Detects         2           Meain Detects         1.439         SD of Logged Detects         2           Meain Detects         1.439         SD of Logged Detects         2           Mean  |   |                        |   |       |
| General Statistics           Total Number of Observations         11         Number of Distinct Observations         11           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1.4-dioxane   123-91-1) was not processed!           C (soil   1-methylnaphthalene   90-12-0)         Ceneral Statistics           C (soil   1-methylnaphthalene   90-12-0)         20           Number of Distinct Detects         14           Number of Distinct Detects         14           Number of Distinct Detects         11.4           Number of Distinct Detects         11.4           Number of Distinct Detects         11.4           Number of Distinct Detects         11.0           Minimum Detect         9.8           Maximum Detect         1.056           Meain Detects         1.497           Sb D of Logged Detects         1.439           Meain Detects         0.105           C VD Detects         1.4   |   |                        |   |       |
| Total Number of Observations         11         Number of Distinct Observations         11           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soll   1,4-dioxane   123-91-1) was not processed!           C (soil   1-methylnaphthalene   90-12-0)         Environmental parameters (e.g., EPC, BTV).           C (soil   1-methylnaphthalene   90-12-0)         20         Number of Distinct Observations         2           C (soil   1-methylnaphthalene   90-12-0)         20         Number of Distinct Non-Detects         2           Mumber of Distinct Detects         14         Number of Distinct Non-Detects         2           Mumber of Distinct Detects         11.01         Percent Non-Detects         2           Meatinane Detects         11.97         SD Detects         2           Meatin Detects         0.105         CV Detects         2           Meatin Detects         1.497 </th <td>C (soil   1,4-dioxane   123-91-1)</td> <td></td> <td></td> <td></td>  | C (soil   1,4-dioxane   123-91-1)                   |                        |   |       |
| Total Number of Observations       11       Number of Distinct Observations       11         Number of Distinct Detects       0       Number of Distinct Non-Detects       11         Number of Distinct Detects       0       Number of Distinct Non-Detects       11         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).       The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)       Environmental parameters (e.g., EPC, BTV).         C (soil   1-methylnaphthalene   90-12-0)       Specifically, sample mean, UCLs, UPLs, and other statistics         C (soil   1-methylnaphthalene   90-12-0)       Conneral Statistics         C (soil   1-methylnaphthalene   90-12-0)       Number of Distinct Detects         I A Number of Distinct Detects       14         Number of Distinct Detects       14         Number of Distinct Detects       11.01         Percent Non-Detects       11.97         SD Detects       11.97         Mealian Detects       0.105         C (Soreal COF Test on Detects Only         Mean of Logged Detects   |   |                        |   |       |
| Number of Detects         0         Number of Non-Detects         1           Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         Image: Comparison of the statistics are also NDs lying below the largest detection limit!           The Adata set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         Image: Comparison of the statistics           C (soil   1-methylnaphthalene   90-12-0)         Image: Comparison of the statistics         Image: Comparison of the statistics           Total Number of Distinct Detects         14         Number of Non-Detects         Image: Comparison of the statistics           Number of Distinct Detects         14         Number of Distinct Non-Detects         Image: Comparison of the statistics           Number of Distinct Detects         14         Number of Distinct Non-Detects         Image: Comparison of the statistics           Number of Distinct Detects         14         Number of Distinct Non-Detects         Image: Comparison of the statistics           Maximum Detect         0.056         Minimum Non-Detects         Image: Comparison of the  |   | General                | Statistics  |       |
| Number of Distinct Detects         0         Number of Distinct Non-Detects         1           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)           C (soil   1-methylnaphthalene   90-12-0)           Control Total Number of Deservations         20           Number of Distinct Detects         14         Number of Distinct Non-Detects         14           Number of Distinct Detects         14         Number of Distinct Non-Detects         14           Minimum Detect         0.056         Minimum Non-Detect         14           Variance Detects         11.01         Percent Non-Detects         23           Mean Detects         0.105         CV Detects         24           Mean of Logged Detects         -1.439         SD of Logged Detects         24           Mean of Logged Detects         -1.439         SD of Logged Detects         25 <t< th=""><td>Total Number of Observations</td><td>11</td><td>Number of Distinct Observations</td><td>10</td></t<>   | Total Number of Observations                        | 11                     | Number of Distinct Observations                             | 10    |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!           Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).           The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!           C (soil   1-methylnaphthalene   90-12-0)           Ceneral Statistics           Total Number of Detects         14         Number of Distinct Observations         2           Number of Distinct Detects         14         Number of Non-Detects         4           Minimum Detect         0.056         Minimum Non-Detect         4           Variance Detects         11.01         Percent Non-Detects         3           Meain Detects         0.105         CV Detects         3           Meain Detects         0.105         CV Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Normal GOF Test on Detects Only         0.482         Shapiro Wilk GOF Test         4           Normal GOF Test Not Normal at 1% Significance Level         1% Shapiro Wilk Critical Value         0.482         Detected Data Not Normal at 1% S  | Number of Detects                                   | 0                      | Number of Non-Detects                                       | 11    |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)         General Statistics         Total Number of Observations       20       Number of Distinct Observations       2         Number of Distinct Detects       14       Number of Non-Detects       14         Number of Distinct Detects       14       Number of Distinct Non-Detects       14         Maximum Detect       0.056       Minimum Non-Detect       14         Variance Detects       11.01       Percent Non-Detects       12         Median Detects       0.105       CV Detects       12         Mean of Logged Detects       -1.439       SD of Logged Detects       13         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       14% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test       14% Significance Level   | Number of Distinct Detects                          | 0                      | Number of Distinct Non-Detects                              | 10    |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)         General Statistics         Total Number of Detects         Number of Detects         Number of Distinct Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         11.01         Percent Non-Detects         Median Detects         1.497         Sb petcets         Mean of Logged Detects         1.497         Sb petcets         Skewness Detects         2.293         Kurtosis Detects         Mean of Logged Detects         -1.439         SD of Logged Detects         1% Shapiro Wilk Test Statistic         0.447         Lilliefors GOF Test         1% Lilliefors Critical Value         0.263   | '   |                        | · · · · · ·   |       |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).         The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)         General Statistics         C (soil   1-methylnaphthalene   90-12-0)         General Statistics         20       Number of Distinct Observations       2         Number of Distinct Detects       14       Number of Non-Detects       1         Number of Distinct Detects       14       Number of Distinct Non-Detects       1         Maximum Detect       0.056       Minimum Non-Detects       1         Maximum Detect       9.8       Maximum Non-Detects       3         Mean Detects       1.497       SD Detects       3         Mean Detects       0.105       CV Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test       4% Significance Level   | Warning: All observations are Non-Detects           | (NDs), ther            | efore all statistics and estimates should also be NDs!      |       |
| The data set for variable C (soil   1,4-dioxane   123-91-1) was not processed!         C (soil   1-methylnaphthalene   90-12-0)         General Statistics         Total Number of Observations       20       Number of Distinct Observations       2         Number of Detects       14       Number of Non-Detects       14         Number of Distinct Detects       14       Number of Distinct Non-Detects       14         Mumber of Distinct Detects       14       Number of Distinct Non-Detects       14         Mumber of Distinct Detects       14       Number of Distinct Non-Detects       14         Maximum Detect       0.056       Minimum Non-Detect       14         Maximum Detect       9.8       Maximum Non-Detect       14         Variance Detects       11.01       Percent Non-Detects       3         Median Detects       0.105       CV Detects       3         Median Detects       0.293       Kurtosis Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       4         Normal GOF Test on Detects Only       Sbapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level   | Specifically, sample mean, UCLs, UPLs, and          | other statis           | tics are also NDs lying below the largest detection limit!  |       |
| C (soil   1-methylnaphthalene   90-12-0)  C (soil   1-methylnaphthalene   90-12-0   C (soil   1-methylnaphthalene | The Project Team may decide to use alternative site | specific va            | lues to estimate environmental parameters (e.g., EPC, BTV). |       |
| C (soil   1-methylnaphthalene   90-12-0)  C (soil   1-methylnaphthalene   90-12-0   C (soil   1-methylnaphthalene |   |                        |   |       |
| General Statistics           Total Number of Observations         20         Number of Distinct Observations         22           Number of Distinct Observations         20         Number of Distinct Observations         22           Number of Distinct Detects         14         Number of Non-Detects         14           Number of Distinct Detects         14         Number of Distinct Non-Detects         14           Minimum Detect         0.056         Minimum Non-Detect         14           Maximum Detect         9.8         Maximum Non-Detect         14           Variance Detects         11.01         Percent Non-Detects         3           Mean Detects         1.497         SD Detects         3           Median Detects         0.105         CV Detects         3           Median Detects         2.293         Kurtosis Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mormal GOF Test on Detects Only         Shapiro Wilk Test Statistic         0.482         Shapiro Wilk GOF Test           1% Shapiro Wilk Critical Value         0.825         Detected Data Not Normal at 1% Significance Level         11   | The data set for variable C                         | <b>(soil   1,4-d</b> i | ioxane   123-91-1) was not processed!                       |       |
| General Statistics           Total Number of Observations         20         Number of Distinct Observations         2           Number of Distinct Detects         14         Number of Non-Detects         1           Number of Distinct Detects         14         Number of Distinct Non-Detects         1           Minimum Detect         0.056         Minimum Non-Detects         1           Maximum Detect         9.8         Maximum Non-Detects         1           Variance Detects         11.01         Percent Non-Detects         3           Mean Detects         0.105         CV Detects         3           Median Detects         0.105         CV Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mormal GOF Test on Detects Only         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         Shapiro Wilk GOF Test         3           Mormal GOF Test on Detects Only<   |   |                        |   |       |
| General Statistics           Total Number of Observations         20         Number of Distinct Observations         2           Number of Distinct Detects         14         Number of Non-Detects         1           Number of Distinct Detects         14         Number of Distinct Non-Detects         1           Minimum Detect         0.056         Minimum Non-Detects         1           Maximum Detect         9.8         Maximum Non-Detects         1           Variance Detects         11.01         Percent Non-Detects         3           Mean Detects         0.105         CV Detects         3           Median Detects         0.105         CV Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         SD of Logged Detects         3           Mormal GOF Test on Detects Only         -1.439         SD of Logged Detects         3           Mean of Logged Detects         -1.439         Shapiro Wilk GOF Test         3           Mormal GOF Test on Detects Only<   |   |                        |   |       |
| Total Number of Observations       20       Number of Distinct Observations       2         Number of Distinct Detects       14       Number of Non-Detects       14         Number of Distinct Detects       14       Number of Distinct Non-Detects       14         Minimum Object       14       Number of Distinct Non-Detects       14         Minimum Non-Detect       14       Number of Distinct Non-Detects       14         Maximum Non-Detect       0.056       Minimum Non-Detect       14         Variance Detects       11.01       Percent Non-Detects       3         Mean Detects       1.497       SD Detects       3         Median Detects       0.105       CV Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       3         Mean of Logged Detects       0.482       Detected Data Not Normal at 1% Significance Level         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         1% Lilliefors Critical Value <th>C (soil   1-methylnaphthalene   90-12-0)</th> <th></th> <th></th> <th></th>   | C (soil   1-methylnaphthalene   90-12-0)            |                        |   |       |
| Total Number of Observations       20       Number of Distinct Observations       2         Number of Distinct Detects       14       Number of Non-Detects       14         Number of Distinct Detects       14       Number of Distinct Non-Detects       14         Minimum Object       14       Number of Distinct Non-Detects       14         Minimum Non-Detect       14       Number of Distinct Non-Detects       14         Maximum Non-Detect       0.056       Minimum Non-Detect       14         Variance Detects       11.01       Percent Non-Detects       3         Variance Detects       1.497       SD Detects       3         Median Detects       0.105       CV Detects       3         Median Detects       0.105       CV Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       3         Mean of Logged Detects       0.482       Detected Data Not Normal at 1% Significance Level         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         1% Lilliefors Critical Value       0.   |   |                        |   |       |
| Number of Detects       14       Number of Non-Detects         Number of Distinct Detects       14       Number of Distinct Non-Detects         Minimum Detect       0.056       Minimum Non-Detect         Maximum Detect       9.8       Maximum Non-Detect         Variance Detects       11.01       Percent Non-Detects         Variance Detects       1.497       SD Detects         Mean Detects       0.105       CV Detects         Skewness Detects       2.293       Kurtosis Detects         Mean of Logged Detects       -1.439       SD of Logged Detects         Mean of Logged Detects       -1.439       Shapiro Wilk GOF Test         Shapiro Wilk Test Statistic       0.482       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level   |   | General                | Statistics  |       |
| Number of Distinct Detects       14       Number of Distinct Non-Detects       0         Minimum Detect       0.056       Minimum Non-Detect       0         Maximum Detect       9.8       Maximum Non-Detect       0         Variance Detects       11.01       Percent Non-Detects       3         Mean Detects       1.497       SD Detects       3         Median Detects       0.105       CV Detects       3         Median Detects       0.105       CV Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       4         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level  | Total Number of Observations                        | 20                     | Number of Distinct Observations                             | 20    |
| Minimum Detect0.056Minimum Non-DetectMaximum Detect9.8Maximum Non-DetectVariance Detects11.01Percent Non-DetectsVariance Detects1497SD DetectsMean Detects0.105CV DetectsMedian Detects0.105CV DetectsMean of Logged Detects-1.439SD of Logged DetectsMean of Logged Detects-1.439SD of Logged DetectsMean of Logged Detects0.482Shapiro Wilk GOF TestMormal GOF Test on Detects Only1% Shapiro Wilk Critical Value0.825Detected Data Not Normal at 1% Significance LevelLilliefors Test Statistic0.4471% Lilliefors Critical Value0.263Detected Data Not Normal at 1% Significance Level   | Number of Detects                                   | 14                     | Number of Non-Detects                                       | 6     |
| Maximum Detect9.8Maximum Non-DetectVariance Detects11.01Percent Non-Detects3Mean Detects1.497SD Detects3Median Detects0.105CV Detects3Median Detects0.105CV Detects3Skewness Detects2.293Kurtosis Detects3Mean of Logged Detects-1.439SD of Logged Detects3Mean of Logged Detects0.482Shapiro Wilk GOF Test3Mean of Logged Detects0.482Detected Data Not Normal at 1% Significance Level447Lilliefors Test Statistic0.447Detected Data Not Normal at 1% Significance Level1% Lilliefors Critical Value0.263Detected Data Not Normal at 1% Significance Level1% Lilliefors Critical Value0.263Detected Data Not Normal at 1% Significance Level  | Number of Distinct Detects                          | 14                     | Number of Distinct Non-Detects                              | 6     |
| Variance Detects       11.01       Percent Non-Detects       3         Mean Detects       1.497       SD Detects       3         Median Detects       0.105       CV Detects       3         Median Detects       0.105       CV Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       3         Mean of Logged Detects       0.482       Shapiro Wilk GOF Test       4         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Critical Value       0.263       Detected Data Not Nor   | Minimum Detect                                      | 0.056                  | Minimum Non-Detect  | 0.193 |
| Mean Detects1.497SD DetectsMedian Detects0.105CV Detects2Skewness Detects2.293Kurtosis Detects3Mean of Logged Detects-1.439SD of Logged Detects3Mean of Logged Detects-1.439SD of Logged Detects3Normal GOF Test on Detects OnlyShapiro Wilk Test Statistic0.482Shapiro Wilk GOF Test1% Shapiro Wilk Critical Value0.825Detected Data Not Normal at 1% Significance LevelLilliefors Test Statistic0.447Lilliefors GOF Test1% Lilliefors Critical Value0.263Detected Data Not Normal at 1% Significance Level  | Maximum Detect                                      | 9.8                    | Maximum Non-Detect  | 0.22  |
| Median Detects0.105CV DetectsSkewness Detects2.293Kurtosis Detects3Mean of Logged Detects-1.439SD of Logged Detects3Normal GOF Test on Detects OnlyShapiro Wilk Test Statistic0.482Shapiro Wilk GOF Test1% Shapiro Wilk Critical Value0.825Detected Data Not Normal at 1% Significance LevelLilliefors Test Statistic0.447Lilliefors GOF Test1% Lilliefors Critical Value0.263Detected Data Not Normal at 1% Significance Level   | Variance Detects                                    | 11.01                  | Percent Non-Detects   | 30%   |
| Skewness Detects       2.293       Kurtosis Detects       3         Mean of Logged Detects       -1.439       SD of Logged Detects       4         Normal GOF Test on Detects Only       5       5       5         Shapiro Wilk Test Statistic       0.482       Shapiro Wilk GOF Test       5         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level  | Mean Detects  | 1.497                  | SD Detects  | 3.318 |
| Mean of Logged Detects       -1.439       SD of Logged Detects         SD of Logged Detects         Normal GOF Test on Detects Only         Shapiro Wilk Test Statistic         0.482       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level   | Median Detects                                      | 0.105                  | CV Detects  | 2.216 |
| Normal GOF Test on Detects Only           Shapiro Wilk Test Statistic         0.482         Shapiro Wilk GOF Test           1% Shapiro Wilk Critical Value         0.825         Detected Data Not Normal at 1% Significance Level           Lilliefors Test Statistic         0.447         Lilliefors GOF Test           1% Lilliefors Critical Value         0.263         Detected Data Not Normal at 1% Significance Level   | Skewness Detects                                    | 2.293                  | Kurtosis Detects  | 3.868 |
| Normal GOF Test on Detects Only           Shapiro Wilk Test Statistic         0.482         Shapiro Wilk GOF Test           1% Shapiro Wilk Critical Value         0.825         Detected Data Not Normal at 1% Significance Level           Lilliefors Test Statistic         0.447         Lilliefors GOF Test           1% Lilliefors Critical Value         0.263         Detected Data Not Normal at 1% Significance Level   | Mean of Logged Detects                              | -1.439                 | SD of Logged Detects  | 1.749 |
| Shapiro Wilk Test Statistic       0.482       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level   |   |                        |   |       |
| Shapiro Wilk Test Statistic       0.482       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level   | Norm  | al GOF Tes             | t on Detects Only   |       |
| 1% Shapiro Wilk Critical Value       0.825       Detected Data Not Normal at 1% Significance Level         Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level   |   |                        | -   |       |
| Lilliefors Test Statistic       0.447       Lilliefors GOF Test         1% Lilliefors Critical Value       0.263       Detected Data Not Normal at 1% Significance Level  |   |                        |   |       |
| 1% Lilliefors Critical Value         0.263         Detected Data Not Normal at 1% Significance Level  |   |                        |   |       |
|   |   |                        |   |       |
| Detected Data Not Normal at 1% Significance Level   |   |                        |   |       |
|   |   |                        |   |       |
| Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs  | Konlon Moior //M. Statiation unior                  | a Normal C             | ritical Values and other Nonnorometric LICLs                |       |

| KM Mean  |  |  |  |
|--|--|--|--|
|  | 1.075  | KM Standard Error of Mean  | 0.639  |
| 90KM SD  | 2.752  | 95% KM (BCA) UCL   | 2.316  |
| 95% KM (t) UCL   | 2.179  | 95% KM (Percentile Bootstrap) UCL  | 2.074  |
| 95% KM (z) UCL   | 2.125  | 95% KM Bootstrap t UCL   | 16.92  |
| 90% KM Chebyshev UCL   | 2.991  | 95% KM Chebyshev UCL   | 3.859  |
| 97.5% KM Chebyshev UCL   | 5.063  | 99% KM Chebyshev UCL   | 7.429  |
|  |  | L  |  |
| Gamma GOF  | Tests on De  | tected Observations Only   |  |
| A-D Test Statistic   | 2.23   | Anderson-Darling GOF Test  |  |
| 5% A-D Critical Value  | 0.82   | Detected Data Not Gamma Distributed at 5% Significance   | Level  |
| K-S Test Statistic   | 0.326  | Kolmogorov-Smirnov GOF   |  |
| 5% K-S Critical Value  | 0.246  | Detected Data Not Gamma Distributed at 5% Significance   | Level  |
| Detected Data Not G  | amma Distr   | ibuted at 5% Significance Level  |  |
|  |  |  |  |
| Gamma  | Statistics on  | Detected Data Only   |  |
| k hat (MLE)  | 0.363  | k star (bias corrected MLE)  | 0.333  |
| Theta hat (MLE)  | 4.128  | Theta star (bias corrected MLE)  | 4.502  |
| nu hat (MLE)   | 10.16  | nu star (bias corrected)   | 9.314  |
| Mean (detects)   | 1.497  |  |  |
|  |  |  |  |
| Gamma ROS  | Statistics us  | sing Imputed Non-Detects   |  |
| GROS may not be used when data s   | et has > 50%   | % NDs with many tied observations at multiple DLs  |  |
| GROS may not be used when kstar of detects is  | small such a   | is <1.0, especially when the sample size is small (e.g., <15-20)   |  |
| For such situations, GROS  | method may   | yield incorrect values of UCLs and BTVs  |  |
| <u> </u>   |  |  |  |
| This is especi   | ally true whe  | en the sample size is small.   |  |
|  |  | en the sample size is small.<br>ay be computed using gamma distribution on KM estimates  |  |
|  |  |  | 1.051  |
| For gamma distributed detected data, BTVs a  | ind UCLs ma  | ay be computed using gamma distribution on KM estimates  | 1.051<br>0.076   |
| For gamma distributed detected data, BTVs a Minimum  | nd UCLs ma   | ay be computed using gamma distribution on KM estimates Mean   |  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum  | 0.01<br>9.8  | ay be computed using gamma distribution on KM estimates Mean Median  | 0.076  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD  | 0.01<br>9.8<br>2.832   | ay be computed using gamma distribution on KM estimates Mean Median CV   | 0.076<br>2.694   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)   | 0.01<br>9.8<br>2.832<br>0.285  | ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE)   | 0.076<br>2.694<br>0.276  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)  | 0.01<br>9.8<br>2.832<br>0.285<br>3.687   | Ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE)   | 0.076<br>2.694<br>0.276<br>3.813   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)  | 0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4   | Ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE)   | 0.076<br>2.694<br>0.276<br>3.813   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)  | 0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038  | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)   | nd UCLs ma<br>0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593   | ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) Adjusted Chi Square Value (11.03, β)   | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL  | nd UCLs ma<br>0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524                                | ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) Adjusted Chi Square Value (11.03, β)   | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL  | nd UCLs ma<br>0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524                                | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga   | 0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524  | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)  | 0.01<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524<br>amma Paran<br>1.075                       | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>meters using KM Estimates<br>SD (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752   |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)   | amma Param<br>1.075<br>7.573   | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)   | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639  |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)   | amma Paran<br>1.075<br>7.573<br>0.101<br>9.8<br>2.832<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524             | Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>SD (KM)<br>SE of Mean (KM)<br>k star (king corrected MLE)<br>solution (KM) | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.715<br>2.752<br>0.639<br>0.163                            |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)  | amma Paran<br>1.075<br>7.573<br>0.1285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524<br>0.153<br>6.104                   | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522                            |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)  | amma Paran<br>1.075<br>7.573<br>0.153<br>0.285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524<br>0.153<br>6.104<br>7.045  | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>Meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522<br>6.593          |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)  | amma Paran<br>1.075<br>7.573<br>0.1285<br>3.687<br>11.4<br>0.038<br>4.593<br>2.524<br>0.153<br>6.104<br>7.045<br>1.248 | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>Meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>theta star (KM)<br>90% gamma percentile (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522<br>6.593<br>3.219          |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>fueta hat (KM)<br>80% gamma percentile (KM)                           | amma Paran<br>1.075<br>7.573<br>0.153<br>6.104<br>7.045<br>1.248<br>5.816  | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>Meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>theta star (KM)<br>90% gamma percentile (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522<br>6.593<br>3.219          |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>fueta hat (KM)<br>80% gamma percentile (KM)                           | amma Paran<br>1.075<br>7.573<br>0.153<br>6.104<br>7.045<br>1.248<br>5.816  | Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>SE of Mean (KM)<br>SE of Mean (KM)<br>k star (kim)<br>nu star (kim)<br>heters using KM Estimates   | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522<br>6.593<br>3.219          |
| For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (11.03, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>nu hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM) | a Kaplan-Me  | ay be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (11.03, β)<br>95% Gamma Adjusted UCL<br>Meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)  | 0.076<br>2.694<br>0.276<br>3.813<br>11.03<br>4.269<br>2.715<br>2.752<br>0.639<br>0.163<br>6.522<br>6.593<br>3.219<br>13.23 |

| L ognormal GO  | F Test on Det                   | ected Observations Only   |        |
|--|---------------------------------|---|--------|
| Shapiro Wilk Test Statistic                            | 0.769                           | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                        | 0.895                           | Detected Data Not Lognormal at 10% Significance Lev                 | رما    |
| •  | Lilliefors Test Statistic 0.241 | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                          | 0.241                           | Detected Data Not Lognormal at 10% Significance Lev                 | (ol    |
|  |                                 | at 10% Significance Level   |        |
|  | ot Lognormal                    |   |        |
| Lognormal BOS  | Statistics Us                   | ing Imputed Non-Detects   |        |
| Mean in Original Scale                                 | 1.08                            | Mean in Log Scale   | -1.682 |
| SD in Original Scale                                   | 2.822                           | SD in Log Scale   | 1.496  |
| 95% t UCL (assumes normality of ROS data)              | 2.171                           | 95% Percentile Bootstrap UCL  | 2.077  |
| 95% BCA Bootstrap UCL                                  | 2.514                           | 95% Bootstrap t UCL   | 15.64  |
| 95% H-UCL (Log ROS)                                    | 1.843                           |   |        |
|  |                                 |   |        |
| Statistics using KM estimates of                       | n Logged Dat                    | a and Assuming Lognormal Distribution                               |        |
| KM Mean (logged)                                       | -1.751                          | KM Geo Mean   | 0.174  |
| KM SD (logged)   | 1.5                             | 95% Critical H Value (KM-Log)                                       | 3.427  |
| KM Standard Error of Mean (logged)                     | 0.353                           | 95% H-UCL (KM -Log)   | 1.74   |
| KM SD (logged)   | 1.5                             | 95% Critical H Value (KM-Log)                                       | 3.427  |
| KM Standard Error of Mean (logged)                     | 0.353                           |   |        |
|  |                                 |   |        |
|  | DL/2 Stat                       | tistics   |        |
| DL/2 Normal  |                                 | DL/2 Log-Transformed  |        |
| Mean in Original Scale                                 | 1.079                           | Mean in Log Scale   | -1.69  |
| SD in Original Scale                                   | 2.822                           | SD in Log Scale   | 1.5    |
| 95% t UCL (Assumes normality)                          | 2.17                            | 95% H-Stat UCL  | 1.847  |
| DL/2 is not a recommended me                           | thod, provided                  | d for comparisons and historical reasons                            |        |
|  |                                 |   |        |
| Nonparame  | tric Distributio                | n Free UCL Statistics   |        |
| Data do no   | ot follow a Dise                | cernible Distribution   |        |
|  |                                 |   |        |
|  | Suggested U                     | CL to Use   |        |
| 95% KM (t) UCL   | 2.179                           |   |        |
|  |                                 |   |        |
| -  |                                 | ata were collected in a random and unbiased manner.                 |        |
|  |                                 | cted from random locations.   |        |
|  |                                 | ntal or other non-random methods,                                   |        |
| then contact a s                                       | statistician to c               | correctly calculate UCLs.   |        |
|  |                                 |   |        |
|  |                                 | vided to help the user to select the most appropriate 95% UCL       |        |
|  |                                 | tion, and skewness using results from simulation studies.           |        |
| However, simulations results will not cover all Real W | orld data sets                  | ; for additional insight the user may want to consult a statisticia | an.    |
|  |                                 |   |        |
| (soil   2,2-dichloropropane   594-20-7)                |                                 |   |        |
|  | • • • •                         |   |        |
| T. 141   | General St                      |   |        |
| Total Number of Observations                           | 11                              | Number of Distinct Observations                                     | 8      |
| Number of Detects                                      | 0                               | Number of Non-Detects   | 11     |
| Number of Distinct Detects                             | 0                               | Number of Distinct Non-Detects                                      | 8      |

| Warning: All observations are Non-Detects           | (NDs), ther   | efore all statistics and estimates should also be NDs!       |     |
|---|---------------|--|-----|
| Specifically, sample mean, UCLs, UPLs, and          | other statis  | tics are also NDs lying below the largest detection limit!   |     |
| The Project Team may decide to use alternative site | e specific va | alues to estimate environmental parameters (e.g., EPC, BTV). |     |
|   |               |  |     |
| The data set for variable C (soil                   | 2,2-dichlo    | propropane   594-20-7) was not processed!                    |     |
|   |               |  |     |
| oil   2,2'-oxybis(1-chloropropane)   108-60-1)      |               |  |     |
|   |               |  |     |
|   | General       | Statistics   |     |
| Total Number of Observations                        | 20            | Number of Distinct Observations                              | 15  |
| Number of Detects                                   | 0             | Number of Non-Detects  | 20  |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                               | 15  |
|   |               | · · · · · · · · · · · · · · · · · · ·                        |     |
| -   |               | efore all statistics and estimates should also be NDs!       |     |
|   |               | tics are also NDs lying below the largest detection limit!   |     |
| The Project Team may decide to use alternative site | e specific va | alues to estimate environmental parameters (e.g., EPC, BTV). |     |
| The data act for veriable Q (acil   2.2             | l essible/1   |  |     |
| i në data sët for variable C (soli   2,2            | -oxybis( 1-0  | chloropropane)   108-60-1) was not processed!                |     |
| <b>T</b> . (1)                                      |               | Statistics   | 4 - |
| Total Number of Observations                        | 20            | Number of Distinct Observations                              | 15  |
| Number of Detects                                   | 0             | Number of Non-Detects  | 20  |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                               | 15  |
| Warning: All observations are Non-Detects           | (NDs), ther   | efore all statistics and estimates should also be NDs!       |     |
|   |               | tics are also NDs lying below the largest detection limit!   |     |
| The Project Team may decide to use alternative site | specific va   | alues to estimate environmental parameters (e.g., EPC, BTV). |     |
|   |               |  |     |
| The data set for variable C (soil                   | 2,4,5-tricl   | hlorophenol   95-95-4) was not processed!                    |     |
|   |               |  |     |
|   |               |  |     |
| pil   2,4,6-trichlorophenol   88-06-2)              |               |  |     |
|   | Ganaral       | Statistics   |     |
| Total Number of Observations                        | 20            | Number of Distinct Observations                              | 15  |
| Number of Detects                                   | 0             | Number of Non-Detects  | 20  |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                               | 15  |
|   |               |  |     |
| Warning: All observations are Non-Detects           | (NDs), ther   | efore all statistics and estimates should also be NDs!       |     |
| · · · · · · · · · · · · · · · · · · ·               |               | tics are also NDs lying below the largest detection limit!   |     |
|   |               |  |     |
| The Project Team may decide to use alternative site | e specific va | alues to estimate environmental parameters (e.g., EPC, BTV). |     |

|   | General Statistics                         | ;  |     |
|---|--|--|-----|
| Total Number of Observations  | 20   | Number of Distinct Observations              | 15  |
| Number of Detects   | 0  | Number of Non-Detects                        | 20  |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects               | 15  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and o |  | statistics and estimates should also be NDs! |     |
| The Project Team may decide to use alternative site                                       |  |  |     |
| The data set for variable C (soil   | 2,4-dichloropheno                          | I   120-83-2) was not processed!             |     |
| 2,4-dimethylphenol   105-67-9)  |  |  |     |
|   | General Statistics                         | i  |     |
| Total Number of Observations  | 20   | Number of Distinct Observations              | 16  |
| Number of Detects   | 2  | Number of Non-Detects                        | 18  |
| Number of Distinct Detects  | 2  | Number of Distinct Non-Detects               | 14  |
| Minimum Detect  | 0.14                                       | Minimum Non-Detect                           | 0   |
| Maximum Detect  | 0.2  | Maximum Non-Detect                           | 0   |
| Variance Detects  | 0.0018                                     | Percent Non-Detects                          | 90  |
| Mean Detects  | 0.17                                       | SD Detects                                   | 0.  |
| Median Detects  | 0.17                                       | CV Detects                                   | 0   |
| Skewness Detects  | N/A  | Kurtosis Detects                             | N// |
| Mean of Logged Detects  | -1.788                                     | SD of Logged Detects                         | 0   |
| _   | ta set has only 2 De                       |  |     |
| i nis is not enough to compl  | ite meaningful or rei                      | able statistics and estimates.               |     |
| Norma   | al GOF Test on Dete                        | cts Only                                     |     |
|   | ugh Data to Perform                        | -  |     |
|   |  | ues and other Nonparametric UCLs             |     |
| KM Mean   | 0.17                                       | KM Standard Error of Mean                    | 0.  |
| 90KM SD   | 0.03                                       | 95% KM (BCA) UCL                             | N// |
| 95% KM (t) UCL  | 0.222                                      | 95% KM (Percentile Bootstrap) UCL            | N// |
| 95% KM (z) UCL  | 0.219                                      | 95% KM Bootstrap t UCL                       | N// |
| AAA/  | 0.26                                       | 95% KM Chebyshev UCL                         | 0   |
| 90% KM Chebyshev UCL  | 0.357                                      | 99% KM Chebyshev UCL                         | 0   |
| 90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.007                                      |  |     |
| 97.5% KM Chebyshev UCL<br>Gamma GOF   | ests on Detected O                         | •  |     |
| 97.5% KM Chebyshev UCL<br>Gamma GOF T<br>Not Eno  | Tests on Detected O<br>ugh Data to Perform | GOF Test                                     |     |
| 97.5% KM Chebyshev UCL<br>Gamma GOF T<br>Not Eno  | ests on Detected O                         | GOF Test                                     | N// |

| Theta hat (MLE)   | 0.00535        | Theta star (bias corrected MLE)                      | N/A     |
|---|----------------|--|---------|
| nu hat (MLE)  | 127.1          | nu star (bias corrected)                             | N/A     |
| Mean (detects)  | 0.17           |  |         |
| Estimates of G  | amma Parar     | neters using KM Estimates                            |         |
| Mean (KM)   | 0.17           | SD (KM)  | 0.03    |
| Variance (KM)   |                | SE of Mean (KM)                                      | 0.00    |
| k hat (KM)  | 32.11          | k star (KM)  | 27.33   |
| nu hat (KM)   | 1284           | nu star (KM)   | 1093    |
| theta hat (KM)  | 0.00529        | theta star (KM)                                      | 0.00622 |
| 80% gamma percentile (KM)   | 0.197          | 90% gamma percentile (KM)                            | 0.213   |
| 95% gamma percentile (KM)   | 0.227          | 99% gamma percentile (KM)                            | 0.255   |
| Gamm  | a Kaplan-M     | eier (KM) Statistics                                 |         |
|   |                | Adjusted Level of Significance (β)                   | 0.038   |
| Approximate Chi Square Value (N/A, α)                             | 1017           | Adjusted Chi Square Value (N/A, β)                   | 1012    |
| 95% KM Approximate Gamma UCL                                      | 0.183          | 95% KM Adjusted Gamma UCL                            | 0.184   |
| Lognormal GO  | F Test on D    | etected Observations Only                            |         |
|   |                | Perform GOF Test                                     |         |
|   | 2 Statiation I | loing Imputed Non Detecto                            |         |
| Mean in Original Scale  | 0.169          | Jsing Imputed Non-Detects                            | -1.788  |
| _   |                | Mean in Log Scale                                    |         |
| SD in Original Scale<br>95% t UCL (assumes normality of ROS data) | 0.024          | SD in Log Scale<br>95% Percentile Bootstrap UCL      | 0.141   |
| 95% LOCE (assumes normality of ROS data)<br>95% BCA Bootstrap UCL | 0.178          | 95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL  | 0.178   |
| 95% BCA Boolstrap OCL<br>95% H-UCL (Log ROS)                      | 0.178          |  | 0.18    |
|   |                |  |         |
| KM Mean (logged)  |                | Pata and Assuming Lognormal Distribution KM Geo Mean | 0.167   |
| KM Mean (logged)<br>KM SD (logged)                                | 0.178          | 95% Critical H Value (KM-Log)                        | 1.773   |
| KM Standard Error of Mean (logged)                                | 0.178          | 95% H-UCL (KM -Log)                                  | 0.183   |
| KM SD (logged)  |                | 95% Critical H Value (KM-Log)                        | 1.773   |
| KM Standard Error of Mean (logged)                                |                | 33 / Children Value (KW-L09)                         | 1.775   |
|   |                | aset. Other substitution method recommended          |         |
|   |                |  |         |
| DL/2 Normal   | DL/2 S         | tatistics DL/2 Log-Transformed                       |         |
| Mean in Original Scale  | 0.197          | Mean in Log Scale                                    | -1.629  |
| SD in Original Scale  | 0.0153         | SD in Log Scale                                      | 0.0874  |
| 95% t UCL (Assumes normality)                                     | 0.203          | 95% H-Stat UCL                                       | N/A     |
|   | thod, provid   | led for comparisons and historical reasons           |         |
| Nonparame   | tric Distribut | tion Free UCL Statistics                             |         |
|   |                | iscernible Distribution                              |         |
|   | Que            |  |         |
|   |                | UCL to Use   |         |
| 95% KM (t) UCL  | 0.222          |  |         |
| Warning: Recommen   | aea UCL ex     | ceeds the maximum observation                        |         |

|   |                       | n an   |          |
|---|-----------------------|--|----------|
|   |                       | ibution, and skewness using results from simulation studies.   |          |
| However, simulations results will not cover all Real Wo | orld data s           | sets; for additional insight the user may want to consult a statisticia  | an.      |
| il   2,4-dinitrophenol   51-28-5)                       |                       |  |          |
|   | Genera                | al Statistics  |          |
| Total Number of Observations                            | 20                    | Number of Distinct Observations  | 18       |
| Number of Detects                                       | 0                     | Number of Non-Detects  | 20       |
| Number of Distinct Detects                              | 0                     | Number of Distinct Non-Detects   | 18       |
|   |                       |  |          |
| -   |                       | erefore all statistics and estimates should also be NDs!   |          |
|   |                       | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |          |
|   |                       |  |          |
| The data set for variable C (so                         | <b>oil   2,4-di</b> i | nitrophenol   51-28-5) was not processed!  |          |
|   |                       |  |          |
|   |                       |  |          |
| il   2,4-dinitrotoluene   121-14-2)                     |                       |  |          |
|   |                       |  |          |
|   |                       | al Statistics  |          |
| Total Number of Observations                            | 20                    | Number of Distinct Observations  | 15       |
| Number of Detects                                       | 0                     | Number of Non-Detects  | 20       |
| Number of Distinct Detects                              | 0                     | Number of Distinct Non-Detects   | 15       |
| Warning: All observations are Non-Detects               | (NDs) the             | erefore all statistics and estimates should also be NDs!   |          |
| -   |                       | stics are also NDs lying below the largest detection limit!  |          |
|   |                       | values to estimate environmental parameters (e.g., EPC, BTV).  |          |
|   | •                     |  |          |
| The data set for variable C (soi                        | l   2,4-din           | itrotoluene   121-14-2) was not processed!   |          |
|   |                       |  |          |
|   |                       |  |          |
| il   2,6-dinitrotoluene   606-20-2)                     |                       |  |          |
|   |                       |  |          |
| Total Number of Observations                            |                       | al Statistics  | 10       |
| Number of Detects                                       | 20<br>0               | Number of Distinct Observations           Number of Non-Detects  | 15<br>20 |
| Number of Distinct Detects                              | 0                     | Number of Distinct Non-Detects   | 15       |
|   | U                     |  | 10       |
| Warning: All observations are Non-Detects               | (NDs), the            | prefore all statistics and estimates should also be NDs!   |          |
| -   |                       | stics are also NDs lying below the largest detection limit!  |          |
| The Project Team may decide to use alternative site     | specific v            | values to estimate environmental parameters (e.g., EPC, BTV).  |          |
|   |                       |  |          |
|   |                       | itrotoluene   606-20-2) was not processed!   |          |
| The data set for variable C (soi                        | i   2,0-uiii          |  |          |
| The data set for variable C (soi                        | i   2,0-uiii          |  |          |

|   | General S   | Statistics  |  |
|---|---|---|--|
| Total Number of Observations  | 11  | Number of Distinct Observations   | 11   |
| Number of Detects   | 3   | Number of Non-Detects   | 8  |
| Number of Distinct Detects  | 3   | Number of Distinct Non-Detects  | 8  |
| Minimum Detect  | 0.0285  | Minimum Non-Detect  | 0.012  |
| Maximum Detect  | 1.8   | Maximum Non-Detect  | 0.038  |
| Variance Detects  | 0.839   | Percent Non-Detects   | 72.73%   |
| Mean Detects  | 0.78  | SD Detects  | 0.916  |
| Median Detects  | 0.51  | CV Detects  | 1.175  |
| Skewness Detects  | 1.209   | Kurtosis Detects  | N/A  |
| Mean of Logged Detects  | -1.214  | SD of Logged Detects  | 2.125  |
|   |   | nly 3 Detected Values.<br>ful or reliable statistics and estimates.   |  |
| N   |   |   |  |
|   |   | on Detects Only   |  |
| Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value   | 0.935<br>0.753  | Shapiro Wilk GOF Test Detected Data appear Normal at 1% Significance Leve   |  |
| Lilliefors Test Statistic   |   | Lilliefors GOF Test   | ei   |
|   | 0.282   |   | -  |
| 1% Lilliefors Critical Value  | 0.429   | Detected Data appear Normal at 1% Significance Leve   | el   |
| -   | -   | al at 1% Significance Level<br>iable for small sample sizes   |  |
|   |   |   |  |
|   |   | tical Values and other Nonparametric UCLs   | 0 191  |
| KM Mean   | 0.227   | KM Standard Error of Mean   | 0.191<br>N/A   |
| KM Mean<br>90KM SD  | 0.227<br>0.517  | KM Standard Error of Mean<br>95% KM (BCA) UCL   | N/A  |
| KM Mean<br>90KM SD<br>95% KM (t) UCL  | 0.227<br>0.517<br>0.573   | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | N/A<br>N/A   |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL  | 0.227<br>0.517<br>0.573<br>0.541  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | N/A<br>N/A<br>N/A  |
| KM Mean<br>90KM SD<br>95% KM (t) UCL  | 0.227<br>0.517<br>0.573   | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | N/A<br>N/A   |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>1.059                                       |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF 1   | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>1.059                                       |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         Standard Error of Mean         95% KM Bootstrap t         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Standard Error of Mean         Anderson-Darling GOF Test   | N/A<br>N/A<br>1.059<br>2.127                                     |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF T<br>A-D Test Statistic<br>5% A-D Critical Value  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Tests on Det<br>0.255<br>0.646  | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Detected data appear Gamma Distributed at 5% Significance   | N/A<br>N/A<br>N/A<br>1.059<br>2.127                              |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255<br>0.646<br>0.232   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Stected Observations Only         Anderson-Darling GOF Test         Detected data appear Gamma Distributed at 5% Significance         Kolmogorov-Smirnov GOF  | N/A<br>N/A<br>1.059<br>2.127                                     |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br><b>Fests on Det</b><br>0.255<br>0.646<br>0.232<br>0.232   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Detected data appear Gamma Distributed at 5% Significance   | N/A<br>N/A<br>1.059<br>2.127                                     |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected Data Not Gamma Comparence   | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br><b>Fests on Det</b><br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri  | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         buted at 5% Significance Level   | N/A<br>N/A<br>1.059<br>2.127                                     |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Ch | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         buted at 5% Significance Level         Detected Data Only  | N/A<br>N/A<br>1.059<br>2.127                                     |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected Data Not Gamma S         K hat (MLE)  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected data appear Gamma Distributed at 5% Significance         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         buted at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)   | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level               |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected Data Not Gamma S         k hat (MLE)         Theta hat (MLE)  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Tests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri<br>Statistics on<br>0.635<br>1.228  | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         buted at 5% Significance Level         Exected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)  | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level<br>N/A<br>N/A |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         98.00 Chebyshev UCL         98.00 Chebyshe | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri<br>Statistics on<br>0.635<br>1.228<br>3.809   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected data appear Gamma Distributed at 5% Significance         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         buted at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)   | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level               |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         98.000 Chebyshev UCL         98.000 Chebys | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Fests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>0.232<br>0.446<br><b>Statistics on</b><br>0.635<br>1.228<br>3.809<br>0.78   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         1000 K         Context of the star (bias corrected MLE)         Nu star (bias corrected)   | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level<br>n/A        |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Statistic         5% A-D Critical Value         Detected Data Not Ga         Gamma S         k hat (MLE)         Nu hat (MLE)         Mean (detects)   | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br>Tests on Det<br>0.255<br>0.646<br>0.232<br>0.446<br>amma Distri<br>Statistics on<br>0.635<br>1.228<br>3.809<br>0.78<br>Statistics usi   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected Observations Only         Kolmogorov-Smirnov GOF         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level<br>n/A        |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         8         97.5% KM Chebyshev UCL         8         98         98         99         97         98  | 0.227<br>0.517<br>0.573<br>0.541<br>0.799<br>1.419<br><b>Fests on Det</b><br>0.255<br>0.646<br>0.232<br>0.446<br><b>amma Distri</b><br><b>Statistics on</b><br>0.635<br>1.228<br>3.809<br>0.78<br><b>Statistics usi</b><br><b>attistics usi</b> | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         1000 K         Context of the star (bias corrected MLE)         Nu star (bias corrected)   | N/A<br>N/A<br>1.059<br>2.127<br>e Level<br>e Level<br>N/A<br>N/A |

| This is especia                             | ally true whe | en the sample size is small.                            |        |
|---|---------------|---|--------|
| For gamma distributed detected data, BTVs a | nd UCLs ma    | ay be computed using gamma distribution on KM estimates |        |
| Minimum                                     | 0.01          | Mean  | 0.22   |
| Maximum                                     | 1.8           | Median  | 0.01   |
| SD  | 0.545         | CV  | 2.479  |
| k hat (MLE)                                 | 0.316         | k star (bias corrected MLE)                             | 0.29   |
| Theta hat (MLE)                             | 0.696         | Theta star (bias corrected MLE)                         | 0.758  |
| nu hat (MLE)                                | 6.947         | nu star (bias corrected)                                | 6.385  |
| Adjusted Level of Significance (β)          | 0.0278        |   |        |
| Approximate Chi Square Value (6.39, α)      | 1.84          | Adjusted Chi Square Value (6.39, β)                     | 1.471  |
| 95% Gamma Approximate UCL                   | 0.763         | 95% Gamma Adjusted UCL                                  | N/A    |
| Estimates of Ga                             | amma Parar    | neters using KM Estimates                               |        |
| Mean (KM)                                   | 0.227         | SD (KM)   | 0.517  |
| Variance (KM)                               | 0.267         | SE of Mean (KM)   | 0.191  |
| k hat (KM)                                  | 0.192         | k star (KM)   | 0.2    |
| nu hat (KM)                                 | 4.226         | nu star (KM)  | 4.407  |
| theta hat (KM)                              | 1.18          | theta star (KM)   | 1.131  |
| 80% gamma percentile (KM)                   | 0.299         | 90% gamma percentile (KM)                               | 0.685  |
| 95% gamma percentile (KM)                   | 1.167         | 99% gamma percentile (KM)                               | 2.493  |
|   |               |   |        |
|   |               | eier (KM) Statistics                                    |        |
| Approximate Chi Square Value (4.41, α)      | 0.889         | Adjusted Chi Square Value (4.41, $\beta$ )              | 0.665  |
| 95% KM Approximate Gamma UCL                | 1.124         | 95% KM Adjusted Gamma UCL                               | 1.502  |
| Lognormal GO                                | F Test on De  | etected Observations Only                               |        |
| Shapiro Wilk Test Statistic                 | 0.951         | Shapiro Wilk GOF Test                                   |        |
| 10% Shapiro Wilk Critical Value             | 0.789         | Detected Data appear Lognormal at 10% Significance L    | evel   |
| Lilliefors Test Statistic                   | 0.267         | Lilliefors GOF Test                                     |        |
| 10% Lilliefors Critical Value               | 0.389         | Detected Data appear Lognormal at 10% Significance L    | evel   |
|   |               | mal at 10% Significance Level                           |        |
| Note GOF tests r                            | nay be unre   | liable for small sample sizes                           |        |
| L ognormal BOS                              | Statistics I  | Jsing Imputed Non-Detects                               |        |
| Mean in Original Scale                      | 0.216         | Mean in Log Scale                                       | -4.338 |
| SD in Original Scale                        | 0.547         | SD in Log Scale   | 2.294  |
| 95% t UCL (assumes normality of ROS data)   | 0.515         | 95% Percentile Bootstrap UCL                            | 0.514  |
| 95% BCA Bootstrap UCL                       | 0.704         | 95% Bootstrap t UCL                                     | 15.89  |
| 95% H-UCL (Log ROS)                         | 12.46         |   |        |
|   |               |   |        |
|   |               | ata and Assuming Lognormal Distribution                 |        |
| KM Mean (logged)                            | -3.273        | KM Geo Mean   | 0.0379 |
| KM SD (logged)                              | 1.595         | 95% Critical H Value (KM-Log)                           | 4.241  |
| KM Standard Error of Mean (logged)          | 0.648         | 95% H-UCL (KM -Log)                                     | 1.148  |
| KM SD (logged)                              | 1.595         | 95% Critical H Value (KM-Log)                           | 4.241  |
| KM Standard Error of Mean (logged)          | 0.648         |   |        |
|   | DL/2 S        | tatistics   |        |
| DL/2 Normal                                 |               | DL/2 Log-Transformed                                    |        |
|   |               |   |        |

| C (soil   2-chlorotoluene   95-49-8)                    |                |  |        |
|---|----------------|--|--------|
| The data set for variable C (s                          | soil   2-chloi | rophenol   95-57-8) was not processed!   |        |
| The Project Team may decide to use alternative site     | specific va    | lues to estimate environmental parameters (e.g., EPC, BTV).  |        |
| Specifically, sample mean, UCLs, UPLs, and              | other statist  | tics are also NDs lying below the largest detection limit!   |        |
| Warning: All observations are Non-Detects               | (NDs), then    | efore all statistics and estimates should also be NDs!   |        |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects   | 15     |
| Number of Detects                                       | 0              | Number of Non-Detects  | 20     |
| Total Number of Observations                            | 20             | Number of Distinct Observations  | 15     |
|   | General        | Statistics   |        |
|   |                |  |        |
| (soil   2-chlorophenol   95-57-8)                       |                |  |        |
|   |                |  |        |
| The data set for variable C (soil                       | 2-chloron      | aphthalene   91-58-7) was not processed!   |        |
|   |                |  |        |
|   |                | lues to estimate environmental parameters (e.g., EPC, BTV).  |        |
| -   |                | efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit! |        |
|   |                |  |        |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects   | 15     |
| Number of Detects                                       | 0              | Number of Non-Detects  | 20     |
| Total Number of Observations                            | 20             | Number of Distinct Observations  | 15     |
|   | General        | Statistics   |        |
| (soil   2-chloronaphthalene   91-58-7)                  |                |  |        |
| (asil 12 ablergenerhthologe 1 01 52 7)                  |                |  |        |
| However, simulations results will not cover all Real We | orld data se   | ets; for additional insight the user may want to consult a statisticia   | an.    |
| · · · · · · · · · · · · · · · · · · ·                   |                | oution, and skewness using results from simulation studies.  |        |
| Note: Suggestions regarding the selection of a 95%      | UCL are p      | rovided to help the user to select the most appropriate 95% UCL  |        |
|   |                |  |        |
|   |                | o correctly calculate UCLs.  |        |
| -   |                | nental or other non-random methods,  |        |
|   |                | data were collected in a random and unbiased manner.<br>llected from random locations.                               |        |
|   |                | · · · · · · · · · · · · · · · · · · ·  |        |
| 95% KM (t) UCL  | 0.573          |  |        |
|   | Suggested      | UCL to Use   |        |
|   |                |  |        |
| -   |                | tion Free UCL Statistics<br>stributed at 1% Significance Level   |        |
|   |                |  |        |
| DL/2 is not a recommended me                            | thod, provid   | led for comparisons and historical reasons   |        |
| 95% t UCL (Assumes normality)                           | 0.543          | 95% H-Stat UCL   | 1.692  |
| Mean in Original Scale<br>SD in Original Scale          | 0.224          | Mean in Log Scale<br>SD in Log Scale   | -3.374 |
|   |                |  |        |

|   |                | Statistics  | -     |
|---|----------------|---|-------|
| Total Number of Observations                        | 11             | Number of Distinct Observations                               | 8     |
| Number of Detects                                   | 0              | Number of Non-Detects   | 11    |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                                | 8     |
| Warning: All observations are Non-Detects           | (NDs) ther     | efore all statistics and estimates should also be NDs!        |       |
| _   |                | tics are also NDs lying below the largest detection limit!    |       |
|   |                | lues to estimate environmental parameters (e.g., EPC, BTV).   |       |
|   |                | indes to estimate environmental parameters (e.g., Er O, DTV). |       |
| The data set for variable C (s                      | soil   2-chlor | otoluene   95-49-8) was not processed!                        |       |
|   |                |   |       |
|   |                |   |       |
| C (soil   2-hexanone   591-78-6)                    |                |   |       |
|   | General        | Statistics  |       |
| Total Number of Observations                        | 11             | Number of Distinct Observations                               | 8     |
| Number of Detects                                   | 0              | Number of Non-Detects   | 11    |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                                | 8     |
|   |                |   |       |
| Warning: All observations are Non-Detects           | (NDs), ther    | efore all statistics and estimates should also be NDs!        |       |
| Specifically, sample mean, UCLs, UPLs, and          | other statis   | tics are also NDs lying below the largest detection limit!    |       |
| The Project Team may decide to use alternative site | e specific va  | lues to estimate environmental parameters (e.g., EPC, BTV).   |       |
|   |                |   |       |
| The data set for variable C                         | (soil   2-hex  | anone   591-78-6) was not processed!                          |       |
|   |                |   |       |
| C (soil   2-methylnaphthalene   91-57-6)            |                |   |       |
|   |                |   |       |
|   | General        | Statistics  |       |
| Total Number of Observations                        | 20             | Number of Distinct Observations                               | 19    |
| Number of Detects                                   | 14             | Number of Non-Detects   | 6     |
| Number of Distinct Detects                          | 13             | Number of Distinct Non-Detects                                | 6     |
| Minimum Detect                                      | 0.084          | Minimum Non-Detect  | 0.193 |
| Maximum Detect                                      | 16             | Maximum Non-Detect  | 0.22  |
| Variance Detects                                    | 28.71          | Percent Non-Detects   | 30%   |
| Mean Detects  | 2.416          | SD Detects  | 5.358 |
| Median Detects                                      | 0.145          | CV Detects  | 2.218 |
| Skewness Detects                                    | 2.299          | Kurtosis Detects  | 3.928 |
| Mean of Logged Detects                              | -1.003         | SD of Logged Detects  | 1.78  |
|   | -1.005         |   | 1.70  |
| Norm  | al GOF Tes     | t on Detects Only   |       |
| Shapiro Wilk Test Statistic                         | 0.485          | Shapiro Wilk GOF Test   |       |
| 1% Shapiro Wilk Critical Value                      | 0.825          | Detected Data Not Normal at 1% Significance Level             |       |
| Lilliefors Test Statistic                           | 0.447          | Lilliefors GOF Test   |       |
| 1% Lilliefors Critical Value                        | 0.263          | Detected Data Not Normal at 1% Significance Level             |       |
| Detected Data                                       | Not Norma      | I at 1% Significance Level                                    |       |
|   |                |   |       |
| Kaplan-Meier (KM) Statistics usin                   | g Normal Ci    | itical Values and other Nonparametric UCLs                    |       |

| KM Mean   | 1.726  | KM Standard Error of Mean   | 1.032  |
|---|--|---|--|
| 90KM SD   | 4.446  | 95% KM (BCA) UCL  | 3.69   |
| 95% KM (t) UCL  | 3.511  | 95% KM (Percentile Bootstrap) UCL   | 3.364  |
| 95% KM (z) UCL  | 3.424  | 95% KM Bootstrap t UCL  | 23.93  |
| 90% KM Chebyshev UCL  | 4.822  | 95% KM Chebyshev UCL  | 6.224  |
| 97.5% KM Chebyshev UCL  | 8.17   | 99% KM Chebyshev UCL  | 11.99  |
| Gamma GOF   | Tests on Det   | ected Observations Only   |  |
| A-D Test Statistic  | 2.266  | Anderson-Darling GOF Test   |  |
| 5% A-D Critical Value   | 0.821  | Detected Data Not Gamma Distributed at 5% Significance  | Level  |
| K-S Test Statistic  | 0.348  | Kolmogorov-Smirnov GOF  |  |
| 5% K-S Critical Value   | 0.246  | Detected Data Not Gamma Distributed at 5% Significance  | Level  |
| Detected Data Not G   | amma Distril   | buted at 5% Significance Level  |  |
|   |  |   |  |
|   |  | Detected Data Only  |  |
| k hat (MLE)   | 0.356  | k star (bias corrected MLE)   | 0.327  |
| Theta hat (MLE)   | 6.79   | Theta star (bias corrected MLE)   | 7.384  |
| nu hat (MLE)  | 9.962  | nu star (bias corrected)  | 9.161  |
| Mean (detects)  | 2.416  |   |  |
| Gamma BOS   | Statistics usi   | ing Imputed Non-Detects   |  |
|   |  | NDs with many tied observations at multiple DLs   |  |
| GRUS may not be used when data s  |  |   |  |
|   | small such as  | s < 1.0 especially when the sample size is small (e.g. $< 15-20$ )  |  |
| GROS may not be used when kstar of detects is   |  | s <1.0, especially when the sample size is small (e.g., <15-20) vield incorrect values of UCLs and BTVs   |  |
| GROS may not be used when kstar of detects is<br>For such situations, GROS  | method may y   | yield incorrect values of UCLs and BTVs   |  |
| GROS may not be used when kstar of detects is<br>For such situations, GROS i<br>This is especi  | method may y<br>ally true wher   | yield incorrect values of UCLs and BTVs<br>n the sample size is small.  |  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS o<br>This is especi<br>For gamma distributed detected data, BTVs a   | method may y<br>ally true wher<br>nd UCLs may  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates  | 1 694  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum  | method may y<br>ally true wher<br>nd UCLs may<br>0.01  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean  | 1.694  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS o<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum   | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median  | 0.12   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD   | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574   | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV  | 0.12<br>2.7  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS in<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)   | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)   | 0.12<br>2.7<br>0.262   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS of<br>This is especial<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)  | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301   | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)  | 0.12<br>2.7<br>0.262<br>6.469  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS in<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)  | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301<br>10.76  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)   | 0.12<br>2.7<br>0.262   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)   | method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)  | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301<br>10.76<br>0.038<br>4.241  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)  | 0.12<br>2.7<br>0.262<br>6.469  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)   | method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>Adjusted Chi Square Value (10.48, β)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL   | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301<br>10.76<br>0.038<br>4.241<br>4.185   | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>Adjusted Chi Square Value (10.48, β)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL   | nethod may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301<br>10.76<br>0.038<br>4.241<br>4.185   | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL   | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL   | method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038           4.241           4.185  | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL   | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)   | method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038           4.241           4.185           amma Param           1.726   | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.446  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)  | method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038           4.241           4.185           amma Param           1.726           19.77   | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.446<br>1.032   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)  | Method may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038           4.241           4.185           amma Param           1.726           19.77           0.151                         | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.446<br>1.032<br>0.161  |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS in<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)   | nethod may y           ally true wher           nd UCLs may           0.01           16           4.574           0.269           6.301           10.76           0.038           4.241           4.185           amma Param           1.726           19.77           0.151           6.031         | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.514<br>4.446<br>1.032<br>0.161<br>6.459                            |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS in<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)  | method may y<br>ally true wher<br>nd UCLs may<br>0.01<br>16<br>4.574<br>0.269<br>6.301<br>10.76<br>0.038<br>4.241<br>4.185<br>amma Param<br>1.726<br>19.77<br>0.151<br>6.031<br>11.45  | yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)  | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.514<br>4.446<br>1.032<br>0.161<br>6.459<br>10.69                   |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)                              | method may y         ally true wher         nd UCLs may         0.01         16         4.574         0.269         6.301         10.76         0.038         4.241         4.185         amma Param         1.726         19.77         0.151         6.031         11.45         1.99         9.36 | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)                 | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.514<br>4.446<br>1.032<br>0.161<br>6.459<br>10.69<br>5.165          |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM) | method may y         ally true wher         nd UCLs may         0.01         16         4.574         0.269         6.301         10.76         0.038         4.241         4.185         amma Param         1.726         19.77         0.151         6.031         11.45         1.99         9.36 | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM) | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.514<br>4.446<br>1.032<br>0.161<br>6.459<br>10.69<br>5.165<br>21.36 |
| GROS may not be used when kstar of detects is a<br>For such situations, GROS I<br>This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (10.48, α)<br>95% Gamma Approximate UCL<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)                              | method may y         ally true wher         nd UCLs may         0.01         16         4.574         0.269         6.301         10.76         0.038         4.241         4.185         amma Param         1.726         19.77         0.151         6.031         11.45         1.99         9.36 | yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>Adjusted Chi Square Value (10.48, β)<br>95% Gamma Adjusted UCL<br>Neters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)                 | 0.12<br>2.7<br>0.262<br>6.469<br>10.48<br>3.931<br>4.514<br>4.514<br>4.446<br>1.032<br>0.161<br>6.459<br>10.69<br>5.165          |

| Lognormal GOI  | F Test on Dete   | acted Observations Only   |        |
|--|------------------|---|--------|
| Shapiro Wilk Test Statistic                          | 0.758            | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                      | 0.895            | Detected Data Not Lognormal at 10% Significance Lev               | /el    |
| Lilliefors Test Statistic                            | 0.259            | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                        | 0.208            | Detected Data Not Lognormal at 10% Significance Lev               | /el    |
| Detected Data N                                      | ot Lognormal a   | at 10% Significance Level   |        |
| Lognormal ROS  | Statistics Usi   | ng Imputed Non-Detects  |        |
| Mean in Original Scale                               | 1.733            | Mean in Log Scale   | -1.294 |
| SD in Original Scale                                 | 4.56             | SD in Log Scale   | 1.541  |
| 95% t UCL (assumes normality of ROS data)            | 3.496            | 95% Percentile Bootstrap UCL                                      | 3.367  |
| 95% BCA Bootstrap UCL                                | 4.068            | 95% Bootstrap t UCL   | 23.37  |
| 95% H-UCL (Log ROS)                                  | 3.096            |   |        |
|  |                  |   |        |
| KM Mean (logged)                                     | -1.349           | a and Assuming Lognormal Distribution<br>KM Geo Mean              | 0.26   |
| KM Mean (logged)<br>KM SD (logged)                   | 1.533            | 95% Critical H Value (KM-Log)                                     | 3.482  |
| KM SD (logged)<br>KM Standard Error of Mean (logged) | 0.357            | 95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)              | 2.857  |
|  | 1.533            | 95% Critical H Value (KM-Log)                                     | 3.482  |
| KM Stondard Error of Moon (logged)                   | 0.357            | 95% Chucai H Value (Kivi-Log)                                     | 3.402  |
| KM Standard Error of Mean (logged)                   | 0.357            |   |        |
|  | DL/2 Stat        | istics  |        |
| DL/2 Normal  |                  | DL/2 Log-Transformed  |        |
| Mean in Original Scale                               | 1.722            | Mean in Log Scale   | -1.384 |
| SD in Original Scale                                 | 4.564            | SD in Log Scale   | 1.589  |
| 95% t UCL (Assumes normality)                        | 3.486            | 95% H-Stat UCL<br>for comparisons and historical reasons          | 3.264  |
|  | uliou, provideu  |   |        |
|  |                  | n Free UCL Statistics   |        |
| Data do no   | ot follow a Disc | cernible Distribution   |        |
|  | Suggested UC     | CL to Use   |        |
| 95% KM (t) UCL                                       | 3.511            |   |        |
| The selected UOL and been done and the               |                  |   |        |
| -  |                  | ta were collected in a random and unbiased manner.                |        |
| -  |                  |   |        |
|  |                  | ntal or other non-random methods,<br>orrectly calculate UCLs.     |        |
|  |                  |   |        |
| Note: Suggestions regarding the selection of a 95%   | UCL are prov     | ided to help the user to select the most appropriate 95% UCL      |        |
|  |                  | ion, and skewness using results from simulation studies.          |        |
|  |                  | for additional insight the user may want to consult a statisticia | an     |
|  |                  |   |        |
| (soil   2-methylphenol   95-48-7)                    |                  |   |        |
|  | 0                |   |        |
|  | General Sta      |   | 10     |
| Total Number of Observations                         | 20               | Number of Distinct Observations                                   | 16     |
| Number of Detects                                    | 2                | Number of Non-Detects   | 18     |
| Number of Distinct Detects                           | 2                | Number of Distinct Non-Detects                                    | 14     |

| Minimum Detect   | 0.005  |   | 0.00   |
|--|--|---|--|
|  | 0.085  | Minimum Non-Detect  | 0.38   |
| Maximum Detect   | 0.13   | Maximum Non-Detect  | 0.44   |
| Variance Detects   | 0.00101  | Percent Non-Detects   | 90%  |
| Mean Detects   | 0.108  | SD Detects  | 0.0318   |
| Median Detects   | 0.108  | CV Detects  | 0.296  |
| Skewness Detects   | N/A  | Kurtosis Detects  | N/A  |
| Mean of Logged Detects   | -2.253   | SD of Logged Detects  | 0.3  |
| Warning: Da<br>This is not enough to comp  | ata set has only 2 Dete<br>ute meaningful or relia   |   |  |
|  |  |   |  |
| Norm   | al GOF Test on Detect  | s Only  |  |
| Not Enc  | ough Data to Perform (   | OF Test   |  |
| Kaplan-Meier (KM) Statistics using   | g Normal Critical Value  | s and other Nonparametric UCLs  |  |
| KM Mean  | 0.108  | KM Standard Error of Mean   | 0.0225   |
| 90KM SD  | 0.0225   | 95% KM (BCA) UCL  | N/A  |
| 95% KM (t) UCL   | 0.146  | 95% KM (Percentile Bootstrap) UCL   | N/A  |
| 95% KM (z) UCL   | 0.145  | 95% KM Bootstrap t UCL  | N/A  |
| 90% KM Chebyshev UCL   | 0.175  | 95% KM Chebyshev UCL  | 0.206  |
| 97.5% KM Chebyshev UCL   | 0.248  | 99% KM Chebyshev UCL  | 0.331  |
| Gamma GOF  | Tests on Detected Obs  | servations Only   |  |
|  |  |   |  |
| Not Enc  | ough Data to Perform (   |   |  |
|  | bugh Data to Perform C   | GOF Test  |  |
|  | -  | GOF Test  | N/A  |
| Gamma  | Statistics on Detected   | GOF Test  | N/A<br>N/A   |
| Gamma Samma K hat (MLE)  | Statistics on Detected   | AOF Test Data Only k star (bias corrected MLE)  |  |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)  | Statistics on Detected 22.49 0.00478   | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE)  | N/A  |
| Gamma<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)  | Statistics on Detected           22.49           0.00478           89.96   | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected)   | N/A  |
| Gamma<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)  | Statistics on Detected           22.49           0.00478           89.96           0.108   | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected)   | N/A  |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga   | Statistics on Detected<br>22.49<br>0.00478<br>89.96<br>0.108<br>amma Parameters usir<br>0.108  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) g KM Estimates  | N/A<br>N/A   |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)  | Statistics on Detected<br>22.49<br>0.00478<br>89.96<br>0.108<br>amma Parameters usir<br>0.108  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM)  | N/A<br>N/A<br>0.0225   |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)   | Statistics on Detected           22.49           0.00478           89.96           0.108           amma Parameters usir           0.108           5.0625E-4  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM) SE of Mean (KM)  | N/A<br>N/A<br>0.0225<br>0.0225   |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)   | Statistics on Detected           22.49           0.00478           89.96           0.108           amma Parameters usir           0.108           5.0625E-4           22.83  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM) SE of Mean (KM) k star (KM)  | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5   |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)  | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM) SE of Mean (KM) k star (KM) nu star (KM)  | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5   |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)  | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471  | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM) SE of Mean (KM) k star (KM) nu star (KM) theta star (KM)  | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553                                    |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)   | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471         0.127         0.15   | AOF Test Data Only k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) nu star (bias corrected) g KM Estimates SD (KM) SE of Mean (KM) k star (KM) nu star (KM) nu star (KM) 90% gamma percentile (KM) 99% gamma percentile (KM)   | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14                            |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)   | Statistics on Detected         22.49       0.00478         89.96       0.108         amma Parameters usir       0.108         5.0625E-4       22.83         913.1       0.00471         0.127       0.127  | AOF Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>g KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)  | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14<br>0.172                   |
| Gamma<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM)                                | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471         0.127         0.15   | AOF Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>g KM Estimates<br>g KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)<br>99% gamma percentile (KM)   | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14<br>0.172<br>0.038          |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM)                              | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471         0.127         0.15         a Kaplan-Meier (KM) S         713.8 | AOF Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>g KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)<br>99% gamma percentile (KM)<br>Statistics<br>Adjusted Level of Significance (β)<br>Adjusted Chi Square Value (777.46, β)  | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14<br>0.172<br>0.038<br>708.9 |
| Gamma<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM)                                | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471         0.127         0.15   | AOF Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>g KM Estimates<br>g KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)<br>99% gamma percentile (KM)   | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14<br>0.172<br>0.038          |
| Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Estimates of Ga<br>Mean (KM)<br>Variance (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>nu hat (KM)<br>theta hat (KM)<br>80% gamma percentile (KM)<br>95% gamma percentile (KM)<br>95% gamma percentile (KM) | Statistics on Detected         22.49         0.00478         89.96         0.108         amma Parameters usir         0.108         5.0625E-4         22.83         913.1         0.00471         0.127         0.15         a Kaplan-Meier (KM) S         713.8 | AOF Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>g KM Estimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>nu star (KM)<br>90% gamma percentile (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM) | N/A<br>N/A<br>0.0225<br>0.0225<br>19.44<br>777.5<br>0.00553<br>0.14<br>0.172<br>0.038<br>708.9 |

| SD in Original Scale0.0181SD in Log Scale0.11495% t UCL (assumes normality of ROS data)0.11495% Percentile Bootstrap UCL0.1195% BCA Bootstrap UCL0.11395% Bootstrap UCL0.1195% H-UCL (Log ROS)0.11400Statistics using KM estimates on Logged Data and Assuming Lognormal DistributionKM Geo Mean0.10KM Geo Mean0.10KM Geo Mean0.11Statistics using KM estimates on Logged Data and Assuming Lognormal DistributionKM Geo Mean0.10KM Geo Mean0.10KM SD (logged)0.21295% Critical H Value (KM-Log)1.79KM Standard Error of Mean (logged)0.21295% Critical H Value (KM-Log)0.11Note: KM UCLs may be biased low with this dataset. Other substitution method recommendedDL/2 StatisticsDL/2 NormalDL/2 Log-TransformedMean in Original Scale0.19Mean in Original Scale0.302SD in Log Scale0.212  |  | S Statistics Using Im  | puted Non-Detects  |          |
|--|--|--|--|----------|
| 95% I UCL (assumes normality of ROS data)     0.114     95% Percentile Bootsrap UCL     0.1       95% BCA Bootstrap UCL     0.113     95% Bootstrap t UCL     0.11       95% H-UCL (Log ROS)     0.114     95% Bootstrap t UCL     0.11       95% H-UCL (Log ROS)     0.114     95% Bootstrap t UCL     0.11       Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution     KM Geo Maan     0.11       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Eritical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Eritical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Eritical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Eritical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Eritical H Value (KM-Log)     1.6       Statistics     0.302     SD in Log Scale     1.6   | Mean in Original Scale   | 0.107  | Mean in Log Scale  | -2.253   |
| 95% BCA Bootstrap UCL     0.113     95% Bootstrap UCL     0.11       95% H-UCL (Log ROS)     0.114     0.11       Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution       KM Mean (logged)     -2.253     KM Geo Mean     0.11       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.7       KM Standard Error of Mean (logged)     0.212     95% Critical H Value (KM-Log)     1.6       DL/2 Normal     DL/2 Log-Trensformed     0.2     0.2     95% Critical H Value (KM-Log)     0.2       DL/2 Norm   | SD in Original Scale   | 0.0181   | SD in Log Scale  | 0.16     |
| 95% H-LUCL (Log ROS)       0.114         Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Mean (logged)       -2.253       KM Geo Mean       0.11         KM SD (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       0.1         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         DL/2 Normal       DL/2 Normal       DL/2 Log-Transformed       1.67         DL/2 Normal   | 95% t UCL (assumes normality of ROS data)  | 0.114  | 95% Percentile Bootstrap UCL   | 0.11     |
| Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Stein (logged)       2.253       KM Geo Mean       0.11         KM Sto (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.6         DL/2 Normal       DL/2 Log-Transformed       0.22       95% Critical H Value (KM-Log)       1.6         DL/2 Normal       DL/2 Log-Transformed       0.302       <  | 95% BCA Bootstrap UCL  | 0.113  | 95% Bootstrap t UCL  | 0.11     |
| KM Mean (logged)       -2.253       KM Gao Mean       0.11         KM SD (logged)       0.212       95% Critical H Value (KM-Log)       1.77         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.77         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.77         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.77         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.77         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.77         Note: KM UCLs may be biased low with this dataset. Other substitution method recommended       DL/2 Statistics       0.19       Mean in Log Scale       1.67         SD in Original Scale       0.19       Mean in Log Scale       0.22       95% H-IStat UCL       0.20         DL/2 is not a recommended method, provided for comperisons and historical reasons       Data do not follow a Discernible Distribution       2         Suggested UCL to Use       95% KM (t) UCL       0.146       1.67       2       2         Warning: Recommended UCL exceeds the maximum observation       Warning: Recommended UCL exceeds the maximum observation       3       3       3         Note: Sugge   | 95% H-UCL (Log ROS)  | 0.114  |  |          |
| KM SD (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       0.1         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Mean (logged)       0.212       95% Critical H Value (KM-Log)       1.7         Note: KM UCLs may be biased low with this dataset. Other substitution method recommended       01/2 Statistics       01/2 Statistics         DL/2 Normal       DL/2 log-Transformed       -1.67         SD in Original Scale       0.19       Mean in Log Scale       0.22         95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.21         DL/2 is not a recommended method, provided for comparisons and historical reasons       0.22       0.21         Suggested UCL to Use         95% KM (t) UCL       0.146       0.146       0.146         Warning: Recommended UCL are provided to help the user to select the most appropriate 95% UCL.         Recommended UCL exceeds the maximum observation         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.  | Statistics using KM estimates of   | on Logged Data and   | Assuming Lognormal Distribution  |          |
| KM Standard Error of Men (logged)       0.212       95% H-UCL (KM - Log)       0.1         KM Standard Error of Men (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Men (logged)       0.212       95% Critical H Value (KM-Log)       1.7         KM Standard Error of Men (logged)       0.212       95% Critical H Value (KM-Log)       1.7         Note: KM UCLs may be biased low with this dataset. Other substitution method recommended       0.12       Note: KM UCL may be biased low with this dataset. Other substitution method recommended         DL/2 Normal       DL/2 Log-Transformed       0.19       Mean in Log Scale       0.2         SD in Original Scale       0.3002       SD in Log Scale       0.2         95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.2         DL/2 brot a recommended method, provided for comparisons and historical reasons       0.2       0.2         Nonparametric Distribution Free UCL Statistics       Data do not follow a Discernible Distribution       0.2         Suggested UCL to Use       95% KM (t) UCL       0.146       0.146         Warning: Recommended UCL are provided to help the user to select the most appropriate 95% UCL.       Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulation studies will not cover all Real Wo  | KM Mean (logged)   | -2.253   | KM Geo Mean  | 0.10     |
| KM SD (logged)       0.212       95% Critical H Value (KM-Log)       1.74         KM Standard Error of Mean (logged)       0.212       1   | KM SD (logged)   | 0.212  | 95% Critical H Value (KM-Log)  | 1.79     |
| KM Standard Error of Mean (logged)       0.212         Note: KM UCLs may be biased low with this dataset. Other substitution method recommended         DL/2 Statistics         DL/2 Normal       DL/2 Log-Transformed         Mean in Original Scale       0.19       Mean in Log Scale       0.2         SD in Original Scale       0.19       Mean in Log Scale       0.2         95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.2         DL/2 is not a recommended method, provided for comparisons and historical reasons       0.2       95% t UCL (Assumes normality)       0.202         Nonparametric Distribution Free UCL Statistics       Data do not follow a Discernible Distribution       Suggested UCL to Use         95% t M( UCL       0.146       Warning: Recommended UCL exceeds the maximum observation       VCL.         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.       Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         iil   2-nitroenline   88-74-4)       20         Varning: All observations are Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects  | KM Standard Error of Mean (logged)   | 0.212  | 95% H-UCL (KM -Log)  | 0.11     |
| Note: KM UCLs may be biased low with this dataset. Other substitution method recommended         DL/2 Normal       DL/2 Log-Transformed         Mean in Original Scale       0.19       Mean in Log Scale       0.20         SD in Original Scale       0.302       SD in Log Scale       0.20         95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.21         DL/2 is not a recommended method, provided for comparisons and historical reasons       Nonparametric Distribution Free UCL Statistics         Data do not follow a Discernible Distribution       Suggested UCL to Use         95% KM (t) UCL       0.146       Varning: Recommended UCL exceeds the maximum observation         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.       Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations regults will not cover all Real World data sets; for additional insight the user may want to consult a statistician.       15         Number of Deservations       20       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Number of Distinct Number of Distinct Non-Detects       15       Number of Distinct Number of Distinct Non-Detects       20         Number of Distinct Detects       0   | KM SD (logged)   | 0.212  | 95% Critical H Value (KM-Log)  | 1.79     |
| DL/2 Statistics           DL/2 Normal         DL/2 Log-Transformed           Mean in Original Scale         0.19         Mean in Log Scale         0.167           SD in Original Scale         0.0302         SD in Log Scale         0.22           95% It UCL (Assumes normality)         0.202         95% H-Stat UCL         0.21           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.22         0.22           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.22           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.21           Nonparametric Distribution Free UCL Statistics         0.21         0.21         0.21           Data do not follow a Discernible Distribution         0.21         0.21         0.21           Suggested UCL to Use         95% KM (t) UCL         0.146         0.21         0.21           Warning: Recommended UCL exceeds the maximum observation         0.21         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.         Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.           However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician. <td>KM Standard Error of Mean (logged)</td> <td>0.212</td> <td></td> <td></td> | KM Standard Error of Mean (logged)   | 0.212  |  |          |
| DL/2 Normal         DL/2 Log-Transformed           Mean in Original Scale         0.19         Mean in Log Scale         -1.67           SD in Original Scale         0.0302         SD in Log Scale         0.22           95% t UCL (Assumes normality)         0.202         95% H-Stat UCL         0.20           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.22           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.20         0.21           Nonparametric Distribution Free UCL Statistics         0.21         0.22         0.22           Data do not follow a Discernible Distribution         0.21         0.22         0.22           Suggested UCL to Use         95% KM (1) UCL         0.146         0.146         0.146           Warning: Recommended UCL exceeds the maximum observation         0.146         0.146         0.146           Warning: Recommended UCL acceeds the maximum observation         0.146         0.146         0.146           Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.         Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticican.  | Note: KM UCLs may be biased low  | with this dataset. Otl   | ner substitution method recommended  |          |
| Mean in Original Scale       0.19       Mean in Log Scale       1.67         SD in Original Scale       0.0302       SD in Log Scale       0.2         95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.20         DL/2 is not a recommended method, provided for comparisons and historical reasons       0.21       0.22         Nonparametric Distribution Free UCL Statistics       0.21       0.22         Data do not follow a Discernible Distribution       5       0.22         Suggested UCL to Use       95% KM (t) UCL       0.146       0.146         Warning: Recommended UCL exceeds the maximum observation       0.22       0.24         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.       Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.       15         Mumber of Observations       20       Number of Distinct Observations       15         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects       0  |  | DL/2 Statistics  |  |          |
| SD in Original Scale         0.0302         SD in Log Scale         0.2           95% t UCL (Assumes normality)         0.202         95% H-Stat UCL         0.21           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.21           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.21           DL/2 is not a recommended method, provided for comparisons and historical reasons         0.21         0.21           Nonparametric Distribution Free UCL Statistics         0.21         0.21           Data do not follow a Discernible Distribution         0.22         0.21           Suggested UCL to Use         95% KM (t) UCL         0.146         0.146           Warning: Recommended UCL exceeds the maximum observation         0.22         Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.           However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         11           iil [2-nitroaniline ] 88-74-4)         20         Number of Distinct Observations         15           Number of Distinct Detects         0         Number of Distinct Non-Detects         20           Number of Distinct Detects         0         Number of Distinct Non-Detects         15 <td>DL/2 Normal</td> <td></td> <td>DL/2 Log-Transformed</td> <td></td>                                     | DL/2 Normal  |  | DL/2 Log-Transformed   |          |
| 95% t UCL (Assumes normality)       0.202       95% H-Stat UCL       0.20         DL/2 is not a recommended method, provided for comparisons and historical reasons       0.21         Nonparametric Distribution Free UCL Statistics       Data do not follow a Discernible Distribution         Suggested UCL to Use       95% KM (t) UCL       0.146         Warning: Recommended UCL exceeds the maximum observation       0.22         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         atil  2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20         Number of Distinct Detects       0         Number of Distinct Detects       0         Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Mean in Original Scale   | 0.19   | Mean in Log Scale  | -1.67    |
| DL/2 is not a recommended method, provided for comparisons and historical reasons         Nonparametric Distribution Free UCL Statistics         Data do not follow a Discernible Distribution         Suggested UCL to Use         95% KM (t) UCL       0.146         Warning: Recommended UCL exceeds the maximum observation         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         iil [2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20         Number of Distinct Detects       0         Number of Distinct Detects       0         Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).   | SD in Original Scale   | 0.0302   | SD in Log Scale  | 0.21     |
| DL/2 is not a recommended method, provided for comparisons and historical reasons         Nonparametric Distribution Free UCL Statistics         Data do not follow a Discernible Distribution         Suggested UCL to Use         95% KM (t) UCL       0.146         Warning: Recommended UCL exceeds the maximum observation         Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         iil [2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20         Number of Distinct Detects       0         Number of Distinct Detects       0         Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).   | 95% t UCL (Assumes normality)  | 0.202  | 95% H-Stat UCL   | 0.20     |
| Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.         Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         iii   2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20         Number of Distinct Observations       15         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).       Image: Statistic site site specific values to estimate environmental parameters (e.g., EPC, BTV).   |  |  |  |          |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistician.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additional insight the user may want to consult a statistican.         Idea World data sets; for additiona  | 95% KM (t) UCL   | 0.146  |  |          |
| However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.         Mil 2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20       Number of Distinct Observations       15         Number of Detects       0       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).   |  |  | e maximum observation  |          |
| III   2-nitroaniline   88-74-4)         General Statistics         Total Number of Observations       20       Number of Distinct Observations       15         Number of Detects       0       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Warning: Recommen  | ded UCL exceeds th   |  |          |
| General Statistics         Total Number of Observations       20       Number of Distinct Observations       15         Number of Detects       0       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       20         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       15         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!       The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%  | ided UCL exceeds th  | o help the user to select the most appropriate 95% UCL.  |          |
| Total Number of Observations       20       Number of Distinct Observations       15         Number of Detects       0       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       15         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!       15         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).       15   | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, ar  | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.   |          |
| Number of Detects       0       Number of Non-Detects       20         Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Image: Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, ar  | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.   | an.      |
| Number of Distinct Detects       0       Number of Distinct Non-Detects       15         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!       The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, ar<br>/orld data sets; for ac   | o help the user to select the most appropriate 95% UCL.<br>nd skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia  | an.      |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!<br>Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!<br>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).   | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | ded UCL are provided t<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ac<br>General Statistic  | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia   |          |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!<br>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>I   2-nitroaniline   88-74-4)<br>Total Number of Observations   | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ac<br>General Statistic<br>20  | o help the user to select the most appropriate 95% UCL.<br>nd skewness using results from simulation studies.<br>dditional insight the user may want to consult a statisticia  | 15       |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).   | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>I 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects  | ded UCL are provided t<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ac<br>General Statistic<br>20<br>0   | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects  | 15<br>20 |
|  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>I 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | ded UCL are provided t<br>6 UCL are provided t<br>, data distribution, ar<br>/orld data sets; for ac<br>General Statistic<br>20<br>0<br>0  | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 15<br>20 |
| The data set for variable C (soil   2-nitroaniline   88-74-4) was not processed!   | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>I 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects   | ded UCL are provided t<br>6 UCL are provided t<br>, data distribution, ar<br>/orld data sets; for ac<br>General Statistic:<br>20<br>0<br>0<br>0<br>0   | o help the user to select the most appropriate 95% UCL.<br>nd skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Statistics and estimates should also be NDs!   | 15<br>20 |
|  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>1 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and           | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ad<br>General Statistic<br>20<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                                     | o help the user to select the most appropriate 95% UCL.<br>Ind skewness using results from simulation studies.<br>Iditional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Statistics and estimates should also be NDs!<br>Ilso NDs lying below the largest detection limit!       | 15<br>20 |
|  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>1 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ad<br>General Statistic<br>20<br>0<br>0<br>0<br>(NDs), therefore all<br>other statistics are a<br>e specific values to e | o help the user to select the most appropriate 95% UCL.<br>additional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>S<br>Statistics and estimates should also be NDs!<br>Ilso NDs lying below the largest detection limit!<br>Istimate environmental parameters (e.g., EPC, BTV). | 15<br>20 |
|  | Warning: Recommen<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>1 2-nitroaniline   88-74-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site | ded UCL exceeds th<br>6 UCL are provided t<br>, data distribution, an<br>/orld data sets; for ad<br>General Statistic<br>20<br>0<br>0<br>0<br>(NDs), therefore all<br>other statistics are a<br>e specific values to e | o help the user to select the most appropriate 95% UCL.<br>additional insight the user may want to consult a statisticia<br>S<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>S<br>Statistics and estimates should also be NDs!<br>Ilso NDs lying below the largest detection limit!<br>Istimate environmental parameters (e.g., EPC, BTV). | 15<br>20 |

|  | General S        | Statistics   |         |
|--|------------------|--|---------|
| Total Number of Observations                       |                  | Number of Distinct Observations                            | 15      |
| Number of Detects                                  |                  | Number of Non-Detects                                      | 20      |
| Number of Distinct Detects                         | _                | Number of Distinct Non-Detects                             | 15      |
|  |                  |  |         |
| -  |                  | fore all statistics and estimates should also be NDs!      |         |
| · · · · · · · · · · · · · · · · · · ·              |                  | cs are also NDs lying below the largest detection limit!   |         |
| The Project Team may decide to use alternative sit | e specific valu  | ues to estimate environmental parameters (e.g., EPC, BTV). |         |
| The data set for variable C                        | (soil   2-nitroj | ohenol   88-75-5) was not processed!                       |         |
| C (soil   3&4-methylphenol   65794-96-9)           |                  |  |         |
|  |                  |  |         |
|  | General S        |  |         |
| Total Number of Observations                       | -                | Number of Distinct Observations                            | 16      |
| Number of Detects                                  | 3                | Number of Non-Detects                                      | 17      |
| Number of Distinct Detects                         | 3                | Number of Distinct Non-Detects                             | 13      |
| Minimum Detect                                     | 0.088            | Minimum Non-Detect   | 0.38    |
| Maximum Detect                                     | 0.12             | Maximum Non-Detect   | 0.44    |
| Variance Detects                                   | 2.6133E-4        | Percent Non-Detects  | 85%     |
| Mean Detects                                       | 0.103            | SD Detects   | 0.0162  |
| Median Detects                                     | 0.1              | CV Detects   | 0.157   |
| Skewness Detects                                   | 0.722            | Kurtosis Detects   | N/A     |
| Mean of Logged Detects                             | -2.284           | SD of Logged Detects                                       | 0.156   |
| Warning: D   | ata set has o    | nly 3 Detected Values.                                     |         |
| This is not enough to comp                         | oute meaningf    | ul or reliable statistics and estimates.                   |         |
|  |                  |  |         |
|  |                  | on Detects Only  |         |
| Shapiro Wilk Test Statistic                        |                  | Shapiro Wilk GOF Test                                      |         |
| 1% Shapiro Wilk Critical Value                     |                  | Detected Data appear Normal at 1% Significance Leve        | el      |
| Lilliefors Test Statistic                          |                  | Lilliefors GOF Test  |         |
| 1% Lilliefors Critical Value                       | 0.429            | Detected Data appear Normal at 1% Significance Leve        | el      |
| Detected Data a                                    | appear Norma     | al at 1% Significance Level                                |         |
| Note GOF tests                                     | may be unreli    | able for small sample sizes                                |         |
| Kaplan-Meier (KM) Statistics usin                  | g Normal Crit    | ical Values and other Nonparametric UCLs                   |         |
| KM Mean  | 0.103            | KM Standard Error of Mean                                  | 0.00933 |
| 90KM SD  | 0.0132           | 95% KM (BCA) UCL   | N/A     |
| 95% KM (t) UCL                                     | 0.119            | 95% KM (Percentile Bootstrap) UCL                          | N/A     |
| 95% KM (z) UCL                                     | 0.118            | 95% KM Bootstrap t UCL                                     | N/A     |
| 90% KM Chebyshev UCL                               | 0.131            | 95% KM Chebyshev UCL                                       | 0.143   |
|  | 0.404            | 99% KM Chebyshev UCL                                       | 0.196   |
| 97.5% KM Chebyshev UCL                             | 0.161            |  |         |
| 97.5% KM Chebyshev UCL                             |                  | ected Observations Only                                    |         |
| 97.5% KM Chebyshev UCL                             | Tests on Det     | -  |         |

| K C Toot Statistic  | 0.026          | Kolmogorov Smirrov COE   |             |
|---|----------------|--|-------------|
| K-S Test Statistic<br>5% K-S Critical Value                                 | 0.236          | Kolmogorov-Smirnov GOF Detected data appear Gamma Distributed at 5% Significan |             |
|   |                |  | ce Levei    |
|   | aamma Disu     | ibuted at 5% Significance Level  |             |
| Gamma   | Statistics on  | Detected Data Only   |             |
| k hat (MLE)   | 61.48          | k star (bias corrected MLE)  | N/A         |
| Theta hat (MLE)   | 0.00167        | Theta star (bias corrected MLE)  | N/A         |
| nu hat (MLE)  | 368.9          | nu star (bias corrected MLE)   | N/A         |
| Mean (detects)  | 0.103          | nu star (bias correcteu)   | N/A         |
|   | 0.105          |  |             |
| Gamma BOS   | Statistics us  | ing Imputed Non-Detects  |             |
|   |                | 6 NDs with many tied observations at multiple DLs                              |             |
| -   |                | s <1.0, especially when the sample size is small (e.g., <15-20)                |             |
|   |                | yield incorrect values of UCLs and BTVs  |             |
|   | -              | en the sample size is small.   |             |
|   |                | ay be computed using gamma distribution on KM estimates                        |             |
| Minimum   | 0.0868         | Mean   | 0.102       |
| Maximum   | 0.12           | Median   | 0.102       |
| SD  | 0.12           | CV   | 0.0882      |
| k hat (MLE)   | 135.8          | k star (bias corrected MLE)  | 115.5       |
| Theta hat (MLE)   |                | Theta star (bias corrected MLE)  |             |
| nu hat (MLE)  |                | nu star (bias corrected MLL)   | 4618        |
| Adjusted Level of Significance (β)  | 0.038          |  | 4018        |
| Adjusted Level of Significance (β)<br>Approximate Chi Square Value (N/A, α) | 4461           | Adjusted Chi Square Value (N/A, β)   | 4449        |
| 95% Gamma Approximate UCL   | 0.106          | 95% Gamma Adjusted UCL   | 4449<br>N/A |
| Estimates of G  | amma Parar     | neters using KM Estimates  |             |
| Mean (KM)   | 0.103          | SD (KM)  | 0.0132      |
| Variance (KM)   | 1.7422E-4      | SE of Mean (KM)  | 0.00933     |
| k hat (KM)  | 60.5           | k star (KM)  | 51.46       |
| nu hat (KM)   | 2420           | nu star (KM)   | 2058        |
| theta hat (KM)  | 0.0017         | theta star (KM)  | 0.002       |
| 80% gamma percentile (KM)   | 0.114          | 90% gamma percentile (KM)  | 0.121       |
| 95% gamma percentile (KM)   | 0.127          | 99% gamma percentile (KM)  | 0.139       |
| Comm  | o Koplon M     |  |             |
|   | -              | eier (KM) Statistics   | 10/6        |
| Approximate Chi Square Value (N/A, α)                                       | 1954           | Adjusted Chi Square Value (N/A, β)   | 1946        |
| 95% KM Approximate Gamma UCL  | 0.108          | 95% KM Adjusted Gamma UCL  | 0.109       |
| L agnormal OO   | E Toot on D    | etected Observations Only  |             |
| Shapiro Wilk Test Statistic   | 0.99           | Shapiro Wilk GOF Test  |             |
| 10% Shapiro Wilk Critical Value   | 0.99           | Detected Data appear Lognormal at 10% Significance I                           | مريما       |
| Lilliefors Test Statistic   | 0.789          | Lilliefors GOF Test  | -9461       |
| 10% Lilliefors Critical Value   | 0.213          | Detected Data appear Lognormal at 10% Significance I                           | ورروا       |
|   |                | nal at 10% Significance Level  | -9961       |
|   | -              | liable for small sample sizes  |             |
|   | may be unite   | וומאיפ ועו פווומוו פמווואיב פולבפ  |             |
|   | S Statietice I | Jsing Imputed Non-Detects  |             |
| Mean in Original Scale  |                | Mean in Log Scale  | -2.284      |
|   | 0.102          |  | -2.204      |

| SD in Original Scale   |   |  |                |
|--|---|--|----------------|
| -  | 0.00898   | SD in Log Scale  | 0.0873         |
| 95% t UCL (assumes normality of ROS data)  | 0.106   | 95% Percentile Bootstrap UCL   | 0.105          |
| 95% BCA Bootstrap UCL  | 0.106   | 95% Bootstrap t UCL  | 0.106          |
| 95% H-UCL (Log ROS)  | N/A   |  |                |
| Statistics using KM estimates of   | n Logged Da   | ata and Assuming Lognormal Distribution  |                |
| KM Mean (logged)   | -2.284  | KM Geo Mean  | 0.102          |
| KM SD (logged)   | 0.127   | 95% Critical H Value (KM-Log)  | 1.746          |
| KM Standard Error of Mean (logged)   | 0.09  | 95% H-UCL (KM -Log)  | 0.108          |
| KM SD (logged)   | 0.127   | 95% Critical H Value (KM-Log)  | 1.746          |
| KM Standard Error of Mean (logged)   | 0.09  |  |                |
|  | with this data  | aset. Other substitution method recommended  |                |
|  |   |  |                |
|  | DL/2 St   | atistics   |                |
| DL/2 Normal  |   | DL/2 Log-Transformed   |                |
| Mean in Original Scale   | 0.185   | Mean in Log Scale  | -1.713         |
| SD in Original Scale   | 0.0367  | SD in Log Scale  | 0.254          |
| 95% t UCL (Assumes normality)  | 0.199   | 95% H-Stat UCL   | 0.207          |
| DL/2 is not a recommended me   | thod, provide   | ed for comparisons and historical reasons  |                |
| Managemen  | uia Distrikusi  |  |                |
| -  |   | on Free UCL Statistics   |                |
|  | Normal Dist   | tributed at 1% Significance Level  |                |
|  | Suggested l   |  |                |
| 95% KM (t) UCL   | 0.119   |  |                |
|  |   |  |                |
| Note: Suggestions regarding the selection of a 95%   | UCL are pro   | ovided to help the user to select the most appropriate 95% UCL   |                |
|  |   | ution, and skewness using results from simulation studies.   |                |
| However, simulations results will not cover all Real W   | lorld data cot  | ts; for additional insight the user may want to consult a statisticia  |                |
| HOWEVER, SITURATIONS LESUITS WIII HOL COVEL AIL REAL M   | Unu uata set  | is, for additional insight the user may want to consult a statisticia  | an.            |
|  |   | is, for additional insight the user may want to consult a statistica   | an.            |
|  |   |  | an.            |
|  |   |  | an.            |
|  | General S   |  | an.            |
|  |   |  | an.<br>13      |
| (soil   3,3'-dichlorobenzidine   91-94-1)  | General S   | Statistics   |                |
| <b>(soil   3,3'-dichlorobenzidine   91-94-1)</b><br>Total Number of Observations   | General S<br>20   | Statistics Number of Distinct Observations   | 13             |
| <b>C (soil   3,3'-dichlorobenzidine   91-94-1)</b><br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | <b>General S</b> 20 0 0   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 13<br>20       |
| e (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects  | General S<br>20<br>0<br>0<br>(NDs), there   | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects store all statistics and estimates should also be NDs!   | 13<br>20       |
| c (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | General S<br>20<br>0<br>0<br>(NDs), there<br>other statisti                                     | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects efore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit!   | 13<br>20       |
| C (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | General S<br>20<br>0<br>0<br>(NDs), there<br>other statisti                                     | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects store all statistics and estimates should also be NDs!   | 13<br>20       |
| c (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val                        | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects sfore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV).  | 13<br>20       |
| (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val                        | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects efore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit!   | 13<br>20       |
| c (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val                        | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects sfore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV).  | 13<br>20       |
| (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val                        | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects sfore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV).  | 13<br>20       |
| (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val                        | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects sfore all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV).  | 13<br>20       |
| c (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val<br>  3,3'-dichlor      | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects store all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV). robenzidine   91-94-1) was not processed!            | 13<br>20       |
| c (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>c (soil   3-nitroaniline   99-09-2) | General S<br>20<br>0<br>0<br>(NDs), there<br>other statisti<br>specific value<br>  3,3'-dichlor | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects store all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV). robenzidine   91-94-1) was not processed! Statistics | 13<br>20<br>13 |
| C (soil   3,3'-dichlorobenzidine   91-94-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | General S<br>20<br>0<br>(NDs), there<br>other statisti<br>e specific val<br>  3,3'-dichlor      | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects store all statistics and estimates should also be NDs! ics are also NDs lying below the largest detection limit! ues to estimate environmental parameters (e.g., EPC, BTV). robenzidine   91-94-1) was not processed!            | 13<br>20       |

| Number of Distinct Detects                            | 0             | Number of Distinct Non-Detects                                | 15 |
|---|---------------|---|----|
|   |               |   |    |
| -   |               | erefore all statistics and estimates should also be NDs!      |    |
|   |               | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site   | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C                           | (soil   3-nit | roaniline   99-09-2) was not processed!                       |    |
|   |               |   |    |
|   |               |   |    |
| C (soil   4,6-dinitro-2-methylphenol   534-52-1)      |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                          | 20            | Number of Distinct Observations                               | 15 |
| Number of Detects                                     | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                            | 0             | Number of Distinct Non-Detects                                | 15 |
|   |               |   |    |
|   |               | erefore all statistics and estimates should also be NDs!      |    |
|   |               | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site   | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (soil   4                 | 6-dinitro-2   | -methylphenol   534-52-1) was not processed!                  |    |
|   | ,0-41111-0-2  |   |    |
|   |               |   |    |
| C (soil   4-bromophenyl-phenyl ether   101-55-3)      |               |   |    |
|   |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                          | 20            | Number of Distinct Observations                               | 15 |
| Number of Detects                                     | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                            | 0             | Number of Distinct Non-Detects                                | 15 |
|   | (15.) 1       |   |    |
|   | <u> </u>      | erefore all statistics and estimates should also be NDs!      |    |
|   |               | stics are also NDs lying below the largest detection limit!   |    |
|   | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (soil   4-                | promopher     | nyl-phenyl ether   101-55-3) was not processed!               |    |
|   |               |   |    |
|   |               |   |    |
| C (soil   4-chloro-3-methylphenol   59-50-7)          |               |   |    |
|   |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                          | 20            | Number of Distinct Observations                               | 18 |
| Number of Detects                                     | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                            | 0             | Number of Distinct Non-Detects                                | 18 |
|   |               | · · · · · · · · · · · · · · · · · · ·                         |    |
| -   | •             | erefore all statistics and estimates should also be NDs!      |    |
|   |               | stics are also NDs lying below the largest detection limit!   |    |
| I ne Project I eam may decide to use alternative site | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data act for variable O (act)                     | A-oblara 3    | -methylphenol   59-50-7) was not processed!                   |    |
|   |               | meanyiphenor   03-00-7 / was not processed!                   |    |

| soil   4-chloroaniline   106-47-8)   |   |  |    |
|--|---|--|----|
|  |   |  |    |
|  | General   | Statistics   |    |
| Total Number of Observations   | 20  | Number of Distinct Observations  | 18 |
| Number of Detects  | 0   | Number of Non-Detects  | 20 |
| Number of Distinct Detects   | 0   | Number of Distinct Non-Detects   | 18 |
| Warning: All observations are Non-Detects  | (NDs), ther   | efore all statistics and estimates should also be NDs!   |    |
| -  |   | tics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site  | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C (s   | oil   4-chlor   | oaniline   106-47-8) was not processed!  |    |
| soil   4-chlorophenyl-phenyl ether   7005-72-3)  |   |  |    |
|  | General   | Statistics   |    |
| Total Number of Observations   | 20  | Number of Distinct Observations  | 15 |
| Number of Detects  | 0   | Number of Non-Detects  | 20 |
| Number of Distinct Detects   | 0   | Number of Distinct Non-Detects   | 15 |
|  |   |  |    |
| The data set for variable C (soil   4-c  | hloropheny  | I-phenyl ether   7005-72-3) was not processed!   |    |
|  | hloropheny  | I-phenyl ether   7005-72-3) was not processed!   |    |
|  |   | I-phenyl ether   7005-72-3) was not processed!<br>Statistics   |    |
|  |   |  | 8  |
| soil   4-chlorotoluene   106-43-4)   | General   | Statistics   | -  |
| soil   4-chlorotoluene   106-43-4)<br>Total Number of Observations   | General<br>11   | Statistics Number of Distinct Observations   |    |
| soil   4-chlorotoluene   106-43-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | <b>General</b> 11 0 0   | Statistics Number of Distinct Observations Number of Non-Detects   | 11 |
| soil   4-chlorotoluene   106-43-4) Total Number of Observations Number of Detects Number of Distinct Detects Warning: All observations are Non-Detects   | General 11 0 0 (NDs), ther  | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects  | 11 |
| soil   4-chlorotoluene   106-43-4) Total Number of Observations Number of Detects Number of Distinct Detects Warning: All observations are Non-Detects Specifically, sample mean, UCLs, UPLs, and  | General<br>11<br>0<br>0<br>(NDs), ther<br>other statis                                    | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           efore all statistics and estimates should also be NDs!  | 11 |
| soil   4-chlorotoluene   106-43-4) Total Number of Observations Number of Detects Number of Distinct Detects Warning: All observations are Non-Detects Specifically, sample mean, UCLs, UPLs, and The Project Team may decide to use alternative site  | General<br>11<br>0<br>(NDs), ther<br>other statis   | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           efore all statistics and estimates should also be NDs!           tics are also NDs lying below the largest detection limit!           alues to estimate environmental parameters (e.g., EPC, BTV).                | 11 |
| soil   4-chlorotoluene   106-43-4) Total Number of Observations Number of Detects Number of Distinct Detects Warning: All observations are Non-Detects Specifically, sample mean, UCLs, UPLs, and The Project Team may decide to use alternative site  | General<br>11<br>0<br>(NDs), ther<br>other statis   | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         efore all statistics and estimates should also be NDs!         tics are also NDs lying below the largest detection limit!  | 11 |
| (soil   4-chlorotoluene   106-43-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site                                     | General<br>11<br>0<br>(NDs), ther<br>other statis   | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           efore all statistics and estimates should also be NDs!           tics are also NDs lying below the largest detection limit!           alues to estimate environmental parameters (e.g., EPC, BTV).                | 11 |
| (soil   4-chlorotoluene   106-43-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (set | General<br>11<br>0<br>0<br>(NDs), ther<br>other statis<br>e specific va<br>oil   4-chlore | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         efore all statistics and estimates should also be NDs!         tics are also NDs lying below the largest detection limit!         alues to estimate environmental parameters (e.g., EPC, BTV).         btoluene   106-43-4) was not processed! | 11 |
| soil   4-chlorotoluene   106-43-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (set  | General<br>11<br>0<br>0<br>(NDs), ther<br>other statis<br>e specific va<br>oil   4-chlore | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           efore all statistics and estimates should also be NDs!           tics are also NDs lying below the largest detection limit!           alues to estimate environmental parameters (e.g., EPC, BTV).                | 11 |

| Number of Distinct Detects                | 0               | Number of Distinct Non-Detects   | 8     |
|---|-----------------|--|-------|
| Maria Allaharan Mar Dahah                 |                 |  |       |
| -   |                 | efore all statistics and estimates should also be NDs!   |       |
|   |                 | ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV). |       |
|   | e specific va   | ides to estimate environmental parameters (e.g., EPC, BTV).  |       |
| The data set for variable C (soil         | l 4-methyl-2-   | -pentanone   108-10-1) was not processed!  |       |
| · · · · · · · · · · · · · · · · · · ·     |                 | , .  |       |
|   |                 |  |       |
| C (soil   4-nitroaniline   100-01-6)      |                 |  |       |
|   | General         | Statistics   |       |
| Total Number of Observations              | 20              | Number of Distinct Observations  | 15    |
| Number of Detects                         | 0               | Number of Non-Detects  | 20    |
| Number of Distinct Detects                | 0               | Number of Distinct Non-Detects   | 15    |
| Warning: All observations are Non-Detects |                 | efore all statistics and estimates should also be NDs!   |       |
| -   |                 | ics are also NDs lying below the largest detection limit!  |       |
|   |                 | lues to estimate environmental parameters (e.g., EPC, BTV).  |       |
|   | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV).  |       |
| The date set for veriable C               | (coil   4 pitro | aniline   100-01-6) was not processed!   |       |
|   | (5011   4-11100 | annine   100-01-0) was not processed!  |       |
|   |                 |  |       |
| O(acii   A piraphana    100,02,7)         |                 |  |       |
| C (soil   4-nitrophenol   100-02-7)       |                 |  |       |
|   | Gonoral         | Statistics   |       |
| Total Number of Observations              | 20              | Number of Distinct Observations  | 18    |
| Number of Detects                         | 0               | Number of Non-Detects  | 20    |
| Number of Distinct Detects                | 0               | Number of Distinct Non-Detects   | 18    |
|   | Ũ               |  | 10    |
| Warning: All observations are Non-Detects | (NDs), there    | efore all statistics and estimates should also be NDs!   |       |
| -   |                 | ics are also NDs lying below the largest detection limit!  |       |
|   |                 | lues to estimate environmental parameters (e.g., EPC, BTV).  |       |
|   |                 | (  |       |
| The data set for variable C               | (soil   4-nitro | phenol   100-02-7) was not processed!  |       |
|   |                 | , .  |       |
|   |                 |  |       |
| C (soil   acenaphthene   83-32-9)         |                 |  |       |
|   |                 |  |       |
|   | General         | Statistics   |       |
| Total Number of Observations              | 20              | Number of Distinct Observations  | 16    |
| Number of Detects                         | 4               | Number of Non-Detects  | 16    |
| Number of Distinct Detects                | 4               | Number of Distinct Non-Detects   | 12    |
| Minimum Detect                            | 0.065           | Minimum Non-Detect   | 0.187 |
| Maximum Detect                            | 0.55            | Maximum Non-Detect   | 0.22  |
| Variance Detects                          | 0.0477          | Percent Non-Detects  | 80%   |
| Mean Detects                              | 0.229           | SD Detects   | 0.218 |
| Median Detects                            | 0.15            | CV Detects   | 0.955 |
| Skewness Detects                          | 1.764           | Kurtosis Detects   | 3.285 |
|   |                 |  |       |

| Mean of Logged Detects                        | -1.786             | SD of Logged Detects  | 0.89     |
|---|--------------------|---|----------|
|   |                    |   |          |
| Norm  | al GOF Tes         | t on Detects Only   |          |
| Shapiro Wilk Test Statistic                   | 0.807              | Shapiro Wilk GOF Test   |          |
| 1% Shapiro Wilk Critical Value                | 0.687              | Detected Data appear Normal at 1% Significance Lev              | el       |
| Lilliefors Test Statistic                     | 0.356              | Lilliefors GOF Test   |          |
| 1% Lilliefors Critical Value                  | 0.413              | Detected Data appear Normal at 1% Significance Lev              | el       |
| Detected Data a                               | appear Norm        | al at 1% Significance Level                                     |          |
| Note GOF tests r                              | nay be unre        | liable for small sample sizes                                   |          |
|   |                    |   |          |
| Kaplan-Meier (KM) Statistics usin             | g Normal Cr        | itical Values and other Nonparametric UCLs                      |          |
| KM Mean                                       | 0.143              | KM Standard Error of Mean                                       | 0.0365   |
| 90KM SD                                       | 0.102              | 95% KM (BCA) UCL  | N/A      |
| 95% KM (t) UCL                                | 0.206              | 95% KM (Percentile Bootstrap) UCL                               | N/A      |
| 95% KM (z) UCL                                | 0.203              | 95% KM Bootstrap t UCL  | N/A      |
| 90% KM Chebyshev UCL                          | 0.253              | 95% KM Chebyshev UCL  | 0.302    |
| 97.5% KM Chebyshev UCL                        | 0.371              | 99% KM Chebyshev UCL  | 0.506    |
|   |                    | ł – – – – – – – – – – – – – – – – – – –                         |          |
| Gamma GOF                                     | Tests on De        | tected Observations Only  |          |
| A-D Test Statistic                            | 0.348              | Anderson-Darling GOF Test                                       |          |
| 5% A-D Critical Value                         | 0.661              | Detected data appear Gamma Distributed at 5% Significance       | ce Level |
| K-S Test Statistic                            | 0.296              | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                         | 0.399              | Detected data appear Gamma Distributed at 5% Significance       | ce Level |
| Detected data appear                          | Gamma Dis          | tributed at 5% Significance Level                               |          |
| Note GOF tests r                              | <b>nay be unre</b> | liable for small sample sizes                                   |          |
|   |                    |   |          |
| Gamma   | Statistics on      | Detected Data Only  |          |
| k hat (MLE)                                   | 1.757              | k star (bias corrected MLE)                                     | 0.606    |
| Theta hat (MLE)                               | 0.13               | Theta star (bias corrected MLE)                                 | 0.377    |
| nu hat (MLE)                                  | 14.06              | nu star (bias corrected)  | 4.848    |
| Mean (detects)                                | 0.229              |   |          |
|   |                    |   |          |
| Gamma ROS                                     | Statistics us      | ing Imputed Non-Detects   |          |
| GROS may not be used when data s              | et has > 50%       | 6 NDs with many tied observations at multiple DLs               |          |
| GROS may not be used when kstar of detects is | small such a       | s <1.0, especially when the sample size is small (e.g., <15-20) |          |
| For such situations, GROS                     | method may         | yield incorrect values of UCLs and BTVs                         |          |
| This is especi                                | ally true whe      | en the sample size is small.                                    |          |
| For gamma distributed detected data, BTVs a   | and UCLs ma        | ay be computed using gamma distribution on KM estimates         |          |
| Minimum                                       | 0.049              | Mean  | 0.142    |
| Maximum                                       | 0.55               | Median  | 0.117    |
| SD  | 0.104              | CV  | 0.733    |
| k hat (MLE)                                   | 3.62               | k star (bias corrected MLE)                                     | 3.11     |
| Theta hat (MLE)                               | 0.0391             | Theta star (bias corrected MLE)                                 | 0.0456   |
| nu hat (MLE)                                  | 144.8              | nu star (bias corrected)  | 124.4    |
| Adjusted Level of Significance (β)            | 0.038              |   |          |
| Approximate Chi Square Value (124.42, α)      |                    | Adjusted Chi Square Value (124.42, β)                           | 97.91    |
| 95% Gamma Approximate UCL                     | 0.177              | 95% Gamma Adjusted UCL  | N/A      |
|   |                    |   |          |
| Estimates of G                                | amma Parar         | neters using KM Estimates                                       |          |
|   |                    |   |          |

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

## C (soil | acenaphthylene | 208-96-8)

|                                    | General S            | tatistics   |            |
|------------------------------------|----------------------|---|------------|
| Total Number of Observations       | 20                   | Number of Distinct Observations                                       | 16         |
| Number of Detects                  | 4                    | Number of Non-Detects   | 16         |
| Number of Distinct Detects         | 4                    | Number of Distinct Non-Detects  | 12         |
| Minimum Detect                     | 0.067                | Minimum Non-Detect  | 0.1        |
| Maximum Detect                     | 0.29                 | Maximum Non-Detect  | 0.2        |
| Variance Detects                   | 0.00965              | Percent Non-Detects   | 809        |
| Mean Detects                       | 0.147                | SD Detects  | 0.0        |
| Median Detects                     | 0.115                | CV Detects  | 0.6        |
| Skewness Detects                   | 1.662                | Kurtosis Detects  | 3.7        |
| Mean of Logged Detects             | -2.067               | SD of Logged Detects  | 0.6        |
| Norma                              | al GOF Test          | on Detects Only   |            |
| Shapiro Wilk Test Statistic        | 0.829                | Shapiro Wilk GOF Test   |            |
| 1% Shapiro Wilk Critical Value     | 0.687                | Detected Data appear Normal at 1% Significance Lev                    | rel        |
| Lilliefors Test Statistic          | 0.357                | Lilliefors GOF Test   |            |
| 1% Lilliefors Critical Value       | 0.413                | Detected Data appear Normal at 1% Significance Lev                    | el         |
| Detected Data a                    | ppear Norma          | al at 1% Significance Level   |            |
| Note GOF tests m                   | nay be unreli        | able for small sample sizes   |            |
| Kaplan-Meier (KM) Statistics using | Normal Crit<br>0.109 | ical Values and other Nonparametric UCLs<br>KM Standard Error of Mean | 0.0        |
| 90KM SD                            | 0.0473               | 95% KM (BCA) UCL  | 0.0<br>N/A |
| 95% KM (t) UCL                     | 0.0473               | 95% KM (Percentile Bootstrap) UCL                                     | N/A        |
| 95% KM (z) UCL                     | 0.138                | 95% KM Bootstrap t UCL  | N/A        |
| 90% KM Chebyshev UCL               | 0.163                | 95% KM Chebyshev UCL  | 0.1        |
| 97.5% KM Chebyshev UCL             | 0.222                | 99% KM Chebyshev UCL  | 0.2        |
| Gamma GOF 1                        | Fests on Det         | ected Observations Only   |            |
| A-D Test Statistic                 | 0.387                | Anderson-Darling GOF Test   |            |
| 5% A-D Critical Value              | 0.659                | Detected data appear Gamma Distributed at 5% Significance             | ce Lev     |
| K-S Test Statistic                 | 0.323                | Kolmogorov-Smirnov GOF  |            |
| 5% K-S Critical Value              | 0.396                | Detected data appear Gamma Distributed at 5% Significance             | ce Lev     |
| Detected data appear (             |                      | ributed at 5% Significance Level                                      |            |
|                                    |                      | able for small sample sizes   |            |
|                                    |                      |   |            |
| Gamma S                            | Statistics on I      | Detected Data Only  |            |
| k hat (MLE)                        | 3.534                | k star (bias corrected MLE)   | 1.(        |
| Theta hat (MLE)                    | 0.0415               | Theta star (bias corrected MLE)                                       | 0.1        |
| nu hat (MLE)                       | 28.27                | nu star (bias corrected)  | 8.4        |
| Mean (detects)                     | 0.147                |   |            |
| 0                                  |                      |   |            |
|                                    |                      | ng Imputed Non-Detects  |            |
| GROS may not be used when data se  | et has > 50%         | NDs with many tied observations at multiple DLs                       |            |

|  |                      | vield incorrect values of UCLs and BTVs                |        |
|--|----------------------|--|--------|
|  |                      | n the sample size is small.                            |        |
|  |                      | y be computed using gamma distribution on KM estimates |        |
| Minimum  | 0.0616               | Mean   | 0.109  |
| Maximum  | 0.29                 | Median   | 0.0986 |
| SD   | 0.0472               | CV   | 0.433  |
| k hat (MLE)  | 8.702                | k star (bias corrected MLE)                            | 7.43   |
| Theta hat (MLE)                                      | 0.0125               | Theta star (bias corrected MLE)                        | 0.0147 |
| nu hat (MLE)   | 348.1                | nu star (bias corrected)                               | 297.2  |
| Adjusted Level of Significance (β)                   | 0.038                |  |        |
| Approximate Chi Square Value (297.21, α)             | 258.3                | Adjusted Chi Square Value (297.21, $\beta$ )           | 255.4  |
| 95% Gamma Approximate UCL                            | 0.125                | 95% Gamma Adjusted UCL                                 | N/A    |
| Estimates of G                                       | amma Param           | eters using KM Estimates                               |        |
| Mean (KM)  | 0.109                | SD (KM)  | 0.0473 |
| Variance (KM)  | 0.00224              | SE of Mean (KM)  | 0.0181 |
| k hat (KM)   | 5.272                | k star (KM)  | 4.514  |
| nu hat (KM)  | 210.9                | nu star (KM)   | 180.6  |
| theta hat (KM)                                       | 0.0206               | theta star (KM)  | 0.024  |
| 80% gamma percentile (KM)                            | 0.148                | 90% gamma percentile (KM)                              | 0.177  |
| 95% gamma percentile (KM)                            | 0.204                | 99% gamma percentile (KM)                              | 0.261  |
| Gamm   | a Kaplan-Mei         | ier (KM) Statistics                                    |        |
| Approximate Chi Square Value (180.58, $\alpha$ )     | 150.5                | Adjusted Chi Square Value (180.58, $\beta$ )           | 148.3  |
| 95% KM Approximate Gamma UCL                         | 0.13                 | 95% KM Adjusted Gamma UCL                              | 0.132  |
| Lognormal GO   | F Test on De         | tected Observations Only                               |        |
| Shapiro Wilk Test Statistic                          | 0.936                | Shapiro Wilk GOF Test                                  |        |
| 10% Shapiro Wilk Critical Value                      | 0.792                | Detected Data appear Lognormal at 10% Significance L   | evel   |
| Lilliefors Test Statistic                            | 0.285                | Lilliefors GOF Test                                    |        |
| 10% Lilliefors Critical Value                        | 0.346                | Detected Data appear Lognormal at 10% Significance L   | evel   |
| Detected Data app                                    | oear Lognorm         | nal at 10% Significance Level                          |        |
| Note GOF tests                                       | <b>nay be unreli</b> | able for small sample sizes                            |        |
| Lognormal ROS  | S Statistics Us      | sing Imputed Non-Detects                               |        |
| Mean in Original Scale                               | 0.108                | Mean in Log Scale                                      | -2.278 |
| SD in Original Scale                                 | 0.0461               | SD in Log Scale  | 0.303  |
| 95% t UCL (assumes normality of ROS data)            | 0.126                | 95% Percentile Bootstrap UCL                           | 0.127  |
| 95% BCA Bootstrap UCL                                | 0.136                | 95% Bootstrap t UCL                                    | 0.148  |
| 95% H-UCL (Log ROS)                                  | 0.122                | · ·  |        |
| Statictice using KM actimates                        | n Logged De          | ata and Assuming Lognormal Distribution                |        |
| KM Mean (logged)                                     |                      | KM Geo Mean  | 0.101  |
| KM Mean (logged)<br>KM SD (logged)                   | -2.288<br>0.347      | 95% Critical H Value (KM-Log)                          | 1.886  |
|  |                      | · •  | 0.125  |
| KM Standard Error of Mean (logged)                   | 0.174                | 95% H-UCL (KM -Log)                                    |        |
| KM SD (logged)<br>KM Standard Error of Mean (logged) | 0.347<br>0.174       | 95% Critical H Value (KM-Log)                          | 1.886  |
|  |                      |  |        |
|  | DL/2 Sta             | atistics   |        |

| DL/2 Normal  | 0.100         | DL/2 Log-Transformed   | 0.055  |
|--|---------------|--|--------|
| Mean in Original Scale                                 | 0.109         | Mean in Log Scale  | -2.258 |
| SD in Original Scale                                   | 0.0437        | SD in Log Scale  | 0.264  |
| 95% t UCL (Assumes normality)                          | 0.126         | 95% H-Stat UCL   | 0.121  |
| DL/2 IS NOT & recommended me                           | inoa, proviae | ed for comparisons and historical reasons                            |        |
| -  |               | on Free UCL Statistics   |        |
| Detected Data appear                                   | Normal Dist   | ributed at 1% Significance Level                                     |        |
|  | Suggested L   | JCL to Use   |        |
| 95% KM (t) UCL   | 0.14          |  |        |
| Note: Suggestions regarding the selection of a 95%     | UCL are pro   | ovided to help the user to select the most appropriate 95% UCL       |        |
| Recommendations are based upon data size,              | data distribu | tion, and skewness using results from simulation studies.            |        |
| However, simulations results will not cover all Real W | orld data set | s; for additional insight the user may want to consult a statisticia | ın.    |
| C (soil   acetone   67-64-1)                           | General S     | Statistics   |        |
| Total Number of Observations                           |               | Number of Distinct Observations                                      | 10     |
| Number of Detects                                      | 2             | Number of Non-Detects  | 9      |
| Number of Distinct Detects                             | 2             | Number of Distinct Non-Detects                                       | 8      |
| Minimum Detect   | 1.6           | Minimum Non-Detect   | 0.032  |
| Maximum Detect   | 4.9           | Maximum Non-Detect   | 0.0955 |
| Variance Detects                                       | 5.445         | Percent Non-Detects  | 81.82% |
| Mean Detects   | 3.25          | SD Detects   | 2.333  |
| Median Detects   | 3.25          | CV Detects   | 0.718  |
| Skewness Detects                                       | N/A           | Kurtosis Detects   | N/A    |
| Mean of Logged Detects                                 | 1.03          | SD of Logged Detects   | 0.791  |
| Warning: Da  | ata set has o | nly 2 Detected Values.   |        |
| This is not enough to compu                            | ute meaningf  | ul or reliable statistics and estimates.                             |        |
|  |               |  |        |
|  |               | on Detects Only  |        |
| Not Eno  | ugh Data to   | Perform GOF Test   |        |
| Kaplan-Meier (KM) Statistics using                     | ı Normal Crit | ical Values and other Nonparametric UCLs                             |        |
| KM Mean  | 0.617         | KM Standard Error of Mean  | 0.608  |
| 90KM SD  | 1.427         | 95% KM (BCA) UCL   | N/A    |
| 95% KM (t) UCL   | 1.72          | 95% KM (Percentile Bootstrap) UCL                                    | N/A    |
| 95% KM (z) UCL   | 1.618         | 95% KM Bootstrap t UCL   | N/A    |
| 90% KM Chebyshev UCL                                   | 2.442         | 95% KM Chebyshev UCL   | 3.269  |
| 97.5% KM Chebyshev UCL                                 | 4.416         | 99% KM Chebyshev UCL   | 6.67   |
| Gamma COF  | Tests on Det  | ected Observations Only  |        |
|  |               | Perform GOF Test   |        |
|  |               |  |        |
| Gamma  | Statistics on | Detected Data Only   |        |

| k hat (MLE)  | 3.513  | k star (bias corrected MLE)  | N/A                                       |
|--|--|--|---|
| Theta hat (MLE)  | 0.925  | Theta star (bias corrected MLE)  | N/A                                       |
| nu hat (MLE)   | 14.05  | nu star (bias corrected)   | N/A                                       |
| Mean (detects)   | 3.25   |  |   |
| Estimates of Ga  | mma Parameters usi   | ng KM Estimates  |   |
| Mean (KM)  | 0.617  | SD (KM)  | 1.427                                     |
| Variance (KM)  | 2.035  | SE of Mean (KM)  | 0.608                                     |
| k hat (KM)   | 0.187  | k star (KM)  | 0.008                                     |
|  | 4.116  |  | 4.327                                     |
| nu hat (KM)  |  | nu star (KM)   |   |
| theta hat (KM)   | 3.299  | theta star (KM)  | 3.138                                     |
| 80% gamma percentile (KM)<br>95% gamma percentile (KM)   | 0.806  | 90% gamma percentile (KM)<br>99% gamma percentile (KM)   | 1.866<br>6.858                            |
|  | 3.194  | 99% gamma percentile (KM)  | 0.000                                     |
| Gamma  | a Kaplan-Meier (KM) \$   | Statistics   |   |
|  |  | Adjusted Level of Significance (β)   | 0.0278                                    |
| Approximate Chi Square Value (4.33, $\alpha$ )   | 0.855  | Adjusted Chi Square Value (4.33, $\beta$ )   | 0.637                                     |
| 95% KM Approximate Gamma UCL   | 3.123  | 95% KM Adjusted Gamma UCL  | 4.191                                     |
|  | - Test on Detected Ol  | hearvations Only   |   |
|  | ugh Data to Perform  | -  |   |
|  |  |  |   |
| Lognormal ROS  | Statistics Using Impu  | uted Non-Detects   |   |
| Mean in Original Scale   | 0.615  | Mean in Log Scale  | -2.801                                    |
| SD in Original Scale   | 1.497  | SD in Log Scale  | 1.968                                     |
| 95% t UCL (assumes normality of ROS data)  | 1.433  | 95% Percentile Bootstrap UCL   | 1.371                                     |
| 95% BCA Bootstrap UCL  | 1.805  | 95% Bootstrap t UCL  | 58.06                                     |
| 95% H-UCL (Log ROS)  | 9.944  |  |   |
|  |  |  |   |
| Statistics using KM estimates of   | n Logged Data and A  | ssuming Lognormal Distribution   |   |
|  |  | ssuming Lognormal Distribution   | 0 0722                                    |
| KM Mean (logged)   | -2.629   | KM Geo Mean  |   |
| KM Mean (logged)<br>KM SD (logged)   | -2.629<br>1.741  | KM Geo Mean<br>95% Critical H Value (KM-Log)   | 4.567                                     |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)   | -2.629<br>1.741<br>0.742   | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 4.567<br>4.06                             |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)   | -2.629<br>1.741<br>0.742<br>1.741  | KM Geo Mean<br>95% Critical H Value (KM-Log)   | 4.567                                     |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)   | -2.629<br>1.741<br>0.742   | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 4.06                                      |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)   | -2.629<br>1.741<br>0.742<br>1.741  | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 4.567<br>4.06                             |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)   | -2.629<br>1.741<br>0.742<br>1.741<br>0.742   | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 4.567<br>4.06                             |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)   | -2.629<br>1.741<br>0.742<br>1.741<br>0.742   | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)   | 4.567<br>4.06                             |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)   | -2.629       1.741       0.742       1.741       0.742       DL/2 Statistics                 | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>DL/2 Log-Transformed   | 4.567<br>4.06<br>4.567                    |
| KM Mean (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         KM Standard Error of Mean (logged)         DL/2 Normal         Mean in Original Scale   | -2.629 1.741 0.742 1.741 0.742 DL/2 Statistics 0.624   | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>DL/2 Log-Transformed<br>Mean in Log Scale  | 4.567<br>4.06<br>4.567<br>-2.461          |
| KM Mean (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         KM SD (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         DL/2 Normal         Mean in Original Scale         SD in Original Scale  | -2.629 1.741 0.742 1.741 0.742 0.742 DL/2 Statistics 0.624 1.493 1.44                        | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL   | 4.567<br>4.06<br>4.567<br>-2.461<br>1.771 |
| KM Mean (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         KM SD (logged)         KM SD (logged)         KM Standard Error of Mean (logged)         KM Standard Error of Mean (logged)         DL/2 Normal         Mean in Original Scale         SD in Original Scale         95% t UCL (Assumes normality)         DL/2 is not a recommended met | -2.629 1.741 0.742 1.741 0.742 0.742 DL/2 Statistics 0.624 1.493 1.44 chod, provided for con | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>DL/2 Log-Transformed<br>DL/2 Log-Transformed<br>SD in Log Scale<br>95% H-Stat UCL<br>nparisons and historical reasons                                | 4.567<br>4.06<br>4.567<br>-2.461<br>1.771 |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended met  | -2.629 1.741 0.742 1.741 0.742 0.742 DL/2 Statistics 0.624 1.493 1.44                        | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 4.567<br>4.06<br>4.567<br>-2.461<br>1.771 |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended met  | -2.629 1.741 0.742 1.741 0.742 0.742 DL/2 Statistics 0.624 1.493 1.44 chod, provided for con | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 4.567<br>4.06<br>4.567<br>-2.461<br>1.771 |
| KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended met<br>Nonparamet<br>Data do no  | -2.629 1.741 0.742 1.741 0.742 0.742 DL/2 Statistics 0.624 1.493 1.44 chod, provided for con | KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>nparisons and historical reasons<br>JCL Statistics<br>Distribution | 4.567<br>4.06<br>4.567<br>-2.461<br>1.771 |

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

C (soil | acetophenone | 98-86-2)

|   | General Statistic                          | 5   |        |
|---|--|---|--------|
| Total Number of Observations                  | 20   | Number of Distinct Observations                               | 17     |
| Number of Detects                             | 2  | Number of Non-Detects   | 18     |
| Number of Distinct Detects                    | 2  | Number of Distinct Non-Detects                                | 15     |
| Minimum Detect                                | 0.068                                      | Minimum Non-Detect  | 0.38   |
| Maximum Detect                                | 0.56                                       | Maximum Non-Detect  | 0.51   |
| Variance Detects                              | 0.121                                      | Percent Non-Detects   | 90%    |
| Mean Detects                                  | 0.314                                      | SD Detects  | 0.348  |
| Median Detects                                | 0.314                                      | CV Detects  | 1.108  |
| Skewness Detects                              | N/A  | Kurtosis Detects  | N/A    |
| Mean of Logged Detects                        | -1.634                                     | SD of Logged Detects  | 1.491  |
| Mean of Logged Decess                         | 1.004                                      |   | 1.401  |
| Warning: Da                                   | ata set has only 2 De                      | etected Values  |        |
| -   | -  | liable statistics and estimates.                              |        |
|   |  |   |        |
|   |  |   |        |
| Norm  | al GOF Test on Det                         | acts Only   |        |
|   | and OP Test on Der<br>ough Data to Perform |   |        |
| NOT ENO                                       | lugh Data to Periorn                       | TGOF Test   |        |
| Karlan Majar (KN) Statistics using            |  | use and other Nensermetric LICLs                              |        |
| Kapian-Meler (KM) Statistics using<br>KM Mean |  | ues and other Nonparametric UCLs<br>KM Standard Error of Mean | 0.0339 |
|   |  |   |        |
| 90KM SD                                       | 0.107                                      | 95% KM (BCA) UCL  | N/A    |
| 95% KM (t) UCL                                | 0.151                                      | 95% KM (Percentile Bootstrap) UCL                             | N/A    |
| 95% KM (z) UCL                                | 0.148                                      | 95% KM Bootstrap t UCL  | N/A    |
| 90% KM Chebyshev UCL                          | 0.194                                      | 95% KM Chebyshev UCL  | 0.24   |
| 97.5% KM Chebyshev UCL                        | 0.304                                      | 99% KM Chebyshev UCL  | 0.43   |
| 0   | Tanta an Data stad (                       | Nacar stiens Only   |        |
|   | Tests on Detected C                        | •   |        |
| Not Eno                                       | ough Data to Perform                       | TGOF Test   |        |
|   | Platiatian on Datast                       | d Data Only   |        |
|   | Statistics on Detecte                      | -   | N1/A   |
| k hat (MLE)                                   | 1.19                                       | k star (bias corrected MLE)                                   | N/A    |
| Theta hat (MLE)                               | 0.264                                      | Theta star (bias corrected MLE)                               | N/A    |
| nu hat (MLE)                                  | 4.761                                      | nu star (bias corrected)                                      | N/A    |
| Mean (detects)                                | 0.314                                      |   |        |
|   |  |   |        |
|   | amma Parameters u                          | •   | 0.10-  |
| Mean (KM)                                     | 0.0926                                     | SD (KM)   | 0.107  |
| Variance (KM)                                 | 0.0115                                     | SE of Mean (KM)   | 0.0339 |
| k hat (KM)                                    | 0.746                                      | k star (KM)   | 0.667  |
| nu hat (KM)                                   | 29.83                                      | nu star (KM)  | 26.69  |
| theta hat (KM)                                | 0.124                                      | theta star (KM)   | 0.139  |
| 80% gamma percentile (KM)                     |  | 90% gamma percentile (KM)                                     | 0.235  |

| 95% gamma percentile (KM)  | 0.321  | 99% gamma percentile (KM)  | 0.526  |
|--|--|--|--------|
| 55% gamma percentile (KW)  | 0.021  | 3370 ganna percenue (KW)   | 0.020  |
| Gamm   | a Kaplan-Meier (KM)  | Statistics   |        |
|  |  | Adjusted Level of Significance ( $\beta$ )   | 0.038  |
| Approximate Chi Square Value (26.69, $\alpha$ )  | 15.91  | Adjusted Chi Square Value (26.69, β)   | 15.25  |
| 95% KM Approximate Gamma UCL   | 0.155  | 95% KM Adjusted Gamma UCL  | 0.162  |
| Lognormal GO   | F Test on Detected C   | Observations Only  |        |
|  | ough Data to Perform   | •  |        |
|  |  |  |        |
|  | S Statistics Using Imp   |  |        |
| Mean in Original Scale   | 0.0946   | Mean in Log Scale  | -2.585 |
| SD in Original Scale   | 0.111  | SD in Log Scale  | 0.537  |
| 95% t UCL (assumes normality of ROS data)  | 0.138  | 95% Percentile Bootstrap UCL   | 0.142  |
| 95% BCA Bootstrap UCL  | 0.17   | 95% Bootstrap t UCL  | 0.364  |
| 95% H-UCL (Log ROS)  | 0.112  |  |        |
| Statistics using KM estimates of   | on Logged Data and A   | Assuming Lognormal Distribution  |        |
| KM Mean (logged)   | -2.583   | KM Geo Mean  | 0.075  |
| KM SD (logged)   | 0.46   | 95% Critical H Value (KM-Log)  | 1.981  |
| KM Standard Error of Mean (logged)   | 0.145  | 95% H-UCL (KM -Log)  | 0.103  |
| KM SD (logged)   | 0.46   | 95% Critical H Value (KM-Log)  | 1.98   |
|  |  | ( 0,   |        |
| KM Standard Error of Mean (logged)<br>Note: KM UCLs may be biased low  | 0.145<br>with this dataset. Oth<br>DL/2 Statistics   | er substitution method recommended   |        |
|  | with this dataset. Oth   | er substitution method recommended DL/2 Log-Transformed  |        |
| Note: KM UCLs may be biased low  | with this dataset. Oth   |  | -1.602 |
| Note: KM UCLs may be biased low<br>DL/2 Normal   | with this dataset. Oth<br>DL/2 Statistics  | DL/2 Log-Transformed   | -1.602 |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale   | DL/2 Statistics  | DL/2 Log-Transformed<br>Mean in Log Scale  | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)  | DL/2 Statistics         0.214         0.0881         0.248   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale   | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me  | DL/2 Statistics         0.214         0.0881         0.248   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons   | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame   | DL/2 Statistics         0.214         0.2881         0.248   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics   | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame   | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         ethod, provided for co         ttric Distribution Free         ot follow a Discernible   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics<br>a Distribution   |        |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame   | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         ethod, provided for co         ttric Distribution Free   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics<br>a Distribution   | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Data do n<br>95% KM (t) UCL  | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         third provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to U         0.151   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics<br>Distribution   | 0.349  |
| Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Data do n<br>95% KM (t) UCL  | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         thick provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to U         0.151   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics<br>Distribution<br>Ise<br>e collected in a random and unbiased manner.  | 0.349  |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Nonparame Data do n 95% KM (t) UCL The calculated UCLs are based on assumptin Please verify the d   | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         third, provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to L         0.151         ons that the data were         ata were collected from   | DL/2 Log-Transformed<br>Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>mparisons and historical reasons<br>UCL Statistics<br>Distribution<br>Ise<br>e collected in a random and unbiased manner.  | 0.349  |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Data do n 95% KM (t) UCL The calculated UCLs are based on assumption Please verify the d If the data were collected   | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         third, provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to L         0.151         ons that the data were         ata were collected from   | DL/2 Log-Transformed         Mean in Log Scale         SD in Log Scale         95% H-Stat UCL         mparisons and historical reasons         UCL Statistics         a Distribution         Ise         collected in a random and unbiased manner.         om random locations.         other non-random methods,   | 0.349  |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Data do n Data do n 95% KM (t) UCL The calculated UCLs are based on assumption Please verify the d If the data were collected then contact a second s | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to U         0.151         ons that the data were         ata were collected from using judgmental or costatistician to correct  | DL/2 Log-Transformed         Mean in Log Scale         SD in Log Scale         95% H-Stat UCL         mparisons and historical reasons         UCL Statistics         a Distribution         Ise         collected in a random and unbiased manner.         om random locations.         other non-random methods,         y calculate UCLs.   | 0.34   |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Data do n 95% KM (t) UCL The calculated UCLs are based on assumption Please verify the d If the data were collected then contact a second seco | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         thick provided for co         ttric Distribution Free         ot follow a Discernible         Suggested UCL to L         0.151         ons that the data were         ata were collected free         using judgmental or estatistician to correctly         6 UCL are provided to                                  | DL/2 Log-Transformed         Mean in Log Scale         SD in Log Scale         95% H-Stat UCL         mparisons and historical reasons         UCL Statistics         a Distribution         Ise         c collected in a random and unbiased manner.         om random locations.         other non-random methods,         y calculate UCLs.         a help the user to select the most appropriate 95% UCL  | 0.34   |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Nonparame Data do n 95% KM (t) UCL The calculated UCLs are based on assumption Please verify the d If the data were collected then contact a second s | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         third, provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to U         0.151         ons that the data were         ata were collected from         using judgmental or costatistician to correctly         6 UCL are provided to         , data distribution, an | DL/2 Log-Transformed         Mean in Log Scale         SD in Log Scale         95% H-Stat UCL         mparisons and historical reasons         UCL Statistics         a Distribution         Ise         c collected in a random and unbiased manner.         om random locations.         other non-random methods,         y calculate UCLs.         a help the user to select the most appropriate 95% UCL.         d skewness using results from simulation studies. | 0.34   |
| Note: KM UCLs may be biased low DL/2 Normal Mean in Original Scale SD in Original Scale 95% t UCL (Assumes normality) DL/2 is not a recommended me Nonparame Data do n 95% KM (t) UCL The calculated UCLs are based on assumption Please verify the d If the data were collected then contact a second s | with this dataset. Oth         DL/2 Statistics         0.214         0.0881         0.248         othod, provided for co         third, provided for co         tric Distribution Free         ot follow a Discernible         Suggested UCL to U         0.151         ons that the data were         ata were collected from         using judgmental or costatistician to correctly         6 UCL are provided to         , data distribution, an | DL/2 Log-Transformed         Mean in Log Scale         SD in Log Scale         95% H-Stat UCL         mparisons and historical reasons         UCL Statistics         a Distribution         Ise         c collected in a random and unbiased manner.         om random locations.         other non-random methods,         y calculate UCLs.         a help the user to select the most appropriate 95% UCL  | 0.34   |

|   | General        | Statistics  |        |
|---|----------------|---|--------|
| Total Number of Observations              |                | Number of Distinct Observations                             | 10     |
| Number of Detects                         |                | Number of Non-Detects                                       | 10     |
| Number of Distinct Detects                |                | Number of Distinct Non-Detects                              | 10     |
|   | 0              |   | 10     |
| Warning: All observations are Non-Detects | (NDs), ther    | efore all statistics and estimates should also be NDs!      |        |
|   | · · ·          | tics are also NDs lying below the largest detection limit!  |        |
|   |                | lues to estimate environmental parameters (e.g., EPC, BTV). |        |
|   | · ·            |   |        |
| The data set for variable C               | (soil   acrylo | pnitrile   107-13-1) was not processed!                     |        |
|   |                |   |        |
|   |                |   |        |
|   |                |   |        |
| C (soil   aluminum   7429-90-5)           |                |   |        |
|   |                |   |        |
|   | General        | Statistics  |        |
| Total Number of Observations              | 20             | Number of Distinct Observations                             | 19     |
|   |                | Number of Missing Observations                              | 0      |
| Minimum                                   | 1200           | Mean  | 8051   |
| Maximum                                   | 13000          | Median  | 8500   |
| SD  | 3040           | Std. Error of Mean  | 679.8  |
| Coefficient of Variation                  | 0.378          | Skewness  | -0.783 |
|   |                | 1   |        |
|   | Normal (       | GOF Test  |        |
| Shapiro Wilk Test Statistic               | 0.931          | Shapiro Wilk GOF Test                                       |        |
| 1% Shapiro Wilk Critical Value            | 0.868          | Data appear Normal at 1% Significance Level                 |        |
| Lilliefors Test Statistic                 | 0.191          | Lilliefors GOF Test   |        |
| 1% Lilliefors Critical Value              | 0.223          | Data appear Normal at 1% Significance Level                 |        |
| Data appea                                | ar Normal at   | 1% Significance Level                                       |        |
|   |                |   |        |
| As  | suming Nori    | nal Distribution  |        |
| 95% Normal UCL                            |                | 95% UCLs (Adjusted for Skewness)                            |        |
| 95% Student's-t UCL                       | 9226           | 95% Adjusted-CLT UCL (Chen-1995)                            | 9042   |
|   |                | 95% Modified-t UCL (Johnson-1978)                           | 9207   |
|   |                | · I   |        |
|   | Gamma          | GOF Test  |        |
| A-D Test Statistic                        | 1.417          | Anderson-Darling Gamma GOF Test                             |        |
| 5% A-D Critical Value                     | 0.745          | Data Not Gamma Distributed at 5% Significance Lev           | el     |
| K-S Test Statistic                        | 0.256          | Kolmogorov-Smirnov Gamma GOF Test                           |        |
| 5% K-S Critical Value                     | 0.195          | Data Not Gamma Distributed at 5% Significance Lev           | el     |
| Data Not Gamr                             | na Distribute  | d at 5% Significance Level                                  |        |
|   |                |   |        |
|   | Gamma          | Statistics  |        |
| k hat (MLE)                               | 4.434          | k star (bias corrected MLE)                                 | 3.803  |
| Theta hat (MLE)                           | 1816           | Theta star (bias corrected MLE)                             | 2117   |
| nu hat (MLE)                              | 177.4          | nu star (bias corrected)                                    | 152.1  |
| MLE Mean (bias corrected)                 | 8051           | MLE Sd (bias corrected)                                     | 4129   |
|   |                | Approximate Chi Square Value (0.05)                         | 124.6  |
|   |                |   |        |

| Ass   | suming Gamma D   | stribution  |                                    |
|---|--|---|------------------------------------|
| 95% Approximate Gamma UCL   | 9828   | 95% Adjusted Gamma UCL  | 9986                               |
|   |  | Test  |                                    |
| Shapiro Wilk Test Statistic   | Lognormal GOF  |   |                                    |
| 10% Shapiro Wilk Critical Value   | 0.756  | Shapiro Wilk Lognormal GOF Test Data Not Lognormal at 10% Significance Level  |                                    |
| Lilliefors Test Statistic   | 0.92   | Lilliefors Lognormal GOF Test   |                                    |
| 10% Lilliefors Critical Value   | 0.274  | Data Not Lognormal at 10% Significance Level  |                                    |
|   | ognormal at 10% S  | <b>5 5</b>  |                                    |
|   |  |   |                                    |
|   | Lognormal Stati  | stics   |                                    |
| Minimum of Logged Data  | 7.09   | Mean of logged Data   | 8.87                               |
| Maximum of Logged Data  | 9.473  | SD of logged Data   | 0.58                               |
| Assu  | iming Lognormal I  | Distribution  |                                    |
| 95% H-UCL   | 11277  | 90% Chebyshev (MVUE) UCL  | 11882                              |
| 95% Chebyshev (MVUE) UCL  | 13452  | 97.5% Chebyshev (MVUE) UCL  | 15631                              |
| 99% Chebyshev (MVUE) UCL  |  |   |                                    |
| Nonparame   | tric Distribution Fr   | ee UCL Statistics   |                                    |
| •   | r to follow a Disce  |   |                                    |
|   |  |   |                                    |
| Nonpar  | ametric Distributio  | on Free UCLs  |                                    |
|   |  |   |                                    |
| 95% CLT UCL   | 9169   | 95% BCA Bootstrap UCL   | 9054                               |
| 95% CLT UCL<br>95% Standard Bootstrap UCL   | 9169<br>9137   | 95% BCA Bootstrap UCL<br>95% Bootstrap-t UCL  | 9054<br>9105                       |
|   |  |   |                                    |
| 95% Standard Bootstrap UCL  | 9137   | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL   | 9105<br>9112                       |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL  | 9137<br>9072   | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL   | 9105<br>9112<br>11014              |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL   | 9137<br>9072<br>10090  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL   | 9105<br>9112<br>11014              |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL   | 9137<br>9072<br>10090<br>12296   | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL   | 9105<br>9112<br>11014              |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL   | 9137       9072       10090       12296       Suggested UCL t       9226   | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL   | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Student's-t UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>GUCL are provide<br>, data distribution,<br>forld data sets; for  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size.<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide  | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,<br>forld data sets; for  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide<br>reliable. Chen's and Johnson's met  | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,<br>forld data sets; for  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size.<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide  | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,<br>forld data sets; for  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici  | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide<br>reliable. Chen's and Johnson's met  | 9137<br>9072<br>10090<br>12296<br>Suggested UCL t<br>9226<br>OUCL are provide<br>, data distribution,<br>forld data sets; for  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici<br>then, Johnson, Lognormal, and Gamma) may not be<br>istments for positvely skewed data sets. | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide<br>reliable. Chen's and Johnson's met  | 9137         9072         10090         12296         Suggested UCL t         9226         OUCL are provide         , data distribution,         /orld data sets; for         ence limits (e.g., C         thods provide adju                          | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici<br>then, Johnson, Lognormal, and Gamma) may not be<br>istments for positvely skewed data sets. | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide<br>reliable. Chen's and Johnson's met<br>aniline   62-53-3)                                  | 9137         9072         10090         12296         Suggested UCL t         9226         6 UCL are provide         , data distribution,         /orld data sets; for         ence limits (e.g., C         thods provide adju         General Statis  | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici<br>then, Johnson, Lognormal, and Gamma) may not be<br>istments for positvely skewed data sets. | 9105<br>9112<br>11014<br>14815     |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>97.5% Chebyshev(Mean, Sd) UCL<br>95% Student's-t UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size.<br>However, simulations results will not cover all Real W<br>Note: For highly negatively-skewed data, confide<br>reliable. Chen's and Johnson's met<br>aniline   62-53-3)<br>Total Number of Observations | 9137       9072       10090       12296       Suggested UCL to       9226       OUCL are provide       out a distribution,       forld data sets; for       ence limits (e.g., Control adjute       thods provide adjute       General Statis       20 | 95% Bootstrap-t UCL<br>95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL<br>99% Chebyshev(Mean, Sd) UCL<br>o Use<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici<br>then, Johnson, Lognormal, and Gamma) may not be<br>istments for positvely skewed data sets. | 9105<br>9112<br>11014<br>14815<br> |

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

## The data set for variable C (soil | aniline | 62-53-3) was not processed!

C (soil | anthracene | 120-12-7)

|   | General S   | Statistics  |   |
|---|---|---|---|
| Total Number of Observations  | 20  | Number of Distinct Observations   | 16  |
| Number of Detects   | 4   | Number of Non-Detects   | 16  |
| Number of Distinct Detects  | 4   | Number of Distinct Non-Detects  | 12  |
| Minimum Detect  | 0.14  | Minimum Non-Detect  | 0.18  |
| Maximum Detect  | 0.69  | Maximum Non-Detect  | 0.22  |
| Variance Detects  | 0.0509  | Percent Non-Detects   | 80%   |
| Mean Detects  | 0.403   | SD Detects  | 0.22  |
| Median Detects  | 0.39  | CV Detects  | 0.56  |
| Skewness Detects  | 0.328   | Kurtosis Detects  | 1.40  |
| Mean of Logged Detects  | -1.056  | SD of Logged Detects  | 0.6   |
| Norma   | al GOF Test   | on Detects Only   |   |
| Shapiro Wilk Test Statistic   | 0.969   | Shapiro Wilk GOF Test   |   |
| 1% Shapiro Wilk Critical Value  | 0.687   | Detected Data appear Normal at 1% Significance Leve   | el  |
| Lilliefors Test Statistic   | 0.237   | Lilliefors GOF Test   |   |
| 1% Lilliefors Critical Value  | 0.413   | Detected Data appear Normal at 1% Significance Leve   | el  |
| Detected Data ap  | opear Norma   | al at 1% Significance Level   |   |
| Note GOF tests m  | ay be unreli  | able for small sample sizes   |   |
|   |   |   |   |
|   |   |   |   |
| Kaplan-Meier (KM) Statistics using  | Normal Crit   | tical Values and other Nonparametric UCLs   |   |
| Kaplan-Meier (KM) Statistics using<br>KM Mean   | Normal Crit   | tical Values and other Nonparametric UCLs<br>KM Standard Error of Mean  | 0.03  |
|   |   | -   | 0.03<br>N/A                                 |
| KM Mean   | 0.193   | KM Standard Error of Mean   |   |
| KM Mean<br>90KM SD  | 0.193<br>0.137  | KM Standard Error of Mean<br>95% KM (BCA) UCL   | N/A   |
| KM Mean<br>90KM SD<br>95% KM (t) UCL  | 0.193<br>0.137<br>0.253   | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | N/A<br>N/A<br>N/A                           |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL  | 0.193<br>0.137<br>0.253<br>0.251  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | N/A<br>N/A<br>N/A<br>0.3                    |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.34                   |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.34                   |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF T   | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.34<br>0.54           |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Fests on Det<br>0.287   | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>ected Observations Only<br>Anderson-Darling GOF Test  | N/A<br>N/A<br>N/A<br>0.3<br>0.5             |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Tests on Det<br>0.287<br>0.659  | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.3<br>0.5             |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br><b>Tests on Det</b><br>0.287<br>0.659<br>0.258<br>0.396   | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected data appear Gamma Distributed at 5% Significanc         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significanc   | N/A<br>N/A<br>N/A<br>0.3<br>0.5             |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected data appear C   | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Fests on Det<br>0.287<br>0.659<br>0.258<br>0.396<br>Gamma Dist  | KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>ected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significanc<br>Kolmogorov-Smirnov GOF  | N/A<br>N/A<br>0.3<br>0.5                    |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected data appear (Compared to the state of t | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br><b>Fests on Det</b><br>0.287<br>0.659<br>0.258<br>0.396<br><b>Gamma Dist</b><br>ay be unreli                | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         0000 Comparison Com | N/A<br>N/A<br>N/A<br>0.3<br>0.5             |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected data appear (Comparison)         Note GOF tests m   | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Fests on Det<br>0.287<br>0.659<br>0.258<br>0.396<br>Gamma Dist<br>may be unreli                             | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected data appear Gamma Distributed at 5% Significance         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         ributed at 5% Significance Level         able for small sample sizes  | N/A<br>N/A<br>0.3<br>0.5                    |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected data appear O         Note GOF tests m         Gamma S         k hat (MLE)  | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Tests on Det<br>0.287<br>0.659<br>0.258<br>0.396<br>Gamma Dist<br>hay be unreliant<br>Statistics on<br>3.59 | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         0000 KM C   | N/A<br>N/A<br>N/A<br>0.3/<br>0.5/<br>e Leve |
| KM Mean         90KM SD         95% KM (t) UCL         95% KM (z) UCL         90% KM Chebyshev UCL         97.5% KM Chebyshev UCL         97.5% KM Chebyshev UCL         Gamma GOF T         A-D Test Statistic         5% A-D Critical Value         K-S Test Statistic         5% K-S Critical Value         Detected data appear (Comparison)         Note GOF tests m   | 0.193<br>0.137<br>0.253<br>0.251<br>0.298<br>0.413<br>Fests on Det<br>0.287<br>0.659<br>0.258<br>0.396<br>Gamma Dist<br>may be unreli                             | KM Standard Error of Mean         95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL         95% KM Bootstrap t UCL         95% KM Chebyshev UCL         95% KM Chebyshev UCL         99% KM Chebyshev UCL         Detected data appear Gamma Distributed at 5% Significance         Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         ributed at 5% Significance Level         able for small sample sizes         Detected Data Only   | N/A<br>N/A<br>0.34<br>0.54                  |

| Gamma ROS                                       | Statistics us   | ing Imputed Non-Detects   |        |
|---|-----------------|---|--------|
|   |                 | 6 NDs with many tied observations at multiple DLs               |        |
| GROS may not be used when kstar of detects is s | mall such a     | s <1.0, especially when the sample size is small (e.g., <15-20) |        |
| For such situations, GROS n                     | nethod may      | yield incorrect values of UCLs and BTVs                         |        |
| This is especia                                 | ally true whe   | en the sample size is small.                                    |        |
| For gamma distributed detected data, BTVs a     | nd UCLs ma      | ay be computed using gamma distribution on KM estimates         |        |
| Minimum   | 0.01            | Mean  | 0.165  |
| Maximum   | 0.69            | Median  | 0.105  |
| SD  | 0.158           | CV  | 0.954  |
| k hat (MLE)                                     | 1.612           | k star (bias corrected MLE)                                     | 1.404  |
| Theta hat (MLE)                                 | 0.102           | Theta star (bias corrected MLE)                                 | 0.118  |
| nu hat (MLE)                                    | 64.5            | nu star (bias corrected)  | 56.16  |
| Adjusted Level of Significance (β)              | 0.038           |   |        |
| Approximate Chi Square Value (56.16, α)         | 39.93           | Adjusted Chi Square Value (56.16, β)                            | 38.85  |
| 95% Gamma Approximate UCL                       | 0.232           | 95% Gamma Adjusted UCL  | N/A    |
|   |                 |   |        |
| Estimates of Ga                                 | mma Paran       | neters using KM Estimates                                       |        |
| Mean (KM)                                       | 0.193           | SD (KM)   | 0.137  |
| Variance (KM)                                   | 0.0187          | SE of Mean (KM)   | 0.0353 |
| k hat (KM)                                      | 1.986           | k star (KM)   | 1.721  |
| nu hat (KM)                                     | 79.44           | nu star (KM)  | 68.86  |
| theta hat (KM)                                  | 0.0969          | theta star (KM)   | 0.112  |
| 80% gamma percentile (KM)                       | 0.293           | 90% gamma percentile (KM)                                       | 0.388  |
| 95% gamma percentile (KM)                       | 0.479           | 99% gamma percentile (KM)                                       | 0.683  |
|   |                 |   |        |
| Gamma   | a Kaplan-Me     | eier (KM) Statistics  |        |
| Approximate Chi Square Value (68.86, $\alpha$ ) | 50.76           | Adjusted Chi Square Value (68.86, β)                            | 49.53  |
| 95% KM Approximate Gamma UCL                    | 0.261           | 95% KM Adjusted Gamma UCL                                       | 0.268  |
|   |                 |   |        |
| Lognormal GOF                                   | Test on De      | etected Observations Only                                       |        |
| Shapiro Wilk Test Statistic                     | 0.933           | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                 | 0.792           | Detected Data appear Lognormal at 10% Significance L            | evel   |
| Lilliefors Test Statistic                       | 0.287           | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                   | 0.346           | Detected Data appear Lognormal at 10% Significance L            | evel   |
|   |                 | nal at 10% Significance Level                                   |        |
|   |                 | liable for small sample sizes                                   |        |
|   |                 |   |        |
| Lognormal BOS                                   | Statistics U    | Ising Imputed Non-Detects                                       |        |
| Mean in Original Scale                          | 0.19            | Mean in Log Scale   | -1.818 |
| SD in Original Scale                            | 0.143           | SD in Log Scale   | 0.509  |
| 95% t UCL (assumes normality of ROS data)       | 0.246           | 95% Percentile Bootstrap UCL                                    | 0.246  |
| 95% BCA Bootstrap UCL                           | 0.240           | 95% Bootstrap t UCL   | 0.301  |
| 95% H-UCL (Log ROS)                             | 0.234           |   | 0.001  |
|   | 0.204           |   |        |
| Statistics using VM estimates a                 | n Logged D      | ata and Assuming Lognormal Distribution                         |        |
|   |                 | ata and Assuming Lognormal Distribution KM Geo Mean             | 0.168  |
| KM Mean (logged)                                | -1.784<br>0.446 |   | 1.969  |
| KM Stondard Error of Moon (logged)              |                 | 95% Critical H Value (KM-Log)                                   |        |
| KM Standard Error of Mean (logged)              | 0.115           | 95% H-UCL (KM -Log)   | 0.227  |
| KM SD (logged)                                  | 0.446           | 95% Critical H Value (KM-Log)                                   | 1.969  |

| KM Standard Error of Mean (logged)   | 0.115  |   |   |
|--|--|---|---|
|  | DI /0.01   |   |   |
| DL/2 Normal  | DL/2 Sta   | DL/2 Log-Transformed  |   |
| Mean in Original Scale   | 0.16   | Mean in Log Scale   | -2.055  |
| SD in Original Scale   | 0.153  | SD in Log Scale   | 0.57  |
| 95% t UCL (Assumes normality)  | 0.133  | 95% H-Stat UCL  | 0.37  |
|  |  | ed for comparisons and historical reasons   | 0.2   |
| Nonparame  | tric Distributio   | on Free UCL Statistics  |   |
| Detected Data appear   | Normal Dist  | ributed at 1% Significance Level  |   |
|  | Suggested L  | ICI to lise   |   |
| 95% KM (t) UCL   | 0.253  |   |   |
|  | 0.200  |   |   |
|  |  |   |   |
|  |  | ovided to help the user to select the most appropriate 95% UCL.   |   |
|  |  | ution, and skewness using results from simulation studies.  |   |
| However, simulations results will not cover all Real W   | orld data set  | s; for additional insight the user may want to consult a statisticia  | an.   |
|  |  |   |   |
| oil   antimony   7440-36-0)  |  |   |   |
|  |  |   |   |
|  | General S  | Statistics  |   |
| Total Number of Observations   | 20   | Number of Distinct Observations   | 17  |
| Number of Detects  | 2  | Number of Non-Detects   | 18  |
|  | -  |   | 10  |
| Number of Distinct Detects   | 2  | Number of Distinct Non-Detects  | 15  |
| Number of Distinct Detects   | 2  | Number of Distinct Non-Detects  | 15  |
| Minimum Detect   | 1.367  | Minimum Non-Detect  | 0.73  |
| Minimum Detect<br>Maximum Detect   | 1.367<br>1.6   | Minimum Non-Detect<br>Maximum Non-Detect  | 0.73  |
| Minimum Detect<br>Maximum Detect<br>Variance Detects   | 1.367<br>1.6<br>0.0272   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 0.73<br>2.5<br>90%  |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | 1.367<br>1.6<br>0.0272<br>1.483  | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects   | 0.73<br>2.5<br>90%<br>0.16  |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11  |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A  | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Detects   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu   | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu-  | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf<br>mal GOF Test   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>nly 2 Detected Values.   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu-  | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf<br>mal GOF Test   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>nly 2 Detected Values.   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu-<br>Norm<br>Not Enc   | 1.367         1.6         0.0272         1.483         1.483         N/A         0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>nly 2 Detected Values.   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A   |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu-<br>Norm<br>Not Enc   | 1.367         1.6         0.0272         1.483         1.483         N/A         0.391   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>nly 2 Detected Values.   | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A<br>0.11                                 |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Da<br>This is not enough to compu-<br>Norm<br>Not Enco<br>Kaplan-Meier (KM) Statistics using                                      | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf<br>al GOF Test<br>bugh Data to<br>g Normal Crit   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects<br>rul or reliable statistics and estimates.  | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A<br>0.11                                 |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Da<br>Warning: Da<br>This is not enough to compu-<br>Norm<br>Not Enc<br>Kaplan-Meier (KM) Statistics using<br>KM Mean               | 1.367         1.6         0.0272         1.483         1.483         N/A         0.391    at set has or ute meaningf al GOF Test bugh Data to g Normal Crit 0.986  | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects<br>rul or reliable statistics and estimates.  | 0.73<br>2.5<br>90%<br>0.16<br>0.1 <sup>-</sup><br>N/A<br>0.1 <sup>-</sup><br>0.20 |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Da<br>Warning: Da<br>This is not enough to compu-<br>Norm<br>Not Enc<br>Kaplan-Meier (KM) Statistics using<br>KM Mean<br>90KM SD    | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf<br>al GOF Test<br>bugh Data to<br>g Normal Crit<br>0.986<br>0.358   | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects<br>inly 2 Detected Values.<br>ful or reliable statistics and estimates.   | 0.73<br>2.5<br>90%<br>0.16<br>0.1 <sup>-1</sup><br>N/A<br>0.1 <sup>-1</sup>       |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: De<br>This is not enough to compu-<br>Norm<br>Not Enc<br>Kaplan-Meier (KM) Statistics using<br>KM Mean<br>90KM SD<br>95% KM (t) UCL | 1.367<br>1.6<br>0.0272<br>1.483<br>1.483<br>N/A<br>0.391<br>ata set has or<br>ute meaningf<br>ata set has or<br>ata se | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects<br>nly 2 Detected Values.<br>ful or reliable statistics and estimates.<br>on Detects Only<br>Perform GOF Test<br>tical Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (BCA) UCL | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A<br>0.11                                 |
| Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: Da<br>Warning: Da<br>This is not enough to compu-<br>Norm<br>Not Enc<br>Kaplan-Meier (KM) Statistics using<br>KM Mean<br>90KM SD    | 1.367         1.6         0.0272         1.483         1.483         N/A         0.391    at set has or ute meaningf al GOF Test bugh Data to g Normal Crit 0.986 0.358 1.343  | Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects<br>rul or reliable statistics and estimates.  | 0.73<br>2.5<br>90%<br>0.16<br>0.11<br>N/A<br>0.11                                 |

| <b>a</b>  |   |  |   |
|---|---|--|---|
|   | Statistics on Detected  | Data Only  |   |
| k hat (MLE)   | 161.3   | k star (bias corrected MLE)  | N/A   |
| Theta hat (MLE)   | 0.0092  | Theta star (bias corrected MLE)  | N/A   |
| nu hat (MLE)  | 645.3<br>1.483  | nu star (bias corrected)   | N/A   |
| Mean (detects)  | 1.483   |  |   |
| Estimates of Ga   | amma Parameters usi   | ng KM Estimates  |   |
| Mean (KM)   | 0.986   | SD (KM)  | 0.35  |
| Variance (KM)   | 0.128   | SE of Mean (KM)  | 0.20  |
| k hat (KM)  | 7.563   | k star (KM)  | 6.40  |
| nu hat (KM)   | 302.5   | nu star (KM)   | 258.5   |
| theta hat (KM)  | 0.13  | theta star (KM)  | 0.1   |
| 80% gamma percentile (KM)   | 1.288   | 90% gamma percentile (KM)  | 1.50  |
| 95% gamma percentile (KM)   | 1.698   | 99% gamma percentile (KM)  | 2.1   |
| Gamm  | a Kaplan-Meier (KM) :   | Statistics   |   |
|   |   | Adjusted Level of Significance (β)   | 0.03  |
| Approximate Chi Square Value (258.48, $\alpha$ )  | 222.3   | Adjusted Chi Square Value (258.48, β)  | 219.6   |
| 95% KM Approximate Gamma UCL  | 1.146   | 95% KM Adjusted Gamma UCL  | 1.10  |
|   | bugh Data to Perform  |  |   |
| Lognormal ROS   | S Statistics Using Impu   | uted Non-Detects   | 0.05  |
| Lognormal ROS<br>Mean in Original Scale   | S Statistics Using Impl   | u <b>ted Non-Detects</b><br>Mean in Log Scale  |   |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale   | S Statistics Using Impu<br>1.068<br>0.186   | u <b>ted Non-Detects</b><br>Mean in Log Scale<br>SD in Log Scale   | 0.16  |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)  | <b>5 Statistics Using Imp</b><br>1.068<br>0.186<br>1.139  | u <b>ted Non-Detects</b><br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL   | 0.10  |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale   | S Statistics Using Impu<br>1.068<br>0.186   | u <b>ted Non-Detects</b><br>Mean in Log Scale<br>SD in Log Scale   | 0.1   |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | S Statistics Using Impu           1.068           0.186           1.139           1.152           1.139   | uted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL  | 0.1   |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | S Statistics Using Impu           1.068           0.186           1.139           1.152           1.139   | u <b>ted Non-Detects</b><br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL   | 0.10  |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)  | S Statistics Using Impo           1.068           0.186           1.139           1.152           1.139   | uted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution  | 0.1(  |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)  | S Statistics Using Impu           1.068           0.186           1.139           1.152           1.139           m Logged Data and A           -0.0734   | uted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean   | 0.1(<br>1.1)<br>1.1(<br>0.9)<br>1.8                                 |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)  | S Statistics Using Imputing         1.068         0.186         1.139         1.152         1.139         m Logged Data and A         -0.0734         0.332         0.191   | Juted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 0.10<br>1.13<br>1.10<br>0.92<br>1.8<br>1.13                         |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)  | S Statistics Using Impu           1.068           0.186           1.139           1.152           1.139           0.186           0.332   | Uted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)  | 0.10<br>1.13<br>1.10<br>0.92<br>1.8<br>1.13                         |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM SD (logged)  | S Statistics Using Imput         1.068         0.186         1.139         1.152         1.139         on Logged Data and A         -0.0734         0.332         0.191         0.332         0.191   | Juted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 0.10<br>1.11<br>1.10<br>0.92<br>1.8<br>1.11                         |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM SD (logged)  | S Statistics Using Impu           1.068           0.186           1.139           1.152           1.152           1.139           on Logged Data and A           -0.0734           0.332           0.191           0.332  | Jeted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)   | 0.10<br>1.13<br>1.10<br>0.92<br>1.87<br>1.13                        |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)  | S Statistics Using Imput         1.068         0.186         1.139         1.152         1.139         on Logged Data and A         -0.0734         0.332         0.191         0.332         0.191   | Juted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)  | 0.05<br>0.16<br>1.13<br>1.16<br>0.92<br>1.87<br>1.13<br>1.87        |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM Standard Error of Mean (logged)  | S Statistics Using Imput         1.068         0.186         1.139         1.152         1.139         on Logged Data and A         -0.0734         0.332         0.191         0.332         0.191         DL/2 Statistics   | Juted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)   | 0.10  |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM Standard Error of Mean (logged)<br>KM Standard Error of Mean (logged)  | S Statistics Using Impo         1.068         0.186         1.139         1.152         1.139         1.152         1.139         0.186         0.186         1.139         1.152         1.139         0.101         0.332         0.191         0.332         0.191         0.332         0.191         0.332         0.191         0.332         0.191 | Lited Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)   | 0.10<br>1.11<br>1.10<br>0.92<br>1.87<br>1.11<br>1.87<br>-0.16       |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>CDL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale  | S Statistics Using Impu         1.068         0.186         1.139         1.152         1.152         1.139         on Logged Data and A         -0.0734         0.332         0.191         0.332         0.191         0.32         0.191         0.332         0.191         0.332         0.191   | Jited Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>ssuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)  | 0.10<br>1.11<br>1.10<br>0.92<br>1.8<br>1.13<br>1.8<br>-0.16<br>0.43 |
| Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>CDL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me | S Statistics Using Impu         1.068         0.186         1.139         1.152         1.152         1.139         on Logged Data and A         -0.0734         0.332         0.191         0.332         0.191         0.32         0.191         0.332         0.191         0.332         0.191   | Jated Non-Detects         SD in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL         95% Bootstrap t UCL         ssuming Lognormal Distribution         KM Geo Mean         95% Critical H Value (KM-Log)         95% H-UCL (KM -Log)         95% Critical H Value (KM-Log)         95% H-Stat UCL         Mean in Log Scale         95% H-Stat UCL         nparisons and historical reasons | 0.11<br>1.11<br>1.11<br>0.92<br>1.8<br>1.11<br>1.8<br>-0.16<br>0.4  |

|  | Suggested L       | JCL to Use   |         |
|--|-------------------|--|---------|
| 95% KM (t) UCL                                     | 1.343             |  |         |
| Note: Suggestions regarding the selection of a 95% | UCL are pro       | ovided to help the user to select the most appropriate 95% UCL       |         |
|  |                   | tion, and skewness using results from simulation studies.            |         |
|  |                   | s; for additional insight the user may want to consult a statisticia | an      |
|  |                   |  | an.     |
|  |                   |  |         |
| il   arsenic   7440-38-2)                          |                   |  |         |
|  | General S         | statistics   |         |
| Total Number of Observations                       | 20                | Number of Distinct Observations                                      | 20      |
|  |                   | Number of Missing Observations                                       | 0       |
| Minimum  | 3                 | Mean   | 7.01    |
| Maximum  | 25                | Median   | 5.65    |
| SD   | 4.731             | Std. Error of Mean   | 1.05    |
| Coefficient of Variation                           | 0.675             | Skewness   | 3.14    |
|  |                   |  |         |
| Shapiro Wilk Test Statistic                        | Normal G<br>0.646 | OF Test Shapiro Wilk GOF Test  |         |
| 1% Shapiro Wilk Critical Value                     | 0.868             | Data Not Normal at 1% Significance Level                             |         |
| Lilliefors Test Statistic                          | 0.242             | Lilliefors GOF Test  |         |
| 1% Lilliefors Critical Value                       | 0.242             | Data Not Normal at 1% Significance Level                             |         |
|  |                   | 6 Significance Level   |         |
|  | Normal at 17      |  |         |
| Ass  | suming Norm       | al Distribution  |         |
| 95% Normal UCL                                     |                   | 95% UCLs (Adjusted for Skewness)                                     |         |
| 95% Student's-t UCL                                | 8.839             | 95% Adjusted-CLT UCL (Chen-1995)                                     | 9.54    |
|  |                   | 95% Modified-t UCL (Johnson-1978)                                    | 8.90    |
|  | Gamma G           | OF Test  |         |
| A-D Test Statistic                                 | 0.917             | Anderson-Darling Gamma GOF Test                                      |         |
| 5% A-D Critical Value                              | 0.746             | Data Not Gamma Distributed at 5% Significance Leve                   | el      |
| K-S Test Statistic                                 | 0.188             | Kolmogorov-Smirnov Gamma GOF Test                                    |         |
| 5% K-S Critical Value                              | 0.195             | Detected data appear Gamma Distributed at 5% Significand             | ce Leve |
|  |                   | stribution at 5% Significance Level                                  |         |
|  |                   |  |         |
| k hat (MLE)  | Gamma S<br>4.003  | k star (bias corrected MLE)  | 3.43    |
|  |                   |  |         |
| Theta hat (MLE)                                    | 1.751             | Theta star (bias corrected MLE)                                      | 2.04    |
| nu hat (MLE)                                       | 160.1             | nu star (bias corrected)   | 137.5   |
| MLE Mean (bias corrected)                          | 7.01              | MLE Sd (bias corrected)  | 3.78    |
|  | 0.000             | Approximate Chi Square Value (0.05)                                  | 111.4   |
| Adjusted Level of Significance                     | 0.038             | Adjusted Chi Square Value  | 109.5   |
| Ass  | uming Gam         | na Distribution  |         |
| 95% Approximate Gamma UCL                          | 8.652             | 95% Adjusted Gamma UCL   | 8.79    |
|  |                   |  |         |
|  | Lognormal         | GOF Test   |         |

| I. I   | 0.916  | Shapiro Wilk Lognormal GOF Test  |                                    |
|--|--|--|------------------------------------|
| 10% Shapiro Wilk Critical Value  | 0.92   | Data Not Lognormal at 10% Significance Level   |                                    |
| Lilliefors Test Statistic  | 0.15   | Lilliefors Lognormal GOF Test  |                                    |
| 10% Lilliefors Critical Value  | 0.176  | Data appear Lognormal at 10% Significance Level  |                                    |
| Data appear Approxi  | imate Lognorma   | l at 10% Significance Level  |                                    |
|  |  |  |                                    |
|  | Lognormal Sta  |  |                                    |
| Minimum of Logged Data   | 1.099  | Mean of logged Data  | 1.817                              |
| Maximum of Logged Data   | 3.219  | SD of logged Data  | 0.476                              |
| العكم  | ming Lognorma  | Distribution   |                                    |
| 95% H-UCL  | 8.571  | 90% Chebyshev (MVUE) UCL   | 9.11                               |
| 95% Chebyshev (MVUE) UCL   | 10.13  | 97.5% Chebyshev (MVUE) UCL   | 11.55                              |
| 99% Chebyshev (MVUE) UCL   | 14.35  |  |                                    |
|  | 11.00  |  |                                    |
| Nonparamet   | tric Distribution I  | Free UCL Statistics  |                                    |
| Data appear  | to follow a Disc   | ernible Distribution   |                                    |
|  |  |  |                                    |
| -  | ametric Distribut  | tion Free UCLs   |                                    |
| 95% CLT UCL  | 8.75   | 95% BCA Bootstrap UCL  | 9.753                              |
| 95% Standard Bootstrap UCL   | 8.706  | 95% Bootstrap-t UCL  | 10.81                              |
| 95% Hall's Bootstrap UCL   | 15.96  | 95% Percentile Bootstrap UCL   | 8.875                              |
| 90% Chebyshev(Mean, Sd) UCL  | 10.18  | 95% Chebyshev(Mean, Sd) UCL  | 11.62                              |
| 97.5% Chebyshev(Mean, Sd) UCL  | 13.62  | 99% Chebyshev(Mean, Sd) UCL  | 17.54                              |
|  | 0  |  |                                    |
|  | Suggested UCL<br>8.798   | . to Use   |                                    |
| 95% Adjusted Gamma UCL   | 8.798  |  |                                    |
|  | roximate distrib   | ution passing only one of the GOF tests,   |                                    |
| When a data set follows an app   |  |  |                                    |
|  |  |  |                                    |
|  |  | bution passing both GOF tests in ProUCL  |                                    |
| it is suggested to use a UCL base  | ed upon a distril  |  |                                    |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%  | ed upon a distril  | bution passing both GOF tests in ProUCL  |                                    |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ed upon a distril<br>UCL are provid<br>data distribution   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statisticia  | n.                                 |
| it is suggested to use a UCL base<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; fo   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statisticia  | n.<br>18                           |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W  | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statisticial<br>istics                                     |                                    |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W  | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat   | bution passing both GOF tests in ProUCL<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticial<br>istics<br>Number of Distinct Observations | 18                                 |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   barium   7440-39-3)<br>Total Number of Observations                               | ed upon a distril UCL are provid data distribution orld data sets; fo General Stat 20  | istics Number of Distinct Observations Number of Missing Observations  | 18<br>0                            |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>C (soil   barium   7440-39-3)<br>Total Number of Observations<br>Minimum                  | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>20<br>41   | istics Number of Distinct Observations Number of Missing Observations Mean   | 18<br>0<br>63.93                   |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum         | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stati<br>20<br>41<br>140                                 | istics Number of Distinct Observations Number of Missing Observations Mean Median  | 18<br>0<br>63.93<br>59.08          |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD   | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; for<br>General Stati<br>20<br>41<br>140<br>22.74                       | istics Number of Distinct Observations Number of Missing Observations Mean Median Std. Error of Mean   | 18<br>0<br>63.93<br>59.08<br>5.085 |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD   | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; for<br>General Stat<br>20<br>41<br>140<br>22.74<br>0.356<br>Normal GOF | istics Number of Distinct Observations Number of Missing Observations Mean Median Std. Error of Mean Skewness  | 18<br>0<br>63.93<br>59.08<br>5.085 |
| it is suggested to use a UCL bas<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>C (soil   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD | ed upon a distril<br>UCL are provid<br>data distribution<br>orld data sets; for<br>General Stati<br>20<br>41<br>140<br>22.74<br>0.356              | istics Number of Distinct Observations Number of Missing Observations Mean Median Std. Error of Mean Skewness  | 18<br>0<br>63.93<br>59.08<br>5.085 |

| Lilliefors Test Statistic       | 0.264           | Lilliefors GOF Test                                |       |
|---------------------------------|-----------------|--|-------|
| 1% Lilliefors Critical Value    |                 | Data Not Normal at 1% Significance Level           |       |
|                                 |                 | % Significance Level                               |       |
|                                 |                 |  |       |
| As                              | sumina Norr     | nal Distribution                                   |       |
| 95% Normal UCL                  | g               | 95% UCLs (Adjusted for Skewness)                   |       |
| 95% Student's-t UCL             | 72.72           | 95% Adjusted-CLT UCL (Chen-1995)                   | 75.05 |
|                                 |                 | 95% Modified-t UCL (Johnson-1978)                  | 73.15 |
|                                 |                 |  |       |
|                                 | Gamma           | GOF Test   |       |
| A-D Test Statistic              | 0.897           | Anderson-Darling Gamma GOF Test                    |       |
| 5% A-D Critical Value           | 0.742           | Data Not Gamma Distributed at 5% Significance Leve | el    |
| K-S Test Statistic              |                 | Kolmogorov-Smirnov Gamma GOF Test                  |       |
| 5% K-S Critical Value           |                 | Data Not Gamma Distributed at 5% Significance Lev  | el    |
|                                 |                 | d at 5% Significance Level                         |       |
|                                 |                 |  |       |
|                                 | Gamma           | Statistics   |       |
| k hat (MLE)                     |                 | k star (bias corrected MLE)                        | 9.499 |
| Theta hat (MLE)                 |                 | Theta star (bias corrected MLE)                    | 6.73  |
| nu hat (MLE)                    |                 | nu star (bias corrected)                           | 380   |
| MLE Mean (bias corrected)       | 63.93           | MLE Sd (bias corrected)                            | 20.74 |
|                                 |                 | Approximate Chi Square Value (0.05)                | 335.8 |
| Adjusted Level of Significance  | 0.038           | Adjusted Chi Square Value                          | 332.5 |
|                                 |                 | · · · · · · · · · · · · · · · · · · ·              |       |
| As                              | sumina Gam      | ma Distribution                                    |       |
| 95% Approximate Gamma UCL       | 72.34           | 95% Adjusted Gamma UCL                             | 73.05 |
|                                 |                 |  |       |
|                                 | Lognorma        | I GOF Test   |       |
| Shapiro Wilk Test Statistic     | 0.899           | Shapiro Wilk Lognormal GOF Test                    |       |
| 10% Shapiro Wilk Critical Value | 0.92            | Data Not Lognormal at 10% Significance Level       |       |
| Lilliefors Test Statistic       | 0.195           | Lilliefors Lognormal GOF Test                      |       |
| 10% Lilliefors Critical Value   | 0.176           | Data Not Lognormal at 10% Significance Level       |       |
| Data Not Lo                     | ognormal at     | 10% Significance Level                             |       |
|                                 |                 |  |       |
|                                 | Lognorma        | I Statistics                                       |       |
| Minimum of Logged Data          | 3.714           | Mean of logged Data                                | 4.112 |
| Maximum of Logged Data          | 4.942           | SD of logged Data                                  | 0.292 |
|                                 |                 |  |       |
| Ass                             | uming Logno     | rmal Distribution                                  |       |
| 95% H-UCL                       | 72.11           | 90% Chebyshev (MVUE) UCL                           | 76.2  |
| 95% Chebyshev (MVUE) UCL        | 81.91           | 97.5% Chebyshev (MVUE) UCL                         | 89.83 |
| 99% Chebyshev (MVUE) UCL        | 105.4           |  |       |
|                                 | 1               | 1  |       |
| Nonparame                       | etric Distribut | ion Free UCL Statistics                            |       |
| Data do n                       | ot follow a D   | iscernible Distribution                            |       |
|                                 |                 |  |       |
| Nonpa                           | rametric Dist   | ribution Free UCLs                                 |       |
| 95% CLT UCL                     | 72.29           | 95% BCA Bootstrap UCL                              | 75.25 |
| 95% Standard Bootstrap UCL      | 72.04           | 95% Bootstrap-t UCL                                | 79.54 |

| Gamma  | Statistics on                | Detected Data Only   |         |
|--|------------------------------|--|---------|
| Note GOF tests r                                       | nay be unreli                | iable for small sample sizes   |         |
|  |                              | tributed at 5% Significance Level                                    |         |
| 5% K-S Critical Value                                  | 0.33                         | Detected data appear Gamma Distributed at 5% Significanc             | e Level |
| K-S Test Statistic                                     | 0.278                        | Kolmogorov-Smirnov GOF   |         |
| 5% A-D Critical Value                                  | 0.763                        | Detected data appear Gamma Distributed at 5% Significanc             | e Level |
| Gamma GOF<br>A-D Test Statistic                        | <b>Tests on Det</b><br>0.385 | ected Observations Only<br>Anderson-Darling GOF Test                 |         |
| 97.5% KM Chebyshev UCL                                 | 0.58                         | 99% KM Chebyshev UCL   | 0.86    |
| 90% KM Chebyshev UCL                                   | 0.333                        | 95% KM Chebyshev UCL   | 0.43    |
| 95% KM (z) UCL   | 0.23                         | 95% KM Bootstrap t UCL   | 0.96    |
| 95% KM (t) UCL   | 0.236                        | 95% KM (Percentile Bootstrap) UCL                                    | 0.24    |
| 90KM SD  | 0.323                        | 95% KM (BCA) UCL   | 0.24    |
| KM Mean  | 0.105                        | KM Standard Error of Mean  | 0.070   |
|  | -                            | tical Values and other Nonparametric UCLs                            |         |
| Detected Data  | Not Normal                   | at 1% Significance Level   |         |
| 1% Lilliefors Critical Value                           | 0.35                         | Detected Data Not Normal at 1% Significance Level                    |         |
| Lilliefors Test Statistic                              | 0.372                        | Lilliefors GOF Test  |         |
| 1% Shapiro Wilk Critical Value                         | 0.73                         | Detected Data Not Normal at 1% Significance Level                    |         |
| Shapiro Wilk Test Statistic                            | 0.617                        | Shapiro Wilk GOF Test  |         |
| Norm   | al GOF Test                  | on Detects Only  |         |
| Mean of Logged Detects                                 | -2.704                       | SD of Logged Detects   | 2.27    |
|  | 2.378<br>-2.704              | Kurtosis Detects   | 5.76    |
| Median Detects<br>Skewness Detects                     |                              |  |         |
| Mean Detects   | 0.304                        | SD Detects<br>CV Detects   | 0.54    |
| Variance Detects                                       | 0.294                        | Percent Non-Detects  | 66.6    |
| Maximum Detect   | 1.5                          | Maximum Non-Detect   | 0.27    |
| Minimum Detect   | 0.001                        | Minimum Non-Detect 4   |         |
| Number of Distinct Detects                             | 7                            | Number of Distinct Non-Detects                                       | 11      |
| Number of Detects                                      | 7                            | Number of Non-Detects  | 14      |
| Total Number of Observations                           | 21                           | Number of Distinct Observations                                      | 18      |
|  | General S                    | Statistics   |         |
| soil   benzene   71-43-2)                              |                              |  |         |
| However, simulations results will not cover all Real W | orld data set                | s; for additional insight the user may want to consult a statisticia | ın.     |
| Recommendations are based upon data size,              | , data distribu              | ution, and skewness using results from simulation studies.           |         |
| Note: Suggestions regarding the selection of a 95%     | UCL are pro                  | ovided to help the user to select the most appropriate 95% UCL.      |         |
| 95% Student's-t UCL                                    | 72.72                        |  |         |
|  | Suggested l                  | JCL to Use   |         |
| 97.5% Chebyshev(Mean, Sd) UCL                          | 95.68                        | 99% Chebyshev(Mean, Sd) UCL  | 114.5   |
| 90% Chebyshev(Mean, Sd) UCL                            | 79.18                        | 95% Chebyshev(Mean, Sd) UCL  | 86.0    |

| k hat (MLE)                               | 0.43                 | k star (bias corrected MLE)                                     | 0.341  |
|---|----------------------|---|--------|
| Theta hat (MLE)                           |                      | Theta star (bias corrected MLE)                                 | 0.891  |
| nu hat (MLE)                              | 6.018                | nu star (bias corrected)  | 4.772  |
| Mean (detects)                            | 0.304                |   |        |
|   |                      |   |        |
|   |                      | ing Imputed Non-Detects   |        |
|   |                      | NDs with many tied observations at multiple DLs                 |        |
| -   |                      | s <1.0, especially when the sample size is small (e.g., <15-20) |        |
|   |                      | yield incorrect values of UCLs and BTVs                         |        |
|   | -                    | n the sample size is small.                                     |        |
|   |                      | y be computed using gamma distribution on KM estimates          | 0.108  |
| Minimum<br>Maximum                        |                      | Mean<br>Median  | 0.108  |
| SD  | 0.329                | CV  | 3.05   |
|   |                      |   | 0.358  |
| k hat (MLE)                               | 0.38                 | k star (bias corrected MLE)<br>Theta star (bias corrected MLE)  | 0.358  |
| Theta hat (MLE)                           |                      | · · · · · · · · · · · · · · · · · · ·                           |        |
| nu hat (MLE)                              |                      | nu star (bias corrected)  | 15.02  |
| Adjusted Level of Significance (β)        |                      |   |        |
| Approximate Chi Square Value (15.02, α)   |                      | Adjusted Chi Square Value (15.02, $\beta$ )                     | 6.862  |
| 95% Gamma Approximate UCL                 | 0.223                | 95% Gamma Adjusted UCL  | 0.236  |
| Estimates of Q                            |                      | notors using KM Estimator                                       |        |
|   |                      | neters using KM Estimates                                       | 0.323  |
| Mean (KM)                                 |                      | SD (KM)   |        |
| Variance (KM)                             |                      | SE of Mean (KM)   | 0.0761 |
| k hat (KM)                                |                      | k star (KM)   | 5.137  |
| nu hat (KM)<br>theta hat (KM)             |                      | nu star (KM)<br>theta star (KM)                                 | 0.857  |
| 80% gamma percentile (KM)                 |                      | 90% gamma percentile (KM)                                       | 0.857  |
| 95% gamma percentile (KM)                 |                      | 90% gamma percentile (KM)<br>99% gamma percentile (KM)          | 1.503  |
| 55 % gamma percentile (KW)                | 0.597                | 33 % gamma percentile (KM)                                      | 1.505  |
| Gamm                                      | a Kaplan-Me          | ier (KM) Statistics   |        |
| Approximate Chi Square Value (5.14, α)    | •                    | Adjusted Chi Square Value (5.14, β)                             | 1.078  |
| 95% KM Approximate Gamma UCL              |                      | 95% KM Adjusted Gamma UCL                                       | 0.5    |
|   |                      |   |        |
| Lognormal GO                              | F Test on De         | etected Observations Only                                       |        |
| Shapiro Wilk Test Statistic               | 0.931                | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value           | 0.838                | Detected Data appear Lognormal at 10% Significance L            | evel   |
| Lilliefors Test Statistic                 | 0.208                | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value             | 0.28                 | Detected Data appear Lognormal at 10% Significance L            | evel   |
| Detected Data app                         | ear Lognorm          | nal at 10% Significance Level                                   |        |
| Note GOF tests                            | <b>nay be unreli</b> | iable for small sample sizes                                    |        |
|   |                      |   |        |
|   |                      | sing Imputed Non-Detects  |        |
| Mean in Original Scale                    |                      | Mean in Log Scale   | -5.881 |
| SD in Original Scale                      |                      | SD in Log Scale   | 2.776  |
| 95% t UCL (assumes normality of ROS data) |                      | 95% Percentile Bootstrap UCL                                    | 0.237  |
| 95% BCA Bootstrap UCL                     |                      | 95% Bootstrap t UCL   | 1.238  |
| 95% H-UCL (Log ROS)                       | 4.002                |   |        |
|   |                      |   |        |

| Statistics using KM estimates   | on Logged D    | Data and Assuming Lognormal Distribution  |               |
|---|----------------|---|---------------|
| KM Mean (logged)  | -5.554         | KM Geo Mean   | 0.00387       |
| KM SD (logged)  | 2.564          | 95% Critical H Value (KM-Log)   | 5.126         |
| KM Standard Error of Mean (logged)  | 0.67           | 95% H-UCL (KM -Log)   | 1.957         |
| KM SD (logged)  |                | 95% Critical H Value (KM-Log)   | 5.126         |
| KM Standard Error of Mean (logged)  |                |   |               |
|   |                |   |               |
| DL/2 Normal   | DL/2 S         | DL/2 Log-Transformed  |               |
| Mean in Original Scale  | 0.123          | Mean in Log Scale   | -4.68         |
|   |                | _   | 2.676         |
| SD in Original Scale  |                | SD in Log Scale   |               |
| 95% t UCL (Assumes normality)   | 0.247          | 95% H-Stat UCL<br>led for comparisons and historical reasons  | 8.05          |
|   |                | tion Free UCL Statistics<br>stributed at 5% Significance Level  |               |
|   | Suaaested      | UCL to Use  |               |
| 95% KM Adjusted Gamma UCL   | 0.5            |   |               |
| · · · ·   |                |   |               |
| The calculated UCLs are based on assumpti                                       | ons that the   | data were collected in a random and unbiased manner.  |               |
| Please verify the d   | lata were co   | llected from random locations.  |               |
| If the data were collected  | using judgn    | nental or other non-random methods,   |               |
| Recommendations are based upon data size  | , data distrit | rovided to help the user to select the most appropriate 95% UCL pution, and skewness using results from simulation studies.<br>ets; for additional insight the user may want to consult a statisticia |               |
| C (soil   benzidine   92-87-5)  |                |   |               |
|   |                |   |               |
|   |                | Statistics  | 10            |
| Total Number of Observations  | 20             | Number of Distinct Observations   | 18            |
| Number of Detects   | 0              | Number of Non-Detects   | 20            |
| Number of Distinct Detects  | 0              | Number of Distinct Non-Detects  | 18            |
| Warning: All observations are Non-Detects                                       | (NDs), ther    | efore all statistics and estimates should also be NDs!  |               |
| Specifically, sample mean, UCLs, UPLs, and                                      | other statis   | tics are also NDs lying below the largest detection limit!  |               |
| The Project Team may decide to use alternative sit                              | e specific va  | lues to estimate environmental parameters (e.g., EPC, BTV).   |               |
| The data set for variable   | C (soil   ben  | zidine   92-87-5) was not processed!  |               |
| C (soil   benzo(a)anthracene   56-55-3)   |                |   |               |
|   |                |   |               |
|   | General        | Statistics  |               |
| Tatal Number of Observations  |                | Statistics Number of Distinct Observations  | 17            |
| Total Number of Observations  | 20             | Number of Distinct Observations   | 17            |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects |                |   | 17<br>12<br>9 |

| Minimum Detect  | 0.07                                       | Minimum Non-Detect   | 0.192              |
|---|--|--|--------------------|
| Maximum Detect  | 1.8  | Maximum Non-Detect   | 0.102              |
| Variance Detects  | 0.476                                      | Percent Non-Detects  | 60%                |
| Mean Detects  | 0.588                                      | SD Detects   | 0.69               |
| Median Detects  | 0.3  | CV Detects   | 1.174              |
| Skewness Detects  | 1.174                                      | Kurtosis Detects   | -0.187             |
| Mean of Logged Detects  | -1.286                                     | SD of Logged Detects   | 1.379              |
|   | 1.200                                      |  | 1.070              |
| Nom   | al GOF Tes                                 | t on Detects Only  |                    |
| Shapiro Wilk Test Statistic   | 0.775                                      | Shapiro Wilk GOF Test  |                    |
| 1% Shapiro Wilk Critical Value  | 0.749                                      | Detected Data appear Normal at 1% Significance Lev               | el                 |
| Lilliefors Test Statistic   | 0.256                                      | Lilliefors GOF Test  |                    |
| 1% Lilliefors Critical Value  | 0.333                                      | Detected Data appear Normal at 1% Significance Lev               | el                 |
| Detected Data a   | appear Norm                                | al at 1% Significance Level                                      |                    |
| Note GOF tests  | may be unre                                | liable for small sample sizes                                    |                    |
|   |  |  |                    |
| Kaplan-Meier (KM) Statistics usin   | g Normal Cr                                | itical Values and other Nonparametric UCLs                       |                    |
| KM Mean   | 0.285                                      | KM Standard Error of Mean  | 0.114              |
| 90KM SD   | 0.477                                      | 95% KM (BCA) UCL   | 0.482              |
| 95% KM (t) UCL  | 0.482                                      | 95% KM (Percentile Bootstrap) UCL                                | 0.48               |
| 95% KM (z) UCL  | 0.473                                      | 95% KM Bootstrap t UCL   | 0.808              |
| 90% KM Chebyshev UCL  | 0.628                                      | 95% KM Chebyshev UCL   | 0.783              |
| 97.5% KM Chebyshev UCL  | 0.998                                      | 99% KM Chebyshev UCL   | 1.422              |
|   | I  | 1  |                    |
| Gamma GOF   | Tests on De                                | tected Observations Only   |                    |
| A-D Test Statistic  | 0.623                                      | Anderson-Darling GOF Test  |                    |
| 5% A-D Critical Value   | 0.744                                      | Detected data appear Gamma Distributed at 5% Significant         | ce Level           |
| K-S Test Statistic  | 0.276                                      | Kolmogorov-Smirnov GOF   |                    |
| 5% K-S Critical Value   | 0.304                                      | Detected data appear Gamma Distributed at 5% Significant         | ce Level           |
| Detected data appear  | Gamma Dis                                  | tributed at 5% Significance Level                                |                    |
| Note GOF tests  | may be unre                                | liable for small sample sizes                                    |                    |
|   | <u></u>                                    |  |                    |
|   |  | Detected Data Only   |                    |
| k hat (MLE)   | 0.788                                      | k star (bias corrected MLE)                                      | 0.576              |
| Theta hat (MLE)   | 0.746                                      | Theta star (bias corrected MLE)                                  | 1.02               |
| nu hat (MLE)  | 12.61                                      | nu star (bias corrected)   | 9.217              |
| Mean (detects)  | 0.588                                      |  |                    |
| Gamma ROS   | Statistics us                              | sing Imputed Non-Detects   |                    |
|   |  | % NDs with many tied observations at multiple DLs                |                    |
|   |  | is <1.0, especially when the sample size is small (e.g., <15-20) |                    |
|   |  |  |                    |
|   |  |  |                    |
|   |  | ay be computed using gamma distribution on KM estimates          |                    |
| Minimum   | 0.01                                       | Mean   | 0.262              |
| Maximum   | 1.8  | Median   | 0.072              |
| SD  | 0.502                                      | CV   | 1.918              |
|   |  |  | 0.399              |
|   |  |  | 0.656              |
| This is especi<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum | ally true whe<br>and UCLs m<br>0.01<br>1.8 | Mean<br>Median   | 0.07<br>1.9<br>0.3 |

| 15.97<br>7.496<br>0.558<br>0.477<br>0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66 |
|---|
| 0.558<br>0.477<br>0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66                   |
| 0.558<br>0.477<br>0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66                   |
| 0.477<br>0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66                            |
| 0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66                                     |
| 0.114<br>0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66                                     |
| 0.336<br>13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66  |
| 13.44<br>0.848<br>0.828<br>2.353<br>5.807<br>0.66   |
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| -1.889  |
| 0.979   |
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| 0.438   |
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| 0.438   |
| · · · · ·   |

|  | Suggested       | UCL to Use  |          |
|--|-----------------|---|----------|
| 95% KM (t) UCL   | 0.482           |   |          |
|  |                 | · · · · · ·   |          |
| The calculated UCLs are based on assumption            | ons that the    | data were collected in a random and unbiased manner.                  |          |
| -  |                 | llected from random locations.  |          |
| If the data were collected                             | using judgm     | nental or other non-random methods,                                   |          |
| then contact a s                                       | statistician to | o correctly calculate UCLs.   |          |
|  |                 |   |          |
|  |                 | rovided to help the user to select the most appropriate 95% UCI       |          |
|  |                 | oution, and skewness using results from simulation studies.           |          |
| However, simulations results will not cover all Real W | orld data se    | ets; for additional insight the user may want to consult a statistici | an.      |
|  |                 |   |          |
| C (soil   benzo(a)pyrene   50-32-8)                    |                 |   |          |
|  | General         | Statistics  |          |
| Total Number of Observations                           | 20              | Number of Distinct Observations                                       | 16       |
| Number of Detects                                      | 7               | Number of Non-Detects   | 13       |
| Number of Distinct Detects                             | 6               | Number of Distinct Non-Detects  | 10       |
| Minimum Detect   | 0.065           | Minimum Non-Detect  | 0.19     |
| Maximum Detect   | 1.5             | Maximum Non-Detect  | 0.22     |
| Variance Detects                                       | 0.275           | Percent Non-Detects   | 65%      |
| Mean Detects   | 0.429           | SD Detects  | 0.525    |
| Median Detects   | 0.25            | CV Detects  | 1.223    |
| Skewness Detects                                       | 1.785           | Kurtosis Detects  | 3.043    |
| Mean of Logged Detects                                 | -1.484          | SD of Logged Detects  | 1.235    |
|  |                 |   |          |
| Norm   | al GOF Tes      | t on Detects Only   |          |
| Shapiro Wilk Test Statistic                            | 0.765           | Shapiro Wilk GOF Test   |          |
| 1% Shapiro Wilk Critical Value                         | 0.73            | Detected Data appear Normal at 1% Significance Lev                    | vel      |
| Lilliefors Test Statistic                              | 0.289           | Lilliefors GOF Test   |          |
| 1% Lilliefors Critical Value                           | 0.35            | Detected Data appear Normal at 1% Significance Lev                    | vel      |
| Detected Data a  | ppear Norm      | nal at 1% Significance Level  |          |
| Note GOF tests r                                       | nay be unre     | liable for small sample sizes   |          |
|  |                 |   |          |
| Kaplan-Meier (KM) Statistics using                     | g Normal Cr     | itical Values and other Nonparametric UCLs                            |          |
| KM Mean  | 0.196           | KM Standard Error of Mean   | 0.0809   |
| 90KM SD  | 0.334           | 95% KM (BCA) UCL  | 0.356    |
| 95% KM (t) UCL   | 0.336           | 95% KM (Percentile Bootstrap) UCL                                     | 0.341    |
| 95% KM (z) UCL   | 0.329           | 95% KM Bootstrap t UCL  | 0.662    |
| 90% KM Chebyshev UCL                                   | 0.439           | 95% KM Chebyshev UCL  | 0.549    |
| 97.5% KM Chebyshev UCL                                 | 0.701           | 99% KM Chebyshev UCL  | 1.001    |
|  |                 |   |          |
|  |                 | etected Observations Only   |          |
| A-D Test Statistic                                     | 0.414           | Anderson-Darling GOF Test   |          |
| 5% A-D Critical Value                                  | 0.73            | Detected data appear Gamma Distributed at 5% Significan               | ce Level |
| K-S Test Statistic                                     | 0.233           | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                                  | 0.321           | Detected data appear Gamma Distributed at 5% Significan               | ce Level |
| Detected data appear                                   | Gamma Dis       | stributed at 5% Significance Level                                    |          |

| Note GOF tests r                                | nay be unre                                  | liable for small sample sizes                                   |               |
|---|--|---|---------------|
| 0   | <b>O</b> t - 4 <sup>1</sup> - 4 <sup>1</sup> | Data and Data Only  |               |
|   |  | Detected Data Only  | 0.010         |
| k hat (MLE)                                     | 0.915  | k star (bias corrected MLE)                                     | 0.618         |
| Theta hat (MLE)                                 | 0.469  | Theta star (bias corrected MLE)                                 | 0.694         |
| nu hat (MLE)                                    | 12.81  | nu star (bias corrected)  | 8.653         |
| Mean (detects)                                  | 0.429  |   |               |
| Gamma ROS                                       | Statistics us                                | ing Imputed Non-Detects   |               |
| GROS may not be used when data set              | et has > 50%                                 | 6 NDs with many tied observations at multiple DLs               |               |
| GROS may not be used when kstar of detects is s | small such a                                 | s <1.0, especially when the sample size is small (e.g., <15-20) |               |
|   |  | yield incorrect values of UCLs and BTVs                         |               |
|   |  | en the sample size is small.                                    |               |
|   |  | ay be computed using gamma distribution on KM estimates         |               |
| Minimum   | 0.01   | Mean  | 0.166         |
| Maximum   | 1.5  | Median  | 0.0375        |
| SD  | 0.356  | CV  | 2.15          |
| k hat (MLE)                                     | 0.453  | k star (bias corrected MLE)                                     | 0.418         |
| Theta hat (MLE)                                 | 0.365  | Theta star (bias corrected MLE)                                 | 0.396         |
| nu hat (MLE)                                    | 18.12  | nu star (bias corrected)  | 16.74         |
| Adjusted Level of Significance (β)              | 0.038  |   |               |
| Approximate Chi Square Value (16.74, α)         | 8.486  | Adjusted Chi Square Value (16.74, β)                            | 8.023         |
| 95% Gamma Approximate UCL                       | 0.327  | 95% Gamma Adjusted UCL  | 0.345         |
|   | 0.027  |   | 0.010         |
| Estimates of Ga                                 | amma Paran                                   | neters using KM Estimates                                       |               |
| Mean (KM)                                       | 0.196  | SD (KM)   | 0.334         |
| Variance (KM)                                   | 0.112  | SE of Mean (KM)   | 0.0809        |
| k hat (KM)                                      | 0.345  | k star (KM)   | 0.326         |
| nu hat (KM)                                     | 13.78  | nu star (KM)  | 13.05         |
| theta hat (KM)                                  | 0.57   | theta star (KM)   | 0.602         |
| 80% gamma percentile (KM)                       | 0.307  | 90% gamma percentile (KM)                                       | 0.573         |
| 95% gamma percentile (KM)                       | 0.874  | 99% gamma percentile (KM)                                       | 1.648         |
|   | 0.074  |   | 1.040         |
| Gamm  | a Kanlan-M4                                  | eier (KM) Statistics  |               |
| Approximate Chi Square Value (13.05, α)         | 5.925  | Adjusted Chi Square Value (13.05, $\beta$ )                     | 5.549         |
| 95% KM Approximate Gamma UCL                    | 0.432  | 95% KM Adjusted Gamma UCL                                       | 0.462         |
|   | 0.402  |   | 0.402         |
| L ognormal GO                                   | F Test on De                                 | etected Observations Only                                       |               |
| Shapiro Wilk Test Statistic                     | 0.903  | Shapiro Wilk GOF Test   |               |
| 10% Shapiro Wilk Critical Value                 | 0.838  | Detected Data appear Lognormal at 10% Significance L            | مريما         |
| Lilliefors Test Statistic                       | 0.838  | Lilliefors GOF Test   | 0,001         |
| 10% Lilliefors Critical Value                   | 0.221  | Detected Data appear Lognormal at 10% Significance L            | ovel          |
|   |  | nal at 10% Significance Level                                   | 6v <b>6</b> 1 |
|   |  | liable for small sample sizes                                   |               |
|   |  | וומטוים ועו פווומוו פמוווףום פוצפט                              |               |
|   | Statiation !                                 | Ising Imputed Non Detects                                       |               |
| Mean in Original Scale                          | 0.201  | Jsing Imputed Non-Detects                                       | 2.2           |
|   |  | Mean in Log Scale   | -2.2          |
| SD in Original Scale                            | 0.342  | SD in Log Scale<br>95% Percentile Bootstrap UCL                 | 0.912         |
| 95% t UCL (assumes normality of ROS data)       | 0.333  | 95% Percentile Bootstrap UCL                                    | 0.336         |

| 95% BCA Bootstrap UCL  | 0.406   | 95% Bootstrap t UCL   | 0.72   |
|--|---|---|--|
| 95% H-UCL (Log ROS)  | 0.284   |   | 0.72   |
|  | 0.201   |   |  |
| Statistics using KM estimates of   | n Loaaed D  | ata and Assuming Lognormal Distribution   |  |
| KM Mean (logged)   | -2.243  | KM Geo Mean   | 0.106  |
| KM SD (logged)   | 0.881   | 95% Critical H Value (KM-Log)   | 2.467  |
| KM Standard Error of Mean (logged)   | 0.219   | 95% H-UCL (KM -Log)   | 0.258  |
| KM SD (logged)   | 0.881   | 95% Critical H Value (KM-Log)   | 2.46   |
| KM Standard Error of Mean (logged)   | 0.219   |   |  |
|  |   |   |  |
|  | DL/2 St   | atistics  |  |
| DL/2 Normal  |   | DL/2 Log-Transformed  |  |
| Mean in Original Scale   | 0.216   | Mean in Log Scale   | -2.012   |
| SD in Original Scale   | 0.336   | SD in Log Scale   | 0.80   |
| 95% t UCL (Assumes normality)  | 0.345   | 95% H-Stat UCL  | 0.28   |
| DL/2 is not a recommended met  | thod, provid  | ed for comparisons and historical reasons   |  |
|  |   |   |  |
| Nonparamet   | tric Distribut  | ion Free UCL Statistics   |  |
| Detected Data appear   | Normal Dis  | tributed at 1% Significance Level   |  |
|  |   |   |  |
|  | Suggested   | UCL to Use  |  |
| 95% KM (t) UCL   | 0.336   |   |  |
|  |   |   |  |
|  |   |   |  |
| -  |   | data were collected in a random and unbiased manner.  |  |
| Please verify the da   | ata were col  | lected from random locations.   |  |
| Please verify the data were collected u  | ata were col<br>using judgm   | lected from random locations.<br>ental or other non-random methods,   |  |
| Please verify the data were collected u  | ata were col<br>using judgm   | lected from random locations.   |  |
| Please verify the data were collected u<br>If the data were collected u<br>then contact a s  | ata were col<br>using judgm<br>statistician to  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.  |  |
| Please verify the data<br>If the data were collected to<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%  | ata were col<br>using judgm<br>statistician to<br>UCL are pr  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.   |  |
| Please verify the data<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   |  |
| Please verify the data<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.   |  |
| Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo   | ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   |  |
| Please verify the data<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   |  |
| Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo   | ata were col<br>using judgm<br>tatistician to<br>UCL are pr<br>data distrib<br>orld data se   | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia  |  |
| Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>il   benzo(b)fluoranthene   205-99-2)   | ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>General s   | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics  | n.   |
| Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>il   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations  | tatistician to<br>build are pr<br>data distrib<br>orld data se<br>General s<br>20   | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations   | n.<br>16   |
| Please verify the data<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>il   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects  | ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib<br>orld data se<br>General S<br>20<br>9  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | n.<br>16<br>11   |
| Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>I   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | ata were col<br>using judgm<br>statistician to<br>OUCL are pr<br>data distrib<br>orld data se<br>General 3<br>20<br>9<br>8  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | n.<br>16<br>11<br>8  |
| Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>II   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | Ata were col<br>using judgm<br>statistician to<br>UCL are pr<br>data distrib<br>orld data se<br>General S<br>20<br>9<br>8<br>0.069  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detects   | n.<br>16<br>11<br>8<br>0.19  |
| Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>II   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | ata were col<br>using judgm<br>statistician to<br>0 UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect  | n.<br>16<br>11<br>8<br>0.19<br>0.22                                |
| Please verify the data were collected of the data were collected of then contact a set of the     | Ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961   | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect  | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%                         |
| Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>I   benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Variance Detects<br>Mean Detects  | Ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98                 |
| Please verify the data<br>If the data were collected us<br>then contact a second se | Ata were col<br>using judgm<br>statistician to<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects                               | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98<br>1.35         |
| Please verify the data<br>If the data were collected of<br>then contact a second se | Ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13<br>1.607                         | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects     | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98<br>1.35<br>1.62 |
| Please verify the data<br>If the data were collected us<br>then contact a second se | Ata were col<br>using judgm<br>statistician to<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13  | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects                               | n.<br>16<br>11<br>8<br>0.19<br>55%<br>0.98<br>1.35<br>1.62         |
| Please verify the data were collected of the data were collected of the contact a set of the      | Ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13<br>1.607<br>-1.2                 | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98<br>1.35<br>1.62 |
| Please verify the dat<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>I benzo(b)fluoranthene   205-99-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Maximum Detect<br>Maximum Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | Ata were col<br>using judgm<br>statistician to<br>data distrib<br>orld data se<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13<br>1.607<br>-1.2 | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98<br>1.35<br>1.62 |
| Please verify the data were collected of the data were collected of the contact a set of the      | Ata were col<br>using judgm<br>statistician to<br>o UCL are pr<br>data distrib<br>orld data se<br>20<br>9<br>8<br>0.069<br>2.8<br>0.961<br>0.721<br>0.13<br>1.607<br>-1.2                 | lected from random locations.<br>ental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects | n.<br>16<br>11<br>8<br>0.19<br>0.22<br>55%<br>0.98                 |

| Lilliefors Test Statistic                       | 0.282         | Lilliefors GOF Test   |          |
|---|---------------|---|----------|
| 1% Lilliefors Critical Value                    | 0.316         | Detected Data appear Normal at 1% Significance Leve             | el       |
|   |               | e Normal at 1% Significance Level                               |          |
| Note GOF tests n                                | nay be unre   | liable for small sample sizes                                   |          |
|   |               |   |          |
|   | -             | itical Values and other Nonparametric UCLs                      |          |
| KM Mean   | 0.381         | KM Standard Error of Mean                                       | 0.164    |
| 90KM SD   | 0.692         | 95% KM (BCA) UCL  | 0.671    |
| 95% KM (t) UCL                                  | 0.665         | 95% KM (Percentile Bootstrap) UCL                               | 0.66     |
| 95% KM (z) UCL                                  | 0.651         | 95% KM Bootstrap t UCL  | 1.303    |
| 90% KM Chebyshev UCL                            | 0.874         | 95% KM Chebyshev UCL  | 1.097    |
| 97.5% KM Chebyshev UCL                          | 1.407         | 99% KM Chebyshev UCL  | 2.016    |
| Gamma GOF                                       | Tests on De   | tected Observations Only  |          |
| A-D Test Statistic                              | 0.74          | Anderson-Darling GOF Test                                       |          |
| 5% A-D Critical Value                           | 0.756         | Detected data appear Gamma Distributed at 5% Significance       | e l evel |
| K-S Test Statistic                              | 0.308         | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                           | 0.29          | Detected Data Not Gamma Distributed at 5% Significance          | Level    |
|   |               | Distribution at 5% Significance Level                           | 20101    |
|   |               | liable for small sample sizes                                   |          |
|   | •             | · · · · · · · · · · · · · · · · · · ·                           |          |
| Gamma   | Statistics on | Detected Data Only  |          |
| k hat (MLE)                                     | 0.693         | k star (bias corrected MLE)                                     | 0.536    |
| Theta hat (MLE)                                 | 1.041         | Theta star (bias corrected MLE)                                 | 1.345    |
| nu hat (MLE)                                    | 12.47         | nu star (bias corrected)  | 9.649    |
| Mean (detects)                                  | 0.721         |   |          |
|   |               |   |          |
| Gamma ROS                                       | Statistics us | ing Imputed Non-Detects   |          |
| GROS may not be used when data se               | et has > 50%  | 6 NDs with many tied observations at multiple DLs               |          |
| GROS may not be used when kstar of detects is a | small such a  | s <1.0, especially when the sample size is small (e.g., <15-20) |          |
| For such situations, GROS r                     | nethod may    | yield incorrect values of UCLs and BTVs                         |          |
| This is especia                                 | ally true whe | en the sample size is small.                                    |          |
| For gamma distributed detected data, BTVs a     | nd UCLs ma    | ay be computed using gamma distribution on KM estimates         |          |
| Minimum   | 0.01          | Mean  | 0.352    |
| Maximum   | 2.8           | Median  | 0.101    |
| SD  | 0.724         | CV  | 2.054    |
| k hat (MLE)                                     | 0.407         | k star (bias corrected MLE)                                     | 0.379    |
| Theta hat (MLE)                                 | 0.867         | Theta star (bias corrected MLE)                                 | 0.93     |
| nu hat (MLE)                                    | 16.26         | nu star (bias corrected)  | 15.15    |
| Adjusted Level of Significance (β)              | 0.038         |   |          |
| Approximate Chi Square Value (15.15, α)         | 7.369         | Adjusted Chi Square Value (15.15, $\beta$ )                     | 6.943    |
| 95% Gamma Approximate UCL                       | 0.725         | 95% Gamma Adjusted UCL  | 0.769    |
| Entimeter of Oc                                 | mmo Derer     | notora using KM Estimatos                                       |          |
| Estimates of Ga<br>Mean (KM)                    | 0.381         | neters using KM Estimates<br>SD (KM)                            | 0.692    |
| Variance (KM)                                   | 0.381         | SD (KM)<br>SE of Mean (KM)                                      | 0.092    |
| k hat (KM)                                      | 0.48          | k star (KM)   | 0.164    |
| nu hat (KM)                                     | 12.08         | nu star (KM)  | 11.6     |
| theta hat (KM)                                  | 12.06         | theta star (KM)   | 1.312    |
|   | 1.20          | trieta staf (KM)  | 1.312    |

| 80% gamma percentile (KM)                   | 0.579           | 90% gamma percentile (KM)                             | 1.127  |
|---|-----------------|---|--------|
| 95% gamma percentile (KM)                   |                 | 99% gamma percentile (KM)                             | 3.412  |
|   | 1.70            |   | 0.412  |
| Gamm  | a Kaplan-M      | eier (KM) Statistics                                  |        |
| Approximate Chi Square Value (11.60, α)     | 4.968           | Adjusted Chi Square Value (11.60, β)                  | 4.628  |
| 95% KM Approximate Gamma UCL                | 0.889           | 95% KM Adjusted Gamma UCL                             | 0.954  |
|   | -               | · · · · · ·   |        |
| _   |                 |   |        |
| Shapiro Wilk Test Statistic                 |                 | Shapiro Wilk GOF Test                                 |        |
| 10% Shapiro Wilk Critical Value             |                 | Detected Data appear Lognormal at 10% Significance Lo | evel   |
| Lilliefors Test Statistic                   | 0.28            | Lilliefors GOF Test                                   |        |
| 10% Lilliefors Critical Value               | 0.252           | Detected Data Not Lognormal at 10% Significance Lev   | /el    |
|   |                 | ognormal at 10% Significance Level                    |        |
|   | nay be unre     |   |        |
| Lognormal ROS                               | S Statistics l  | Jsing Imputed Non-Detects                             |        |
| Mean in Original Scale                      | 0.394           | Mean in Log Scale                                     | -1.712 |
| SD in Original Scale                        | 0.706           | SD in Log Scale                                       | 1.064  |
| 95% t UCL (assumes normality of ROS data)   | 0.667           | 95% Percentile Bootstrap UCL                          | 0.669  |
| 95% BCA Bootstrap UCL                       | 0.771           | 95% Bootstrap t UCL                                   | 1.348  |
| 95% H-UCL (Log ROS)                         | 0.619           |   |        |
|   |                 |   |        |
| Statistics using KM estimates of            | on Logged D     | ata and Assuming Lognormal Distribution               |        |
| KM Mean (logged)                            |                 | KM Geo Mean   | 0.164  |
| KM SD (logged)                              | 1.059           | 95% Critical H Value (KM-Log)                         | 2.721  |
| KM Standard Error of Mean (logged)          | 0.26            | 95% H-UCL (KM -Log)                                   | 0.556  |
| KM SD (logged)                              |                 | 95% Critical H Value (KM-Log)                         | 2.721  |
| KM Standard Error of Mean (logged)          | 0.26            |   |        |
|   | 2 2/ 10         | tatistics   |        |
| DL/2 Normal                                 | 0020            | DL/2 Log-Transformed                                  |        |
| Mean in Original Scale                      | 0.38            | Mean in Log Scale                                     | -1.8   |
| SD in Original Scale                        |                 | SD in Log Scale                                       | 1.071  |
| 95% t UCL (Assumes normality)               |                 | 95% H-Stat UCL  | 0.574  |
| DL/2 is not a recommended me                | ethod, provid   | led for comparisons and historical reasons            |        |
|   |                 |   |        |
| Nonparame                                   | etric Distribut | tion Free UCL Statistics                              |        |
| Detected Data appear Appro                  | ximate Norr     | nal Distributed at 1% Significance Level              |        |
|   | O               |   |        |
| 95% KM (t) UCL                              | 0.665           | UCL to Use  |        |
|   | 0.000           |   |        |
| The calculated UCLs are based on assumption | ons that the    | data were collected in a random and unbiased manner.  |        |
| Please verify the d                         | ata were co     | llected from random locations.                        |        |
| If the data were collected                  | using judgm     | nental or other non-random methods,                   |        |
| then contact a                              | statistician to | o correctly calculate UCLs.                           |        |
|   |                 |   |        |
|   |                 | stribution passing only one of the GOF tests,         |        |
| it is suggested to use a UCL bas            | sed upon a c    | listribution passing both GOF tests in ProUCL         |        |

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

## C (soil | benzo(g,h,i)perylene | 191-24-2)

|                                | General    | Statistics   |        |
|--------------------------------|------------|--|--------|
| Total Number of Observations   | 20         | Number of Distinct Observations                    | 16     |
| Number of Detects              | 4          | Number of Non-Detects                              | 16     |
| Number of Distinct Detects     | 4          | Number of Distinct Non-Detects                     | 12     |
| Minimum Detect                 | 0.14       | Minimum Non-Detect                                 | 0.187  |
| Maximum Detect                 | 0.64       | Maximum Non-Detect                                 | 0.22   |
| Variance Detects               | 0.0522     | Percent Non-Detects                                | 80%    |
| Mean Detects                   | 0.383      | SD Detects   | 0.228  |
| Median Detects                 | 0.375      | CV Detects   | 0.597  |
| Skewness Detects               | 0.118      | Kurtosis Detects                                   | -3.265 |
| Mean of Logged Detects         | -1.123     | SD of Logged Detects                               | 0.689  |
| ·                              |            | · · · · · · · · · · · · · · · · · · ·              |        |
| Norm                           | al GOF Tes | t on Detects Only                                  |        |
| Shapiro Wilk Test Statistic    | 0.95       | Shapiro Wilk GOF Test                              |        |
| 1% Shapiro Wilk Critical Value | 0.687      | Detected Data appear Normal at 1% Significance Lev | rel    |
| Lilliefors Test Statistic      | 0.219      | Lilliefors GOF Test                                |        |
|                                |            |  |        |

 1% Lilliefors Critical Value
 0.413
 Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

| Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonpa | parametric UCLs |
|---|-----------------|
|---|-----------------|

| KM Mean                | 0.189 | KM Standard Error of Mean         | 0.0339 |
|------------------------|-------|-----------------------------------|--------|
| 90KM SD                | 0.131 | 95% KM (BCA) UCL                  | N/A    |
| 95% KM (t) UCL         | 0.247 | 95% KM (Percentile Bootstrap) UCL | N/A    |
| 95% KM (z) UCL         | 0.244 | 95% KM Bootstrap t UCL            | N/A    |
| 90% KM Chebyshev UCL   | 0.29  | 95% KM Chebyshev UCL              | 0.336  |
| 97.5% KM Chebyshev UCL | 0.4   | 99% KM Chebyshev UCL              | 0.526  |

| Gamma GOF 1           | ests on Def | ected Observations Only   |
|-----------------------|-------------|---|
| A-D Test Statistic    | 0.276       | Anderson-Darling GOF Test                                       |
| 5% A-D Critical Value | 0.659       | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic    | 0.254       | Kolmogorov-Smirnov GOF  |
| 5% K-S Critical Value | 0.396       | Detected data appear Gamma Distributed at 5% Significance Level |
| Detected data appear  | Gamma Dis   | tributed at 5% Significance Level                               |

Note GOF tests may be unreliable for small sample sizes

## Gamma Statistics on Detected Data Only

| 0.978 | k star (bias corrected MLE)     | 3.245 | k hat (MLE)     |
|-------|---------------------------------|-------|-----------------|
| 0.391 | Theta star (bias corrected MLE) | 0.118 | Theta hat (MLE) |
| 7.823 | nu star (bias corrected)        | 25.96 | nu hat (MLE)    |
|       |                                 | 0.383 | Mean (detects)  |
|       |                                 |       |                 |

|        | ng Imputed Non-Detects  | Statistics us | Gamma ROS S                                     |
|--------|---|---------------|---|
|        | NDs with many tied observations at multiple DLs                 | t has > 50%   | GROS may not be used when data se               |
|        | s <1.0, especially when the sample size is small (e.g., <15-20) | mall such a   | GROS may not be used when kstar of detects is s |
|        | vield incorrect values of UCLs and BTVs                         | ethod may     | For such situations, GROS m                     |
|        | n the sample size is small.                                     |               |   |
|        | y be computed using gamma distribution on KM estimates          |               |   |
| 0.153  | Mean  | 0.01          | Minimum   |
| 0.0941 | Median  | 0.64          | Maximum   |
| 1.007  | CV  | 0.154         | SD  |
| 1.331  | k star (bias corrected MLE)                                     | 1.527         | k hat (MLE)                                     |
| 0.115  | Theta star (bias corrected MLE)                                 | 0.1           | Theta hat (MLE)                                 |
| 53.24  | nu star (bias corrected)  | 61.06         | nu hat (MLE)                                    |
|        |   | 0.038         | Adjusted Level of Significance (β)              |
| 36.43  | Adjusted Chi Square Value (53.24, β)                            | 37.48         | Approximate Chi Square Value (53.24, α)         |
| N/A    | 95% Gamma Adjusted UCL  | 0.218         | 95% Gamma Approximate UCL                       |
|        | eters using KM Estimates  | mma Paran     | Estimates of Ga                                 |
| 0.131  | SD (KM)   | 0.189         | Mean (KM)                                       |
| 0.0339 | SE of Mean (KM)   | 0.0172        | Variance (KM)                                   |
| 1.786  | k star (KM)   | 2.062         | k hat (KM)                                      |
| 71.44  | nu star (KM)  | 82.48         | nu hat (KM)                                     |
| 0.106  | theta star (KM)   | 0.0914        | theta hat (KM)                                  |
| 0.377  | 90% gamma percentile (KM)                                       | 0.286         | 80% gamma percentile (KM)                       |
| 0.658  | 99% gamma percentile (KM)                                       | 0.464         | 95% gamma percentile (KM)                       |
|        | ior ///AI) Statiation   | Konlon Ma     | Commo   |
| 51.72  | ier (KM) Statistics<br>Adjusted Chi Square Value (71.44, β)     | 52.98         | Approximate Chi Square Value (71.44, α)         |
| 0.26   | 95% KM Adjusted Gamma UCL                                       | 0.254         | 95% KM Approximate Gamma UCL                    |
|        |   |               |   |
|        | tected Observations Only  |               |   |
|        | Shapiro Wilk GOF Test   | 0.947         | Shapiro Wilk Test Statistic                     |
| evel   | Detected Data appear Lognormal at 10% Significance L            | 0.792         | 10% Shapiro Wilk Critical Value                 |
|        | Lilliefors GOF Test   | 0.234         | Lilliefors Test Statistic                       |
| evel   | Detected Data appear Lognormal at 10% Significance L            | 0.346         | 10% Lilliefors Critical Value                   |
|        | al at 10% Significance Level able for small sample sizes        |               |   |
|        |   |               |   |
|        | sing Imputed Non-Detects  | Statistics U  | Lognormal ROS                                   |
| -1.868 | Mean in Log Scale   | 0.181         | Mean in Original Scale                          |
| 0.506  | SD in Log Scale   | 0.14          | SD in Original Scale                            |
| 0.236  | 95% Percentile Bootstrap UCL                                    | 0.235         | 95% t UCL (assumes normality of ROS data)       |
| 0.364  | 95% Bootstrap t UCL   | 0.253         | 95% BCA Bootstrap UCL                           |
|        |   | 0.222         | 95% H-UCL (Log ROS)                             |
|        | ata and Assuming Lognormal Distribution                         | l ogged De    | Statistice using KM petimetee or                |
| 0.166  | KM Geo Mean   | -1.797        | KM Mean (logged)                                |
| 1.955  | 95% Critical H Value (KM-Log)                                   | 0.43          | KM SD (logged)                                  |
| 0.22   | 95% H-UCL (KM -Log)   | 0.111         | KM Standard Error of Mean (logged)              |
| 1.955  | 95% Critical H Value (KM-Log)                                   | 0.43          | KM SD (logged)                                  |

| KM Standard Erway of Maan (lagrad)                 | 0 1 1 1        |  |       |
|--|----------------|--|-------|
| KM Standard Error of Mean (logged)                 | 0.111          |  |       |
|  | DL/2 St        | atistics   |       |
| DL/2 Normal  |                | DL/2 Log-Transformed   |       |
| Mean in Original Scale                             | 0.156          | Mean in Log Scale  | -2.06 |
| SD in Original Scale                               | 0.147          | SD in Log Scale  | 0.5   |
| 95% t UCL (Assumes normality)                      | 0.213          | 95% H-Stat UCL   | 0.1   |
| DL/2 is not a recommended me                       | thod, provide  | ed for comparisons and historical reasons                              |       |
| -  |                | on Free UCL Statistics   |       |
| Detected Data appear                               | Normal Dist    | tributed at 1% Significance Level                                      |       |
|  | Suggested l    | UCL to Use   |       |
| 95% KM (t) UCL                                     | 0.247          |  |       |
| Note: Suggestions regarding the selection of a 95% | UCL are pr     | ovided to help the user to select the most appropriate 95% UCL.        |       |
|  |                | ution, and skewness using results from simulation studies.             |       |
|  |                | ts; for additional insight the user may want to consult a statisticia  | an.   |
|  |                |  |       |
| pil   benzo(k)fluoranthene   207-08-9)             |                |  |       |
|  |                |  |       |
|  | General S      | Statistics   |       |
| Total Number of Observations                       | 20             | Number of Distinct Observations  | 14    |
| Number of Detects                                  | 4              | Number of Non-Detects  | 16    |
| Number of Distinct Detects                         | 3              | Number of Distinct Non-Detects   | 12    |
| Minimum Detect                                     | 0.2            | Minimum Non-Detect   | 0.1   |
| Maximum Detect                                     | 1              | Maximum Non-Detect   | 0.1   |
| Variance Detects                                   | 0.177          | Percent Non-Detects  | 80%   |
| Mean Detects                                       | 0.177          | SD Detects   | 0.4   |
| Median Detects                                     | 0.50           | CV Detects   | 0.4   |
| Skewness Detects                                   | 0.32           | Kurtosis Detects   | -5.2  |
|  |                |  |       |
| Mean of Logged Detects                             | -0.848         | SD of Logged Detects   | 0.8   |
| Norm   | al GOF Test    | on Detects Only  |       |
| Shapiro Wilk Test Statistic                        | 0.813          | Shapiro Wilk GOF Test  |       |
| 1% Shapiro Wilk Critical Value                     | 0.687          | Detected Data appear Normal at 1% Significance Leve                    | el    |
| Lilliefors Test Statistic                          | 0.304          | Lilliefors GOF Test  |       |
| 1% Lilliefors Critical Value                       | 0.413          | Detected Data appear Normal at 1% Significance Leve                    | el    |
| Detected Data a                                    | ppear Norma    | al at 1% Significance Level  |       |
| Note GOF tests n                                   | nay be unreli  | iable for small sample sizes   |       |
| Koplon Mojor /KM) Statiation unior                 | a Normal Cri   | tical Values and other Nennerometric LICLs                             |       |
|  | 0.262          | tical Values and other Nonparametric UCLs<br>KM Standard Error of Mean | 0.01  |
| KM Mean  |                |  | 0.05  |
| 90KM SD  | 0.221          | 95% KM (BCA) UCL   | N/A   |
| 95% KM (t) UCL                                     | 0.361          | 95% KM (Percentile Bootstrap) UCL                                      | N/A   |
| 95% KM (z) UCL                                     | 0.356          | 95% KM Bootstrap t UCL   | N/A   |
|  | 0.400          |  |       |
| 90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL     | 0.433<br>0.618 | 95% KM Chebyshev UCL<br>99% KM Chebyshev UCL                           | 0.5   |

| Gamma GOF   | Tests on De    | tected Observations Only  |          |
|---|----------------|---|----------|
| A-D Test Statistic  | 0.599          | Anderson-Darling GOF Test   |          |
| 5% A-D Critical Value                                       | 0.661          | Detected data appear Gamma Distributed at 5% Significance                 | e Level  |
| K-S Test Statistic  | 0.34           | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                                       | 0.398          | Detected data appear Gamma Distributed at 5% Significance                 | e l evel |
|   |                | stributed at 5% Significance Level  | 0 20001  |
|   |                | liable for small sample sizes   |          |
|   | nay be unre    |   |          |
| Gamma   | Statistics on  | Detected Data Only  |          |
| k hat (MLE)   | 2.013          | k star (bias corrected MLE)   | 0.67     |
| Theta hat (MLE)   | 0.278          | Theta star (bias corrected MLE)   | 0.836    |
| nu hat (MLE)  | 16.1           | nu star (bias corrected)  | 5.359    |
| Mean (detects)  | 0.56           |   | 0.000    |
|   | 0.00           |   |          |
| Gamma BOS   | Statistics us  | sing Imputed Non-Detects  |          |
|   |                | % NDs with many tied observations at multiple DLs                         |          |
|   |                | is <1.0, especially when the sample size is small (e.g., <15-20)          |          |
|   |                | yield incorrect values of UCLs and BTVs                                   |          |
|   |                | en the sample size is small.  |          |
|   |                | ay be computed using gamma distribution on KM estimates                   |          |
| Minimum   |                | 1   | 0.12     |
|   | 0.01           | Mean<br>Median  | 0.12     |
| Maximum   |                |   |          |
| SD  | 0.281          | CV  | 2.341    |
| k hat (MLE)   | 0.382          | k star (bias corrected MLE)   | 0.358    |
| Theta hat (MLE)   | 0.314          | Theta star (bias corrected MLE)   | 0.335    |
| nu hat (MLE)  | 15.29          | nu star (bias corrected)  | 14.33    |
| Adjusted Level of Significance ( $\beta$ )                  | 0.038          |   | 0.000    |
| Approximate Chi Square Value (14.33, α)                     | 6.801          | Adjusted Chi Square Value (14.33, β)                                      | 6.393    |
| 95% Gamma Approximate UCL                                   | 0.253          | 95% Gamma Adjusted UCL  | N/A      |
|   |                |   |          |
|   |                | neters using KM Estimates   |          |
| Mean (KM)   | 0.262          | SD (KM)   | 0.221    |
| Variance (KM)   | 0.0488         | SE of Mean (KM)   | 0.057    |
| k hat (KM)  | 1.408          | k star (KM)   | 1.23     |
| nu hat (KM)   | 56.3           | nu star (KM)  | 49.19    |
| theta hat (KM)  | 0.186          | theta star (KM)   | 0.213    |
| 80% gamma percentile (KM)                                   |                | 90% gamma percentile (KM)   | 0.573    |
| 95% gamma percentile (KM)                                   | 0.73           | 99% gamma percentile (KM)   | 1.089    |
|   |                |   |          |
|   | •              | eier (KM) Statistics  |          |
| Approximate Chi Square Value (49.19, $\alpha$ )             |                | Adjusted Chi Square Value (49.19, β)                                      | 33.09    |
| 95% KM Approximate Gamma UCL                                | 0.378          | 95% KM Adjusted Gamma UCL   | 0.389    |
|   |                |   |          |
|   |                | etected Observations Only   |          |
| Lognormal GO  | F Test on De   |   |          |
| Lognormal GO<br>Shapiro Wilk Test Statistic                 | 6 Test on De   | Shapiro Wilk GOF Test   |          |
| _   |                | -   | el       |
| Shapiro Wilk Test Statistic                                 | 0.778          | Shapiro Wilk GOF Test   | el       |
| Shapiro Wilk Test Statistic 10% Shapiro Wilk Critical Value | 0.778<br>0.792 | Shapiro Wilk GOF Test Detected Data Not Lognormal at 10% Significance Lev |          |

| SD in Original Scale0.276SD in Log Scale95% t UCL (assumes normality of ROS data)0.23995% Percentile Bootstrap UCL95% BCA Bootstrap UCL0.27995% Bootstrap t UCL95% H-UCL (Log ROS)0.2670Statistics using KM estimates on Logged Data and Assuming Lognormal DistributionKM Geo MeanKM Mean (logged)0.47595% Critical H Value (KM-Log)KM Standard Error of Mean (logged)0.123DL/2 StatisticsDL/2 NormalDL/2 Log-Transformed   | g Scale 1.3<br>ap UCL 0.2<br>o t UCL 0.5<br>  |
|--|---|
| SD in Original Scale0.276SD in Log Scale95% t UCL (assumes normality of ROS data)0.23995% Percentile Bootstrap UCL95% BCA Bootstrap UCL0.27995% Bootstrap t UCL95% H-UCL (Log ROS)0.2670Statistics using KM estimates on Logged Data and Assuming Lognormal DistributionKM Geo MeanKM Mean (logged)-1.509KM SD (logged)0.47595% Critical H Value (KM-Log)KM Standard Error of Mean (logged)0.123KM Standard Error of Mean (logged)0.123StatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatisticsStatistics | g Scale 1.3<br>ap UCL 0.2<br>o t UCL 0.5<br>  |
| 95% t UCL (assumes normality of ROS data)       0.239       95% Percentile Bootstrap UCL         95% BCA Bootstrap UCL       0.279       95% Bootstrap t UCL         95% H-UCL (Log ROS)       0.267       0         Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Geo Mean         KM Mean (logged)       -1.509       KM Geo Mean         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% H-UCL (KM -Log)         KM Standard Error of Mean (logged)       0.123       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% Critical H Value (KM-Log)   | ap UCL 0.2<br>o t UCL 0.5<br>o Mean 0.2<br>M-Log) 1.9<br>M-Log) 0.3<br>M-Log) 1.9<br>g Scale -2.0 |
| 95% H-UCL (Log ROS)       0.267         Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Mean (logged)       -1.509       KM Geo Mean         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% H-UCL (KM -Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       0         KM Standard Error of Mean (logged)       0.123       0         VEV2 Statistics       VEV2 Statistics       VEV2 Statistics         DL/2 Normal       0.192       Mean in Log Scale         SD in Original Scale       0.252       SD in Log Scale   | o Mean 0.2<br>M-Log) 1.9<br>M-Log) 0.3<br>M-Log) 1.9  |
| Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Mean (logged)       -1.509       KM Geo Mean         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       95% H-UCL (KM -Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       0         L/2 Statistics       DL/2 Normal       DL/2 Log-Transformed         Mean in Original Scale       0.192       Mean in Log Scale         SD in Original Scale       0.252       SD in Log Scale   | M-Log) 1.9<br>M-Log) 0.3<br>M-Log) 1.9<br>g Scale -2.0  |
| KM Mean (logged)     -1.509     KM Geo Mean       KM SD (logged)     0.475     95% Critical H Value (KM-Log)       KM Standard Error of Mean (logged)     0.123     95% H-UCL (KM -Log)       KM SD (logged)     0.475     95% Critical H Value (KM-Log)       KM SD (logged)     0.475     95% Critical H Value (KM-Log)       KM Standard Error of Mean (logged)     0.123     95% Critical H Value (KM-Log)       KM Standard Error of Mean (logged)     0.123     95% Critical H Value (KM-Log)       L     L     L     L       DL/2 Normal     DL/2 Log-Transformed       Mean in Original Scale     0.192     Mean in Log Scale       SD in Original Scale     0.252     SD in Log Scale   | M-Log) 1.9<br>M-Log) 0.3<br>M-Log) 1.9<br>g Scale -2.0  |
| KM SD (logged)0.47595% Critical H Value (KM-Log)KM Standard Error of Mean (logged)0.12395% H-UCL (KM -Log)KM SD (logged)0.47595% Critical H Value (KM-Log)KM Standard Error of Mean (logged)0.12395% Critical H Value (KM-Log)DL/2 StatisticsDL/2 NormalMean in Original Scale0.192SD in Original Scale0.252SD in Log Scale  | M-Log) 1.9<br>M-Log) 0.3<br>M-Log) 1.9<br>g Scale -2.0  |
| KM Standard Error of Mean (logged)       0.123       95% H-UCL (KM -Log)         KM SD (logged)       0.475       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.123       0.123         DL/2 Statistics         DL/2 Normal         Mean in Original Scale       0.192         SD in Original Scale       0.252       SD in Log Scale   | M -Log) 0.3<br>M-Log) 1.9<br>g Scale -2.0   |
| KM SD (logged)     0.475     95% Critical H Value (KM-Log)       KM Standard Error of Mean (logged)     0.123     0.123         DL/2 Statistics         DL/2 Normal     DL/2 Log-Transformed       Mean in Original Scale     0.192     Mean in Log Scale       SD in Original Scale     0.252     SD in Log Scale   | M-Log) 1.9  |
| KM Standard Error of Mean (logged)     0.123       DL/2 Statistics       DL/2 Normal       DL/2 Normal       DL/2 Normal       Mean in Original Scale     0.192       SD in Original Scale     0.252   | g Scale -2.0  |
| DL/2 Statistics       DL/2 Normal     DL/2 Log-Transformed       Mean in Original Scale     0.192     Mean in Log Scale       SD in Original Scale     0.252     SD in Log Scale   |   |
| DL/2 Normal     DL/2 Log-Transformed       Mean in Original Scale     0.192     Mean in Log Scale       SD in Original Scale     0.252     SD in Log Scale   |   |
| Mean in Original Scale     0.192     Mean in Log Scale       SD in Original Scale     0.252     SD in Log Scale  |   |
| SD in Original Scale 0.252 SD in Log Scale   |   |
|  | Scale 0.6   |
| 95% t UCL (Assumes normality) 0.289 95% H-Stat UCL   |   |
|  | at UCL 0.2  |
| Suggested UCL to Use           95% KM (t) UCL         0.361  |   |
|  |   |
| Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.   |   |
|  | 5% UCL.   |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.   |   |
|  | es.   |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.   | es.   |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.<br>However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician<br>il   benzoic acid   65-85-0)<br>General Statistics   | es.<br>statistician.  |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician         II   benzoic acid   65-85-0)         General Statistics         Total Number of Observations       20         Number of Distinct Observations  | es.<br>statistician.<br>vations 9   |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.<br>However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician<br>il   benzoic acid   65-85-0)<br>General Statistics   | es.<br>statistician.<br>vations 9<br>Detects 19   |

|                                 | General       | Statistics   |        |
|---------------------------------|---------------|--|--------|
| Total Number of Observations    | 20            | Number of Distinct Observations                    | 20     |
|                                 |               | Number of Missing Observations                     | 0      |
| Minimum                         | 0.31          | Mean   | 0.754  |
| Maximum                         | 2             | Median   | 0.664  |
| SD                              | 0.375         | Std. Error of Mean                                 | 0.0839 |
| Coefficient of Variation        | 0.497         | Skewness   | 2.417  |
|                                 |               |  |        |
|                                 |               | GOF Test   |        |
| Shapiro Wilk Test Statistic     | 0.715         | Shapiro Wilk GOF Test                              |        |
| 1% Shapiro Wilk Critical Value  | 0.868         | Data Not Normal at 1% Significance Level           |        |
| Lilliefors Test Statistic       | 0.299         | Lilliefors GOF Test                                |        |
| 1% Lilliefors Critical Value    | 0.223         | Data Not Normal at 1% Significance Level           |        |
| Data Not                        | Normal at 1   | % Significance Level                               |        |
| As                              | suming Nori   | mal Distribution                                   |        |
| 95% Normal UCL                  |               | 95% UCLs (Adjusted for Skewness)                   |        |
| 95% Student's-t UCL             | 0.9           | 95% Adjusted-CLT UCL (Chen-1995)                   | 0.941  |
|                                 |               | 95% Modified-t UCL (Johnson-1978)                  | 0.907  |
|                                 |               |  |        |
|                                 |               |  |        |
| A-D Test Statistic              | 1.214         | Anderson-Darling Gamma GOF Test                    |        |
| 5% A-D Critical Value           | 0.744         | Data Not Gamma Distributed at 5% Significance Leve | el     |
| K-S Test Statistic              | 0.245         | Kolmogorov-Smirnov Gamma GOF Test                  |        |
| 5% K-S Critical Value           | 0.194         | Data Not Gamma Distributed at 5% Significance Leve | el     |
| Data Not Gamn                   | na Distribute | ed at 5% Significance Level                        |        |
|                                 | Gamma         | Statistics   |        |
| k hat (MLE)                     | 6.105         | k star (bias corrected MLE)                        | 5.223  |
| Theta hat (MLE)                 | 0.124         | Theta star (bias corrected MLE)                    | 0.144  |
| nu hat (MLE)                    | 244.2         | nu star (bias corrected)                           | 208.9  |
| MLE Mean (bias corrected)       | 0.754         | MLE Sd (bias corrected)                            | 0.33   |
|                                 |               | Approximate Chi Square Value (0.05)                | 176.5  |
| Adjusted Level of Significance  | 0.038         | Adjusted Chi Square Value                          | 174.1  |
|                                 |               |  |        |
|                                 | -             | nma Distribution                                   |        |
| 95% Approximate Gamma UCL       | 0.893         | 95% Adjusted Gamma UCL                             | 0.905  |
|                                 | Lognorma      | I GOF Test   |        |
| Shapiro Wilk Test Statistic     | 0.899         | Shapiro Wilk Lognormal GOF Test                    |        |
| 10% Shapiro Wilk Critical Value | 0.92          | Data Not Lognormal at 10% Significance Level       |        |
| Lilliefors Test Statistic       | 0.215         | Lilliefors Lognormal GOF Test                      |        |
| 10% Lilliefors Critical Value   | 0.176         | Data Not Lognormal at 10% Significance Level       |        |
|                                 |               | 10% Significance Level                             |        |
|                                 | -             | *  |        |
|                                 |               | al Statistics                                      |        |
| Minimum of Logged Data          | -1.171        | Mean of logged Data                                | -0.366 |
| Maximum of Logged Data          | 0.693         | SD of logged Data                                  | 0.396  |

|                    | mal Distribution   |  |
|--------------------|--|--|
| CL 0.894           | 90% Chebyshev (MVUE) UCL   | 0.95   |
| CL 1.042           | 97.5% Chebyshev (MVUE) UCL   | 1.17   |
| CL 1.421           |  |  |
| metric Distributio | on Free UCL Statistics   |  |
|                    |  |  |
|                    |  |  |
|                    |  | 0.044  |
|                    | -  | 0.948  |
|                    | -  | 1.08   |
|                    |  | 0.89   |
|                    |  | 1.12   |
| CL 1.278           | 99% Chebyshev(Mean, Sd) UCL  | 1.589  |
| Suggested U        | ICL to Use   |  |
| CL 0.9             |  |  |
|                    | I  |  |
| 5% UCL are prov    | vided to help the user to select the most appropriate 95% UCL.   |  |
| ze, data distribut | tion, and skewness using results from simulation studies.  |  |
| World data sets    | s; for additional insight the user may want to consult a statisticial  | n.   |
| ns 20<br>xts 0     | Number of Distinct Observations Number of Non-Detects  | 15<br>20   |
| ts 0<br>ts 0       | Number of Non-Detects Number of Distinct Non-Detects   | 20<br>15   |
|                    |  |  |
| · · · · · ·        |  |  |
|                    |  |  |
| site specific valu | les to estimate environmental parameters (e.g., EPC, BTV).   |  |
|                    |  |  |
| bis(2-chloroetho   | oxy)methane   111-91-1) was not processed!   |  |
|                    |  |  |
|                    |  |  |
|                    |  |  |
| General S          | tatistics  |  |
|                    | Number of Distinct Observations  | 15   |
|                    |  | 20   |
|                    | Number of Distinct Non-Detects   | 15   |
|                    |  | -  |
| cts (NDs), theref  | ore all statistics and estimates should also be NDs!   |  |
|                    | s are also NDs lying below the largest detection limit!  |  |
| nd other statistic | is are also MDS lying below the largest detection limit:   |  |
|                    | les to estimate environmental parameters (e.g., EPC, BTV).   |  |
|                    |  |  |
|                    | CL       1.421         metric Distribution         port follow a Display         parametric Distribution         parametric Distribution | 2L       1.042       97.5% Chebyshev (MVUE) UCL         2L       1.421         metric Distribution Free UCL Statistics         point follow a Discemble Distribution         parametric Distribution Free UCLs         2L       0.882       95% BCA Bootstrap-UCL         2L       0.889       95% Percentile Bootstrap UCL         2L       1.74       95% Percentile Bootstrap UCL         2L       1.006       95% Chebyshev(Mean, Sd) UCL         2L       1.074       95% Chebyshev(Mean, Sd) UCL         2L       1.006       95% Chebyshev(Mean, Sd) UCL         2L       1.278       99% Chebyshev(Mean, Sd) UCL         Suggested UCL to Use         CL 0.9         Number of Distinct Observations         Number of Distinct Non-Detects         CL 0         Number of Distinct Non-Detects         CL 0         Number of Distinct Observations         N |

|                                    | General S       | itatistics   |       |
|------------------------------------|-----------------|--|-------|
| Total Number of Observations       | 20              | Number of Distinct Observations                                    | 15    |
| Number of Detects                  | 2               | Number of Non-Detects  | 18    |
| Number of Distinct Detects         | 2               | Number of Distinct Non-Detects                                     | 14    |
| Minimum Detect                     | 0.12            | Minimum Non-Detect   | 0.38  |
| Maximum Detect                     | 0.39            | Maximum Non-Detect   | 0.44  |
| Variance Detects                   | 0.0365          | Percent Non-Detects  | 90%   |
| Mean Detects                       | 0.255           | SD Detects   | 0.19  |
| Median Detects                     | 0.255           | CV Detects   | 0.74  |
| Skewness Detects                   | N/A             | Kurtosis Detects   | N/A   |
| Mean of Logged Detects             | -1.531          | SD of Logged Detects   | 0.83  |
| -                                  |                 | nly 2 Detected Values.<br>ul or reliable statistics and estimates. |       |
| Norma                              | al GOF Test     | on Detects Only  |       |
| Not Eno                            | ugh Data to     | Perform GOF Test   |       |
| Kaplan-Meier (KM) Statistics using | g Normal Crit   | ical Values and other Nonparametric UCLs                           |       |
| KM Mean                            | 0.154           | KM Standard Error of Mean  | 0.04  |
| 90KM SD                            | 0.0893          | 95% KM (BCA) UCL   | N/A   |
| 95% KM (t) UCL                     | 0.231           | 95% KM (Percentile Bootstrap) UCL                                  | N/A   |
| 95% KM (z) UCL                     | 0.227           | 95% KM Bootstrap t UCL   | N/A   |
| 90% KM Chebyshev UCL               | 0.288           | 95% KM Chebyshev UCL   | 0.34  |
| 97.5% KM Chebyshev UCL             | 0.433           | 99% KM Chebyshev UCL   | 0.5   |
| Gamma GOF <sup>-</sup>             | Tests on Dete   | ected Observations Only  |       |
| Not Eno                            | ugh Data to     | Perform GOF Test   |       |
| Gamma S                            | Statistics on I | Detected Data Only   |       |
| k hat (MLE)                        | 3.198           | k star (bias corrected MLE)  | N/A   |
| Theta hat (MLE)                    | 0.0797          | Theta star (bias corrected MLE)                                    | N/A   |
| nu hat (MLE)                       | 12.79           | nu star (bias corrected)   | N/A   |
| Mean (detects)                     | 0.255           |  |       |
| Estimates of Ga                    | ımma Param      | eters using KM Estimates   |       |
| Mean (KM)                          | 0.154           | SD (KM)  | 0.08  |
| Variance (KM)                      | 0.00797         | SE of Mean (KM)  | 0.04  |
| k hat (KM)                         | 2.965           | k star (KM)  | 2.5   |
| nu hat (KM)                        | 118.6           | nu star (KM)   | 102.1 |
| theta hat (KM)                     | 0.0519          | theta star (KM)  | 0.06  |
| 80% gamma percentile (KM)          | 0.224           | 90% gamma percentile (KM)  | 0.28  |
| 95% gamma percentile (KM)          | 0.338           | 99% gamma percentile (KM)  | 0.40  |
|                                    | 1               |  |       |

| Recor<br>However, sim<br>coil   bromobenzene | mmendations are based upon data size,<br>aulations results will not cover all Real Wo<br>e   108-86-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | data distribu<br>orld data sets<br>General S<br>11<br>0<br>0<br>(NDs), theref   | ovided to help the user to select the most appropriate 95% UCL.<br>tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician<br>statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Statistics<br>fore all statistics and estimates should also be NDs!<br>cs are also NDs lying below the largest detection limit! |               |
|--|---|---|--|---------------|
| Recor<br>However, sim                        | estions regarding the selection of a 95%<br>mmendations are based upon data size,<br>nulations results will not cover all Real Wo<br>e   108-86-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects | UCL are produced data distribution of the second data sets of the second data | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician<br>statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | n.<br>8<br>11 |
| Recor<br>However, sim                        | estions regarding the selection of a 95%<br>mmendations are based upon data size,<br>julations results will not cover all Real Wo<br>e   108-86-1)<br>Total Number of Observations<br>Number of Detects                               | UCL are pro<br>data distribu<br>orld data sets<br>General S<br>11<br>0  | ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician<br>statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | n.<br>8<br>11 |
| Recor<br>However, sim                        | estions regarding the selection of a 95%<br>mmendations are based upon data size,<br>nulations results will not cover all Real Wo<br>e   108-86-1)<br>Total Number of Observations  | UCL are pro<br>data distribu<br>orld data sets<br>General S<br>11   | ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician<br>statistics<br>Number of Distinct Observations   | n.<br>8       |
| Recor<br>However, sim                        | estions regarding the selection of a 95%<br>mmendations are based upon data size,<br>julations results will not cover all Real Wo<br>e   108-86-1)  | UCL are pro<br>data distribu<br>orld data sets<br>General S   | ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician<br>statistics  | n.            |
| Recor<br>However, sim                        | estions regarding the selection of a 95%<br>mmendations are based upon data size,<br>nulations results will not cover all Real Wo   | UCL are pro<br>data distribu<br>orld data sets  | ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistician  |               |
| Recor  | estions regarding the selection of a 95% mmendations are based upon data size,  | UCL are pro   | tion, and skewness using results from simulation studies.  |               |
| Recor  | estions regarding the selection of a 95% mmendations are based upon data size,  | UCL are pro   | tion, and skewness using results from simulation studies.  |               |
| Note: Sugg                                   |   |   | ovided to help the user to select the most appropriate 95% UCL.  |               |
|  | 95% KM (t) UCL  | 0.231   |  |               |
|  |   | Suggested L   | JCL to Use   |               |
|  |   |   | on Free UCL Statistics<br>scernible Distribution   |               |
|  |   |   |  |               |
|  | 95% t UCL (Assumes normality)   | 0.224   | 95% H-Stat UCL   | 0.22          |
|  | SD in Original Scale  | 0.0476  | SD in Log Scale  | 0.1           |
|  | Mean in Original Scale  | 0.205   | Mean in Log Scale  | -1.60         |
|  | DL/2 Normal   |   | DL/2 Log-Transformed   |               |
|  |   | DL/2 Sta  | atistics   |               |
|  | Note: KM UCLs may be biased low v   | vith this data  | set. Other substitution method recommended   |               |
|  | KM Standard Error of Mean (logged)  | 0.195   |  |               |
|  | KM SD (logged)  | 0.39  | 95% Critical H Value (KM-Log)  | 1.9           |
|  | KM Standard Error of Mean (logged)  | 0.39  | 95% H-UCL (KM -Log)  | 0.1           |
|  | KM Mean (logged)<br>KM SD (logged)  | 0.39  | 95% Critical H Value (KM-Log)  | 1.9           |
|  | Statistics using KM estimates of<br>KM Mean (logged)  | n Logged Da<br>-1.973   | ta and Assuming Lognormal Distribution KM Geo Mean   | 0.1           |
|  |   |   |  |               |
|  | 95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | 0.182   | 95% Bootstrap t UCL  | 0.20          |
| 95% t  | UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL  | 0.169   | 95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL  | 0.1           |
| 0501   | SD in Original Scale  | 0.0643  | SD in Log Scale  | 0.3           |
|  | Mean in Original Scale  | 0.144   | Mean in Log Scale  | -1.99         |
|  |   |   | sing Imputed Non-Detects   |               |
|  | Not Eno   | ugh Data to I   | Perform GOF Test   |               |
|  | Lognormal GOF   | Test on De  | tected Observations Only   |               |
|  | 95% KM Approximate Gamma UCL  | 0.197   | 95% KM Adjusted Gamma UCL  | 0.2           |
| Арр  | proximate Chi Square Value (102.13, $\alpha$ )  | 79.82   | Adjusted Chi Square Value (102.13, β)  | 78.2          |

## The data set for variable C (soil | bromobenzene | 108-86-1) was not processed!

C (soil | bromochloromethane | 74-97-5)

|   | General      | Statistics  |    |
|---|--------------|---|----|
| Total Number of Observations                        | 11           | Number of Distinct Observations   | 8  |
| Number of Detects                                   | 0            | Number of Non-Detects   | 11 |
| Number of Distinct Detects                          | 0            | Number of Distinct Non-Detects  | 8  |
| Warning: All observations are Non-Detects (         | (NDs), ther  | refore all statistics and estimates should also be NDs!   |    |
| -   |              | tics are also NDs lying below the largest detection limit!  |    |
|   |              | alues to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C (soil                   | bromochi     | oromethane   74-97-5) was not processed!  |    |
| C (soil   bromodichloromethane   75-27-4)           |              |   |    |
|   | General      | Statistics  |    |
| Total Number of Observations                        | 11           | Number of Distinct Observations   | 8  |
| Number of Detects                                   | 0            | Number of Non-Detects   | 11 |
| Number of Distinct Detects                          | 0            | Number of Distinct Non-Detects  | 8  |
| Specifically, sample mean, UCLs, UPLs, and c        | other statis | refore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>alues to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (soil                   | bromodich    | loromethane   75-27-4) was not processed!   |    |
| C (soil   bromoform   75-25-2)                      | General      | Statistics  |    |
| Total Number of Observations                        | 11           | Number of Distinct Observations   | 8  |
| Number of Detects                                   | 0            | Number of Non-Detects   | 11 |
| Number of Distinct Detects                          | 0            | Number of Distinct Non-Detects  | 8  |
| Warning: All observations are Non-Detects (         | (NDs), ther  | refore all statistics and estimates should also be NDs!   |    |
|   |              | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative site | specific va  | alues to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C                         | (soil   bron | noform   75-25-2) was not processed!  |    |
|   |              |   |    |
| C (soil   bromomethane   74-83-9)                   |              |   |    |
|   |              |   |    |
|   | General      | Statistics  |    |

| Total Number of Observations  | 11  | Number of Distinct Observations   | 10  |
|---|---|---|---|
| Number of Detects   | 0   | Number of Non-Detects   | 11  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 10  |
| Warning: All observations are Non-Detects   | (NDs), there  | efore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and  | other statist   | ics are also NDs lying below the largest detection limit!   |   |
| The Project Team may decide to use alternative site   | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV).   |   |
|   |   |   |   |
| The data set for variable C (s  | soil   bromo  | methane   74-83-9) was not processed!   |   |
| (soil   butylbenzylphthalate   85-68-7)   |   |   |   |
|   | General   | Statistics  |   |
| Total Number of Observations  | 20  | Number of Distinct Observations   | 15  |
| Number of Detects   | 0   | Number of Non-Detects   | 20  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 15  |
|   | 0   |   | 15  |
| Warning: All observations are Non-Detects   | (NDs), there  | efore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and  | other statist   | ics are also NDs lying below the largest detection limit!   |   |
|   |   | lues to estimate environmental parameters (e.g., EPC, BTV).   |   |
|   |   |   |   |
| The data set for variable C (soil<br>(soil   cadmium   7440-43-9)   | l   butylbenz   | ylphthalate   85-68-7) was not processed!   |   |
| · · · · · · · · · · · · · · · · · · ·   |   |   |   |
| (soil   cadmium   7440-43-9)  | General   | Statistics  | 15  |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations  | General<br>20   | Statistics Number of Distinct Observations  | 15  |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects   | General<br>20<br>8  | Statistics Number of Distinct Observations Number of Non-Detects  | 12  |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | General<br>20<br>8<br>7   | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects   | 12<br>9   |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | <b>General</b><br>20<br>8<br>7<br>0.21  | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect  | 12<br>9<br>0.187  |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | General<br>20<br>8<br>7<br>0.21<br>0.52   | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect   | 12<br>9<br>0.187<br>0.5   |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 12<br>9<br>0.187<br>0.5<br>60%                                      |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351   | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922                            |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263                   |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34<br>0.506  | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detects           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects   | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028          |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263                   |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34<br>0.34<br>0.506<br>-1.078  | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detects           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects   | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028          |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34<br>0.34<br>0.506<br>-1.078  | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detects           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028          |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078   | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detects           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects           t on Detects Only  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Morm<br>Shapiro Wilk Test Statistic  | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.34<br>0.506<br>-1.078<br>al GOF Tes<br>0.971   | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test   | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value  | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078<br>al GOF Tes<br>0.971<br>0.749                                   | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Level  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078<br>al GOF Tes<br>0.971<br>0.749<br>0.172<br>0.333<br>appear Norm  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           SD Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078<br>al GOF Tes<br>0.971<br>0.749<br>0.172<br>0.333<br>appear Norm  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value                     | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078<br>mal GOF Tes<br>0.971<br>0.749<br>0.172<br>0.333<br>appear Norm | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |
| (soil   cadmium   7440-43-9)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value                     | General<br>20<br>8<br>7<br>0.21<br>0.52<br>0.00851<br>0.351<br>0.351<br>0.34<br>0.506<br>-1.078<br>mal GOF Tes<br>0.971<br>0.749<br>0.172<br>0.333<br>appear Norm | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           SD Detects           SD of Logged Detects           t on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Leve           Lilliefors GOF Test           Detected Data appear Normal at 1% Significance Leve  | 12<br>9<br>0.187<br>0.5<br>60%<br>0.0922<br>0.263<br>1.028<br>0.268 |

| 90KM SD                                  | 0.0927        | 95% KM (BCA) UCL  | 0.332    |
|--|---------------|---|----------|
| 95% KM (t) UCL                           | 0.333         | 95% KM (Percentile Bootstrap) UCL                               | 0.33     |
| 95% KM (z) UCL                           | 0.331         | 95% KM Bootstrap t UCL  | 0.331    |
| 90% KM Chebyshev UCL                     | 0.368         | 95% KM Chebyshev UCL  | 0.405    |
| 97.5% KM Chebyshev UCL                   | 0.456         | 99% KM Chebyshev UCL  | 0.556    |
|  | <u> </u>      |   |          |
| Gamma GOF                                | Tests on De   | tected Observations Only  |          |
| A-D Test Statistic                       | 0.197         | Anderson-Darling GOF Test                                       |          |
| 5% A-D Critical Value                    | 0.716         | Detected data appear Gamma Distributed at 5% Significant        | ce Level |
| K-S Test Statistic                       | 0.143         | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                    | 0.294         | Detected data appear Gamma Distributed at 5% Significant        | ce Level |
| Detected data appear                     | Gamma Dis     | tributed at 5% Significance Level                               |          |
| Note GOF tests                           | may be unrel  | iable for small sample sizes                                    |          |
|  |               |   |          |
|  |               | Detected Data Only  |          |
| k hat (MLE)                              | 16.44         | k star (bias corrected MLE)                                     | 10.36    |
| Theta hat (MLE)                          | 0.0213        | Theta star (bias corrected MLE)                                 | 0.0339   |
| nu hat (MLE)                             |               | nu star (bias corrected)  | 165.7    |
| Mean (detects)                           | 0.351         |   |          |
| Gamma ROS                                | Statistics us | ing Imputed Non-Detects   |          |
|  |               | 6 NDs with many tied observations at multiple DLs               |          |
|  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |          |
|  |               | yield incorrect values of UCLs and BTVs                         |          |
|  | -             | in the sample size is small.                                    |          |
|  | -             | ay be computed using gamma distribution on KM estimates         |          |
| Minimum                                  | 0.179         | Mean  | 0.283    |
| Maximum                                  | 0.173         | Median  | 0.263    |
| SD                                       | 0.0872        | CV  | 0.308    |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 10.39    |
| Theta hat (MLE)                          | 0.0232        | Theta star (bias corrected MLE)                                 | 0.0272   |
| nu hat (MLE)                             |               | nu star (bias corrected MEE)                                    | 415.8    |
| Adjusted Level of Significance (β)       | 0.038         |   | 410.0    |
| Approximate Chi Square Value (415.75, α) |               | Adjusted Chi Square Value (415.75, β)                           | 366      |
| 95% Gamma Approximate UCL                | 0.318         | 95% Gamma Adjusted UCL  | 0.321    |
|  | 0.0.10        |   | 0.02.    |
| Estimates of G                           | amma Paran    | neters using KM Estimates                                       |          |
| Mean (KM)                                |               | SD (KM)   | 0.0927   |
| Variance (KM)                            | 0.00859       | SE of Mean (KM)   | 0.0271   |
| k hat (KM)                               | 9.551         | k star (KM)   | 8.152    |
| nu hat (KM)                              | 382.1         | nu star (KM)  | 326.1    |
| theta hat (KM)                           | 0.03          | theta star (KM)   | 0.0351   |
| 80% gamma percentile (KM)                | 0.366         | 90% gamma percentile (KM)                                       | 0.42     |
| 95% gamma percentile (KM)                | 0.469         | 99% gamma percentile (KM)                                       | 0.57     |
|  |               |   |          |
|  |               | eier (KM) Statistics  |          |
| Approximate Chi Square Value (326.08, α) |               | Adjusted Chi Square Value (326.08, β)                           | 282.2    |
| 95% KM Approximate Gamma UCL             | 0.327         | 95% KM Adjusted Gamma UCL                                       | 0.331    |
| 1  |               |   |          |

| Lognormal GOF   | - Test on De                              | Recied Observations Only   |                                |  |
|---|---|--|--------------------------------|--|
| Shapiro Wilk Test Statistic   | 0.977                                     | Shapiro Wilk GOF Test  |                                |  |
| 10% Shapiro Wilk Critical Value   | 0.851                                     | Detected Data appear Lognormal at 10% Significance Le  | evel                           |  |
| Lilliefors Test Statistic   | 0.15                                      | Lilliefors GOF Test  |                                |  |
| 10% Lilliefors Critical Value   | 0.265                                     | Detected Data appear Lognormal at 10% Significance Le  | evel                           |  |
|   | -   | nal at 10% Significance Level  |                                |  |
| Note GOF tests n  | nay be unreli                             | iable for small sample sizes   |                                |  |
| Lognormal ROS   | Statistics U                              | sing Imputed Non-Detects   |                                |  |
| Mean in Original Scale  | 0.286                                     | Mean in Log Scale  | -1.28                          |  |
| SD in Original Scale  | 0.0833                                    | SD in Log Scale  | 0.26                           |  |
| 95% t UCL (assumes normality of ROS data)   | 0.318                                     | 95% Percentile Bootstrap UCL   | 0.31                           |  |
| 95% BCA Bootstrap UCL   | 0.322                                     | 95% Bootstrap t UCL  | 0.32                           |  |
| 95% H-UCL (Log ROS)   | 0.32                                      |  |                                |  |
| Statistics using KM estimates o   | n Logged D:                               | ata and Assuming Lognormal Distribution  |                                |  |
| KM Mean (logged)  | -1.301                                    | KM Geo Mean  | 0.27                           |  |
| KM SD (logged)  | 0.319                                     | 95% Critical H Value (KM-Log)  | 1.86                           |  |
| KM Standard Error of Mean (logged)  | 0.0977                                    | 95% H-UCL (KM -Log)  | 0.32                           |  |
| KM SD (logged)  | 0.319                                     | 95% Critical H Value (KM-Log)  | 1.86                           |  |
| KM Standard Error of Mean (logged)  | 0.0977                                    |  |                                |  |
|   | I   |  |                                |  |
| DL/2 Normal   | DL/2 Sta                                  | DL/2 Log-Transformed   |                                |  |
| Mean in Original Scale  | 0.244                                     | Mean in Log Scale  | -1.51                          |  |
| SD in Original Scale  | 0.112                                     | SD in Log Scale  | 0.46                           |  |
| 95% t UCL (Assumes normality)   | 0.287                                     | 95% H-Stat UCL   | 0.30                           |  |
|   | thod, provide                             | ed for comparisons and historical reasons  |                                |  |
| Nonparame   | tric Distributi                           | on Free UCL Statistics   |                                |  |
|   |   | ributed at 1% Significance Level   |                                |  |
|   | Suggested L                               |  |                                |  |
| 95% KM (t) UCL  | 0.333                                     |  |                                |  |
|   |   |  |                                |  |
|   |   | ovided to help the user to select the most appropriate 95% UCL.  |                                |  |
|   | date distal                               | ution and skewness using results from simulation studies   |                                |  |
| Recommendations are based upon data size,   |   | -  |                                |  |
| •   |   | s; for additional insight the user may want to consult a statisticia   | n.                             |  |
| However, simulations results will not cover all Real W  |   | -  | n.                             |  |
| •   |   | -  | n.                             |  |
| However, simulations results will not cover all Real Will lot cover all Real Will lot cover all Real Will carbazole   86-74-8)  | orld data set<br>General S                | ts; for additional insight the user may want to consult a statisticia  |                                |  |
| However, simulations results will not cover all Real Will I (carbazole   86-74-8)<br>Total Number of Observations   | orld data set<br>General S<br>20          | Statistics Number of Distinct Observations   | 16                             |  |
| However, simulations results will not cover all Real W<br>il   carbazole   86-74-8)<br>Total Number of Observations<br>Number of Detects  | General S<br>20<br>4                      | Statistics Number of Distinct Observations Number of Non-Detects   | 16<br>16                       |  |
| However, simulations results will not cover all Real W<br>il   carbazole   86-74-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects                                    | General S<br>20<br>4<br>4                 | Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects   | 16<br>16<br>12                 |  |
| However, simulations results will not cover all Real W<br>il   carbazole   86-74-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect                  | General S<br>20<br>4<br>4<br>0.23         | Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Minimum Non-Detect | 16<br>16<br>12<br>0.18         |  |
| However, simulations results will not cover all Real W<br>I   carbazole   86-74-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect | General S<br>20<br>4<br>4<br>0.23<br>0.46 | Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect             | 16<br>16<br>12<br>0.18<br>0.22 |  |
| However, simulations results will not cover all Real W<br>il   carbazole   86-74-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect                  | General S<br>20<br>4<br>4<br>0.23         | Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Minimum Non-Detect | 16<br>16<br>12<br>0.18         |  |

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| Estimates of Ga                           | amma Param      | neters using KM Estimates                            |        |
|---|-----------------|--|--------|
| Mean (KM)                                 | 0.213           | SD (KM)  | 0.0661 |
| Variance (KM)                             | 0.00437         | SE of Mean (KM)                                      | 0.0171 |
| k hat (KM)                                | 10.36           | k star (KM)  | 8.839  |
| nu hat (KM)                               | 414.4           | nu star (KM)   | 353.6  |
| theta hat (KM)                            | 0.0205          | theta star (KM)                                      | 0.0241 |
| 80% gamma percentile (KM)                 | 0.27            | 90% gamma percentile (KM)                            | 0.308  |
| 95% gamma percentile (KM)                 | 0.343           | 99% gamma percentile (KM)                            | 0.414  |
| Gamm                                      | a Kanlan-Me     | er (KM) Statistics                                   |        |
| Approximate Chi Square Value (353.56, α)  |                 | Adjusted Chi Square Value (353.56, β)                | 307.8  |
| 95% KM Approximate Gamma UCL              | 0.242           | 95% KM Adjusted Gamma UCL                            | 0.244  |
|   |                 |  |        |
| -   |                 | etected Observations Only                            |        |
| Shapiro Wilk Test Statistic               | 0.929           | Shapiro Wilk GOF Test                                |        |
| 10% Shapiro Wilk Critical Value           | 0.792           | Detected Data appear Lognormal at 10% Significance L | evel   |
| Lilliefors Test Statistic                 | 0.24            | Lilliefors GOF Test                                  |        |
| 10% Lilliefors Critical Value             | 0.346           | Detected Data appear Lognormal at 10% Significance L | evel   |
|   |                 | nal at 10% Significance Level                        |        |
| Note GOF tests r                          | nay be unrel    | iable for small sample sizes                         |        |
|   |                 |  |        |
| -   | Statistics U    | sing Imputed Non-Detects                             |        |
| Mean in Original Scale                    | 0.119           | Mean in Log Scale                                    | -2.401 |
| SD in Original Scale                      | 0.111           | SD in Log Scale                                      | 0.676  |
| 95% t UCL (assumes normality of ROS data) | 0.162           | 95% Percentile Bootstrap UCL                         | 0.161  |
| 95% BCA Bootstrap UCL                     | 0.172           | 95% Bootstrap t UCL                                  | 0.19   |
| 95% H-UCL (Log ROS)                       | 0.16            |  |        |
| Statistics using KM estimates of          | n Logged Da     | ata and Assuming Lognormal Distribution              |        |
| KM Mean (logged)                          | -1.58           | KM Geo Mean  | 0.206  |
| KM SD (logged)                            | 0.232           | 95% Critical H Value (KM-Log)                        | 1.805  |
| KM Standard Error of Mean (logged)        | 0.0598          | 95% H-UCL (KM -Log)                                  | 0.233  |
| KM SD (logged)                            | 0.232           | 95% Critical H Value (KM-Log)                        | 1.805  |
| KM Standard Error of Mean (logged)        | 0.0598          | · · · · ·  |        |
|   | DL/2 St         | atistics   |        |
| DL/2 Normal                               | 00230           | DL/2 Log-Transformed                                 |        |
| Mean in Original Scale                    | 0.143           | Mean in Log Scale                                    | -2.081 |
| SD in Original Scale                      | 0.0986          | SD in Log Scale                                      | 0.478  |
| 95% t UCL (Assumes normality)             | 0.181           | 95% H-Stat UCL                                       | 0.470  |
|   |                 | ed for comparisons and historical reasons            | 0.174  |
|   |                 |  |        |
| Nonparame                                 | tric Distributi | on Free UCL Statistics                               |        |
| Detected Data appear                      | Normal Dist     | ributed at 1% Significance Level                     |        |
|   |                 |  |        |
|   | Sunneeted I     | ICL to Use   |        |
| 95% KM (t) UCL                            | Suggested U     | JCL to Use   |        |

| Recommendations are based upon data size, data distribution, and skewness using results from simulation studie         However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a s         soil   carbon disulfide   75-15-0)         General Statistics         Total Number of Observations       11       Number of Distinct Observations         Number of Detects       0       Number of Non-D |              |
|--|--------------|
| soil   carbon disulfide   75-15-0)  General Statistics  Total Number of Observations 11 Number of Distinct Observ Number of Detects 0 Number of Non-D  | tatistician. |
| General Statistics         Total Number of Observations       11       Number of Distinct Observations         Number of Detects       0       Number of Non-D   |              |
| Total Number of Observations     11     Number of Distinct Observ       Number of Detects     0     Number of Non-D  |              |
| Total Number of Observations     11     Number of Distinct Observ       Number of Detects     0     Number of Non-D  |              |
| Number of Detects     0     Number of Non-D  |              |
|  |              |
|  |              |
| Number of Distinct Detects         0         Number of Distinct Non-D  | etects 10    |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!  |              |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!  |              |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, B   | TV).         |
| The data set for variable C (soil   carbon disulfide   75-15-0) was not processed!   |              |
|  |              |
|  |              |
|  |              |
| soil   carbon tetrachloride   56-23-5)   |              |
| General Statistics   |              |
| Total Number of Observations 11 Number of Distinct Observ  | ations 8     |
| Number of Detects     0     Number of Non-D  | etects 11    |
| Number of Distinct Detects 0 Number of Distinct Non-D  | etects 8     |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!<br>The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, B  | TV).         |
| The data set for variable C (soil   carbon tetrachloride   56-23-5) was not processed!   |              |
|  |              |
| soil   chlorobenzene   108-90-7)   |              |
| General Statistics   |              |
| Total Number of Observations 11 Number of Distinct Observ  | ations 8     |
| Number of Detects 0 Number of Non-D  | etects 11    |
| Number of Distinct Detects 0 Number of Distinct Non-D  | etects 8     |
|  |              |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!  |              |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!  |              |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, B   | TV).         |
|  |              |
| The data set for variable C (soil   chlorobenzene   108-90-7) was not processed!   |              |
|  |              |
|  |              |
| (soil   chloroethane   75-00-3)  |              |
|  |              |

| Total Number of Observations                        | 11              | Number of Distinct Observations                             | 8                       |
|---|-----------------|---|-------------------------|
| Number of Detects                                   |                 | Number of Non-Detects                                       | 11                      |
| Number of Distinct Detects                          | -               | Number of Distinct Non-Detects                              |                         |
|   | 0               | Number of Distinct Non-Detects                              | 8                       |
|   | (1.100) )       |   |                         |
|   |                 | efore all statistics and estimates should also be NDs!      |                         |
|   |                 | tics are also NDs lying below the largest detection limit!  |                         |
| The Project Team may decide to use alternative site | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |                         |
|   |                 |   |                         |
| The data set for variable C                         | (soil   chlore  | ethane   75-00-3) was not processed!                        |                         |
|   |                 |   |                         |
|   |                 |   |                         |
| C (soil   chloroform   67-66-3)                     |                 |   |                         |
|   |                 |   |                         |
|   | General         | Statistics  |                         |
| Total Number of Observations                        | i.              | Number of Distinct Observations                             | 11                      |
| Number of Detects                                   |                 | Number of Non-Detects                                       | 11                      |
| Number of Distinct Detects                          | -               | Number of Distinct Non-Detects                              | 11                      |
|   | 0               |   | 11                      |
| Manuface All shares and have Data star              |                 | -fore all statistics and estimates should also be MD-1      |                         |
| -   |                 | efore all statistics and estimates should also be NDs!      |                         |
|   |                 | tics are also NDs lying below the largest detection limit!  |                         |
| The Project Team may decide to use alternative sit  | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |                         |
|   |                 |   |                         |
| The data set for variable (                         | C (soil   chlo  | roform   67-66-3) was not processed!                        |                         |
|   |                 |   |                         |
|   |                 |   |                         |
| C (soil   chloromethane   74-87-3)                  |                 |   |                         |
|   |                 |   |                         |
|   | General         | Statistics  |                         |
| Total Number of Observations                        | 11              | Number of Distinct Observations                             | 10                      |
| Number of Detects                                   | 0               | Number of Non-Detects                                       | 11                      |
| Number of Distinct Detects                          | 0               | Number of Distinct Non-Detects                              | 10                      |
|   | •               |   |                         |
| Warning: All observations are Non-Detects           | (NDe) ther      | efore all statistics and estimates should also be NDs!      |                         |
|   |                 |   |                         |
|   |                 | tics are also NDs lying below the largest detection limit!  |                         |
| The Project Team may decide to use alternative site | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |                         |
|   |                 |   |                         |
| The data set for variable C (                       | (soil   chloroi | methane   74-87-3) was not processed!                       |                         |
|   |                 |   |                         |
|   |                 |   |                         |
|   |                 |   |                         |
| C (soil   chromium (total)   7440-47-3)             |                 |   |                         |
|   |                 |   |                         |
|   | General         | Statistics  |                         |
| Total Number of Observations                        | 20              | Number of Distinct Observations                             | 17                      |
|   |                 | Number of Missing Observations                              | 0                       |
| Minimum   | 11.43           | Mean  | 86.49                   |
|   |                 |   |                         |
| Mavimum   | 1400            | Modian  | 16 67                   |
| Maximum   | 1400            | Median<br>Std. Error of Moan                                | 16.67                   |
| Maximum<br>SD<br>Coefficient of Variation           | 309.2           | Median<br>Std. Error of Mean<br>Skewness                    | 16.67<br>69.14<br>4.471 |

|                                 | Normal G           |  |       |
|---------------------------------|--------------------|--|-------|
| Shapiro Wilk Test Statistic     |                    | Shapiro Wilk GOF Test                              |       |
| 1% Shapiro Wilk Critical Value  | 0.868              | Data Not Normal at 1% Significance Level           |       |
| Lilliefors Test Statistic       | 0.526              | Lilliefors GOF Test                                |       |
| 1% Lilliefors Critical Value    | 0.223              | Data Not Normal at 1% Significance Level           |       |
| Data Not                        | Normal at 19       | % Significance Level                               |       |
| As                              | suming Norm        | al Distribution                                    |       |
| 95% Normal UCL                  |                    | 95% UCLs (Adjusted for Skewness)                   |       |
| 95% Student's-t UCL             | 206                | 95% Adjusted-CLT UCL (Chen-1995)                   | 274.1 |
|                                 |                    | 95% Modified-t UCL (Johnson-1978)                  | 217.6 |
|                                 | Gamma G            | OF Test  |       |
| A-D Test Statistic              | 6.326              | Anderson-Darling Gamma GOF Test                    |       |
| 5% A-D Critical Value           | 0.812              | Data Not Gamma Distributed at 5% Significance Leve | el    |
| K-S Test Statistic              | 0.506              | Kolmogorov-Smirnov Gamma GOF Test                  |       |
| 5% K-S Critical Value           | 0.206              | Data Not Gamma Distributed at 5% Significance Leve | el    |
| Data Not Gam                    | na Distributed     | d at 5% Significance Level                         |       |
|                                 | Gamma S            | - Andresian  |       |
| k bot (MLE)                     | 0.457              | k star (bias corrected MLE)                        | 0.422 |
| k hat (MLE)                     |                    |  | 205.1 |
| Theta hat (MLE)                 |                    | Theta star (bias corrected MLE)                    |       |
| nu hat (MLE)                    | 18.28              | nu star (bias corrected)                           | 16.87 |
| MLE Mean (bias corrected)       | 86.49              | MLE Sd (bias corrected)                            | 133.2 |
|                                 | 0.000              | Approximate Chi Square Value (0.05)                | 8.578 |
| Adjusted Level of Significance  | 0.038              | Adjusted Chi Square Value                          | 8.112 |
| Ase                             | suming Gamm        | na Distribution                                    |       |
| 95% Approximate Gamma UCL       | 170.1              | 95% Adjusted Gamma UCL                             | 179.8 |
|                                 | Lognormal          | GOF Test   |       |
| Shapiro Wilk Test Statistic     | 0.429              | Shapiro Wilk Lognormal GOF Test                    |       |
| 10% Shapiro Wilk Critical Value | 0.92               | Data Not Lognormal at 10% Significance Level       |       |
| Lilliefors Test Statistic       | 0.354              | Lilliefors Lognormal GOF Test                      |       |
| 10% Lilliefors Critical Value   | 0.176              | Data Not Lognormal at 10% Significance Level       |       |
| Data Not Lo                     | ognormal at 1      | 0% Significance Level                              |       |
|                                 | Lognormal          | Statistics   |       |
| Minimum of Logged Data          | -                  | Mean of logged Data                                | 3.05  |
| Maximum of Logged Data          |                    | SD of logged Data                                  | 1.011 |
|                                 |                    |  |       |
|                                 |                    | mal Distribution                                   |       |
| 95% H-UCL                       | 65.09              | 90% Chebyshev (MVUE) UCL                           | 59.75 |
| 95% Chebyshev (MVUE) UCL        | 71.44              | 97.5% Chebyshev (MVUE) UCL                         | 87.67 |
| 99% Chebyshev (MVUE) UCL        | 119.5              |  |       |
| Nonparame                       | etric Distribution | on Free UCL Statistics                             |       |
| Data do n                       | ot follow a Dis    | scernible Distribution                             |       |

| Nonpar   | ametric Dist    | tribution Free UCLs   |       |
|--|-----------------|---|-------|
| 95% CLT UCL  | 200.2           | 95% BCA Bootstrap UCL   | 294.4 |
| 95% Standard Bootstrap UCL                         | 197.1           | 95% Bootstrap-t UCL   | 6873  |
| 95% Hall's Bootstrap UCL                           | 2986            | 95% Percentile Bootstrap UCL  | 224.5 |
| 90% Chebyshev(Mean, Sd) UCL                        | 293.9           | 95% Chebyshev(Mean, Sd) UCL   | 387.9 |
| 97.5% Chebyshev(Mean, Sd) UCL                      | 518.3           | 99% Chebyshev(Mean, Sd) UCL   | 774.4 |
|  | 0               |   |       |
| 05% Studentis t LOI                                | 206             | UCL to Use  |       |
| 95% Student's-t UCL                                | 200             |   |       |
| The calculated UCLs are based on assumption        | ons that the    | data were collected in a random and unbiased manner.                  |       |
| Please verify the d                                | ata were co     | llected from random locations.  |       |
| If the data were collected                         | using judgn     | nental or other non-random methods,                                   |       |
| then contact as                                    | statistician to | o correctly calculate UCLs.   |       |
|  |                 |   |       |
| Note: Suggestions regarding the selection of a 95% | UCL are p       | rovided to help the user to select the most appropriate 95% UCI       |       |
|  |                 | pution, and skewness using results from simulation studies.           |       |
|  |                 | ets; for additional insight the user may want to consult a statistici | an.   |
|  |                 |   | -     |
| C (soil   chrysene   218-01-9)                     |                 |   |       |
|  | General         | Statistics  |       |
| Total Number of Observations                       | 20              | Number of Distinct Observations                                       | 16    |
| Number of Detects                                  | 9               | Number of Non-Detects   | 11    |
| Number of Distinct Detects                         | 8               | Number of Distinct Non-Detects  | 8     |
| Minimum Detect                                     | 0.063           | Minimum Non-Detect  | 0.192 |
| Maximum Detect                                     | 2.9             | Maximum Non-Detect  | 0.22  |
| Variance Detects                                   | 0.972           | Percent Non-Detects   | 55%   |
| Mean Detects                                       | 0.757           | SD Detects  | 0.986 |
| Median Detects                                     | 0.16            | CV Detects  | 1.302 |
| Skewness Detects                                   | 1.548           | Kurtosis Detects  | 1.831 |
| Mean of Logged Detects                             | -1.127          | SD of Logged Detects  | 1.411 |
| Name   |                 | t en Detecto Och  |       |
| Shapiro Wilk Test Statistic                        | 0.754           | t on Detects Only Shapiro Wilk GOF Test                               |       |
| 1% Shapiro Wilk Critical Value                     | 0.754           | Detected Data Not Normal at 1% Significance Leve                      | .1    |
| Lilliefors Test Statistic                          | 0.764           | Lilliefors GOF Test   | •1    |
| 1% Lilliefors Critical Value                       | 0.289           | Detected Data appear Normal at 1% Significance Lev                    |       |
|  |                 | e Normal at 1% Significance Level                                     | VCI   |
|  |                 |   |       |
| NOTE GOF TESTS I                                   | nay be unre     | liable for small sample sizes   |       |
| Kanlan-Meier (KM) Statistics usin                  | a Normal Cr     | ritical Values and other Nonparametric UCLs                           |       |
| KM Mean  | 0.403           | KM Standard Error of Mean   | 0.167 |
| 90KM SD  | 0.403           | 95% KM (BCA) UCL  | 0.167 |
|  |                 |   |       |
| 95% KM (t) UCL                                     | 0.691           | 95% KM (Percentile Bootstrap) UCL                                     | 0.683 |
| 95% KM (z) UCL                                     |                 | 95% KM Bootstrap t UCL  |       |
| 90% KM Chebyshev UCL                               | 0.903           | 95% KM Chebyshev UCL  | 1.129 |
| 97.5% KM Chebyshev UCL                             | 1.443           | 99% KM Chebyshev UCL  | 2.061 |

| Gamma GOF 1   | Fests on Det   | ected Observations Only   |                           |  |
|---|--|---|---------------------------|--|
| A-D Test Statistic  | 0.679  | Anderson-Darling GOF Test   |                           |  |
| 5% A-D Critical Value   | 0.754  | Detected data appear Gamma Distributed at 5% Significance L   |                           |  |
| K-S Test Statistic  | 0.287  | Kolmogorov-Smirnov GOF  |                           |  |
| 5% K-S Critical Value   | 0.29   | Detected data appear Gamma Distributed at 5% Significance   | e Level                   |  |
| Detected data appear  | Gamma Dist   | ributed at 5% Significance Level  |                           |  |
| Note GOF tests m  | nay be unreli  | able for small sample sizes   |                           |  |
| Gamma S   | Statistics on  | Detected Data Only  |                           |  |
| k hat (MLE)   | 0.711  | k star (bias corrected MLE)   | 0.548                     |  |
| Theta hat (MLE)   | 1.065  | Theta star (bias corrected MLE)   | 1.382                     |  |
| nu hat (MLE)  | 12.79  | nu star (bias corrected)  | 9.863                     |  |
| Mean (detects)  | 0.757  |   |                           |  |
| Gamma ROS :   | Statistics usi   | ng Imputed Non-Detects  |                           |  |
|   |  | NDs with many tied observations at multiple DLs   |                           |  |
|   |  | s <1.0, especially when the sample size is small (e.g., <15-20)   |                           |  |
|   |  | yield incorrect values of UCLs and BTVs   |                           |  |
|   |  | n the sample size is small.   |                           |  |
|   |  | y be computed using gamma distribution on KM estimates  |                           |  |
| Minimum   | 0.01   | Mean  | 0.373                     |  |
| Maximum   | 2.9  | Median  | 0.37                      |  |
|   | -  | CV  | 1.97                      |  |
| SD  | 0.735<br>0.407   |   | 0.379                     |  |
| k hat (MLE)   |  | k star (bias corrected MLE)   |                           |  |
| Theta hat (MLE)   | 0.916  | Theta star (bias corrected MLE)   | 0.983                     |  |
| nu hat (MLE)  | 16.27  | nu star (bias corrected)  | 15.16                     |  |
| Adjusted Level of Significance ( $\beta$ )  | 0.038  |   | 0.04                      |  |
| Approximate Chi Square Value (15.16, α)   | 7.374  | Adjusted Chi Square Value (15.16, β)  | 6.94                      |  |
| 95% Gamma Approximate UCL   | 0.766  | 95% Gamma Adjusted UCL  | 0.81                      |  |
| Estimates of Ga   |  | eters using KM Estimates  |                           |  |
| Mean (KM)   | 0.403  | SD (KM)   | 0.70                      |  |
| Variance (KM)   | 0.492  | SE of Mean (KM)   | 0.167                     |  |
| k hat (KM)  | 0.329  | k star (KM)   | 0.31                      |  |
| nu hat (KM)   | 13.18  | nu star (KM)  | 12.53                     |  |
| theta hat (KM)  | 1.222  | theta star (KM)   | 1.28                      |  |
|   | 0.624  | 90% gamma percentile (KM)   | 1.18                      |  |
| 80% gamma percentile (KM)   | 0.02.  |   |                           |  |
| 80% gamma percentile (KM)<br>95% gamma percentile (KM)  | 1.816  | 99% gamma percentile (KM)   | 3.45                      |  |
| 95% gamma percentile (KM)   | 1.816  | 99% gamma percentile (KM) ier (KM) Statistics   | 3.45                      |  |
| 95% gamma percentile (KM)   | 1.816  |   |                           |  |
| 95% gamma percentile (KM)<br>Gamma  | 1.816<br>a Kaplan-Me   | ier (KM) Statistics   | 5.21                      |  |
| 95% gamma percentile (KM)<br>Gamma<br>Approximate Chi Square Value (12.53, α)<br>95% KM Approximate Gamma UCL   | 1.816<br>a Kaplan-Me<br>5.58<br>0.904  | ier (KM) Statistics<br>Adjusted Chi Square Value (12.53, β)   | 5.21                      |  |
| 95% gamma percentile (KM)<br>Gamma<br>Approximate Chi Square Value (12.53, α)<br>95% KM Approximate Gamma UCL   | 1.816<br>a Kaplan-Me<br>5.58<br>0.904  | ier (KM) Statistics<br>Adjusted Chi Square Value (12.53, β)<br>95% KM Adjusted Gamma UCL  | 5.21                      |  |
| 95% gamma percentile (KM)<br>Gamma<br>Approximate Chi Square Value (12.53, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF                                | 1.816<br><b>a Kaplan-Me</b><br>5.58<br>0.904<br><b>Test on De</b>            | ier (KM) Statistics<br>Adjusted Chi Square Value (12.53, β)<br>95% KM Adjusted Gamma UCL  | 5.21 <sup>°</sup><br>0.96 |  |
| 95% gamma percentile (KM)<br>Gamma<br>Approximate Chi Square Value (12.53, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic | 1.816<br><b>a Kaplan-Me</b><br>5.58<br>0.904<br><b>F Test on De</b><br>0.883 | ier (KM) Statistics<br>Adjusted Chi Square Value (12.53, β)<br>95% KM Adjusted Gamma UCL<br>tected Observations Only<br>Shapiro Wilk GOF Test | 3.457<br>5.217<br>0.967   |  |

|   |   | nal at 10% Significance Level<br>liable for small sample sizes  |          |
|---|---|---|----------|
|   |   |   |          |
|   |   | Jsing Imputed Non-Detects   |          |
| Mean in Original Scale  | 0.414   | Mean in Log Scale   | -1.647   |
| SD in Original Scale  | 0.715   | SD in Log Scale   | 1.07     |
| 95% t UCL (assumes normality of ROS data)   | 0.691   | 95% Percentile Bootstrap UCL  | 0.69     |
| 95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | 0.793   | 95% Bootstrap t UCL   | 1        |
| · · · ·   |   |   |          |
| _   |   | ata and Assuming Lognormal Distribution   |          |
| KM Mean (logged)  | -1.733  | KM Geo Mean   | 0.17     |
| KM SD (logged)  | 1.072   | 95% Critical H Value (KM-Log)   | 2.74     |
| KM Standard Error of Mean (logged)  | 0.272   | 95% H-UCL (KM -Log)   | 0.61     |
| KM SD (logged)  | 1.072   | 95% Critical H Value (KM-Log)   | 2.74     |
| KM Standard Error of Mean (logged)  | 0.272   |   |          |
|   | DL/2 S  | tatistics   |          |
| DL/2 Normal   |   | DL/2 Log-Transformed  |          |
| Mean in Original Scale  | 0.396   | Mean in Log Scale   | -1.767   |
| SD in Original Scale  | 0.722   | SD in Log Scale   | 1.092    |
| 95% t UCL (Assumes normality)   | 0.675   | 95% H-Stat UCL  | 0.62     |
| DL/2 is not a recommended me  | thod. provid  | ed for comparisons and historical reasons   |          |
|   | <b>.</b>  |   |          |
| 95% KM (t) UCL  | 0.691   | UCL to Use  |          |
|   |   |   |          |
| -   |   | data were collected in a random and unbiased manner.  |          |
| -   |   | lected from random locations.   |          |
|   |   | nental or other non-random methods,   |          |
| then contact a s  | statistician to   | o correctly calculate UCLs.   |          |
| When a data set follows an app  | rovimate di   | stribution passing only one of the GOF tests,   |          |
|   | i unitate ul  |   |          |
| it is suggested to use a UCL bas  |   | listribution passing both GOF tests in ProUCL   |          |
|   | ed upon a c   |   |          |
| Note: Suggestions regarding the selection of a 95%  | ed upon a c   | istribution passing both GOF tests in ProUCL  |          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | ed upon a c<br>UCL are p<br>data distrib                                  | istribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.  |          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | ed upon a c<br>UCL are p<br>data distrib                                  | istribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.  |          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ed upon a c<br>UCL are p<br>data distrit<br>orld data se                  | listribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statisticia   |          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   cis-1,2-dichloroethene   156-59-2)                                 | ed upon a c<br>UCL are p<br>data distrib<br>orld data se<br>General       | listribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statisticia<br>Statistics                                   | an.      |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   cis-1,2-dichloroethene   156-59-2)<br>Total Number of Observations | ed upon a c<br>UCL are p<br>data distrib<br>orld data se<br>General<br>11 | istribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations | an.<br>8 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   cis-1,2-dichloroethene   156-59-2)                                 | ed upon a c<br>UCL are p<br>data distrib<br>orld data se<br>General       | listribution passing both GOF tests in ProUCL<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statisticia<br>Statistics                                   | an.      |

|                                   |              | ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV). |         |
|-----------------------------------|--------------|--|---------|
| The data set for variable C (soil | cis-1,2-dich | loroethene   156-59-2) was not processed!  |         |
|                                   |              |  |         |
| oil   cobalt   7440-48-4)         |              |  |         |
|                                   | General      | Otatiotics   |         |
| Total Number of Observations      | 20           | Number of Distinct Observations  | 19      |
|                                   | 20           | Number of Missing Observations   | 0       |
| Minimum                           | 4.2          | Mean   | 9.06    |
| Maximum                           | 18           | Median   | 8.45    |
| SD                                | 3.38         | Std. Error of Mean   | 0.75    |
| Coefficient of Variation          | 0.373        | Skewness   | 0.97    |
|                                   | Normal G     | GOF Test   |         |
| Shapiro Wilk Test Statistic       | 0.934        | Shapiro Wilk GOF Test  |         |
| 1% Shapiro Wilk Critical Value    | 0.868        | Data appear Normal at 1% Significance Level  |         |
| Lilliefors Test Statistic         | 0.147        | Lilliefors GOF Test  |         |
| 1% Lilliefors Critical Value      | 0.223        | Data appear Normal at 1% Significance Level  |         |
|                                   | suming Norn  | nal Distribution   |         |
| 95% Normal UCL                    | 10.07        | 95% UCLs (Adjusted for Skewness)   | 10.4    |
| 95% Student's-t UCL               | 10.37        | 95% Adjusted-CLT UCL (Chen-1995)   | 10.4    |
|                                   |              | 95% Modified-t UCL (Johnson-1978)  | 10.4    |
|                                   | Gamma (      | GOF Test   |         |
| A-D Test Statistic                | 0.234        | Anderson-Darling Gamma GOF Test  |         |
| 5% A-D Critical Value             | 0.743        | Detected data appear Gamma Distributed at 5% Significand   | ce Leve |
| K-S Test Statistic                | 0.132        | Kolmogorov-Smirnov Gamma GOF Test  |         |
| 5% K-S Critical Value             | 0.194        | Detected data appear Gamma Distributed at 5% Significand   | ce Leve |
| Detected data appear              | Gamma Dis    | tributed at 5% Significance Level  |         |
|                                   | Gamma        | Statistics   |         |
| k hat (MLE)                       | 8.148        | k star (bias corrected MLE)  | 6.95    |
| Theta hat (MLE)                   | 1.113        | Theta star (bias corrected MLE)  | 1.30    |
| nu hat (MLE)                      | 325.9        | nu star (bias corrected)   | 278.4   |
| MLE Mean (bias corrected)         | 9.066        | MLE Sd (bias corrected)  | 3.43    |
|                                   |              | Approximate Chi Square Value (0.05)  | 240.7   |
| Adjusted Level of Significance    | 0.038        | Adjusted Chi Square Value  | 238     |
|                                   |              | ma Distribution  |         |
| Ass                               | uming Gam    |  |         |
| Ass<br>95% Approximate Gamma UCL  | 10.48        | 95% Adjusted Gamma UCL   | 10.6    |

| Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value  | 0.986   | Shapiro Wilk Lognormal GOF Test   |                                       |
|---|---|---|---------------------------------------|
|   | 0.92  | Data appear Lognormal at 10% Significance Level   |                                       |
| Lilliefors Test Statistic   | 0.122   | Lilliefors Lognormal GOF Test   |                                       |
| 10% Lilliefors Critical Value   | 0.176   | Data appear Lognormal at 10% Significance Level   |                                       |
| Data appear   | Lognormal at 10   | % Significance Level  |                                       |
|   | Lognormal St  | ntintino  |                                       |
| Minimum of Logged Data  | Lognormal St<br>1.435   | Mean of logged Data   | 2.142                                 |
| Maximum of Logged Data<br>Maximum of Logged Data  |   | SD of logged Data   | 0.362                                 |
|   | 2.09  | SD 01 logged Data   | 0.30                                  |
| Assu  | uming Lognorma  | al Distribution   |                                       |
| 95% H-UCL   | 10.64   | 90% Chebyshev (MVUE) UCL  | 11.3                                  |
| 95% Chebyshev (MVUE) UCL  | 12.32   | 97.5% Chebyshev (MVUE) UCL  | 13.73                                 |
| 99% Chebyshev (MVUE) UCL  | 16.5  |   |                                       |
| Nerrore   | tria Distribution   | Free UCL Statistics   |                                       |
|   |   | cernible Distribution   |                                       |
|   |   |   |                                       |
| Nonpa   | rametric Distribu   | tion Free UCLs  |                                       |
| 95% CLT UCL   | 10.31   | 95% BCA Bootstrap UCL   | 10.4                                  |
| 95% Standard Bootstrap UCL  | 10.28   | 95% Bootstrap-t UCL   | 10.62                                 |
| 95% Hall's Bootstrap UCL  | 10.71   | 95% Percentile Bootstrap UCL  | 10.32                                 |
| 90% Chebyshev(Mean, Sd) UCL   | 11.33   | 95% Chebyshev(Mean, Sd) UCL   | 12.3                                  |
| 97.5% Chebyshev(Mean, Sd) UCL   | 13.79   | 99% Chebyshev(Mean, Sd) UCL   | 16.5                                  |
|   |   |   |                                       |
|   |   |   |                                       |
|   | Suggested UC  | L to Use  |                                       |
| 95% Student's-t UCL   | Suggested UC  | L to Use  |                                       |
|   | 10.37   |   |                                       |
| Note: Suggestions regarding the selection of a 95%  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.  |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | 10.37<br>6 UCL are provid   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia   |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia   |                                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics  | n.                                    |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia   | n.<br>19<br>0                         |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations   | n.<br>19<br>0<br>70.3                 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum   | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean   | n.<br>19<br>0<br>70.3<br>16.0         |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000<br>219.1  | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000<br>219.1  | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum  | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000<br>219.1<br>3.117<br>Normal GOF   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD<br>Coefficient of Variation<br>Shapiro Wilk Test Statistic                                   | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000<br>219.1<br>3.117<br>Normal GOF<br>0.27                                       | ded to help the user to select the most appropriate 95% UCL.<br>In, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>Test<br>Shapiro Wilk GOF Test   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD<br>Coefficient of Variation<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value | 10.37       10.37       6 UCL are provid       , data distributio       /orld data sets; f       20       11       1000       219.1       3.117       Normal GOF       0.27       0.868 | ded to help the user to select the most appropriate 95% UCL.<br>In, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>Test<br>Shapiro Wilk GOF Test<br>Data Not Normal at 1% Significance Level | n.<br>19<br>0                         |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>soil   copper   7440-50-8)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD<br>Coefficient of Variation<br>Shapiro Wilk Test Statistic                                   | 10.37<br>6 UCL are provid<br>, data distributio<br>/orld data sets; f<br>General Stat<br>20<br>11<br>1000<br>219.1<br>3.117<br>Normal GOF<br>0.27                                       | ded to help the user to select the most appropriate 95% UCL.<br>In, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticia<br>tistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>Test<br>Shapiro Wilk GOF Test   | n.<br>19<br>0<br>70.3<br>16.0<br>48.9 |

| As   | suming Normal     | Distribution  |       |
|--|-------------------|---|-------|
| 95% Normal UCL   | -                 | 95% UCLs (Adjusted for Skewness)                            |       |
| 95% Student's-t UCL                                    | 155               | 95% Adjusted-CLT UCL (Chen-1995)                            | 203   |
|  |                   | 95% Modified-t UCL (Johnson-1978)                           | 163.1 |
|  | Gamma GOI         | - Test  |       |
| A-D Test Statistic                                     | 4.797             | Anderson-Darling Gamma GOF Test                             |       |
| 5% A-D Critical Value                                  | 0.796             | Data Not Gamma Distributed at 5% Significance Leve          | ما    |
| K-S Test Statistic                                     | 0.379             | Kolmogorov-Smirnov Gamma GOF Test                           |       |
| 5% K-S Critical Value                                  | 0.204             | Data Not Gamma Distributed at 5% Significance Leve          | ما    |
|  |                   | t 5% Significance Level                                     |       |
|  | 0                 |   |       |
| k hat (MLE)  | Gamma Stat        | k star (bias corrected MLE)                                 | 0.52  |
| Theta hat (MLE)  | 122.8             | Theta star (bias corrected MLE)                             | 135.2 |
| nu hat (MLE)   | 22.9              | nu star (bias corrected MLL)                                | 20.8  |
| MLE Mean (bias corrected)                              | 70.3              | MLE Sd (bias corrected)                                     | 97.49 |
|  | 70.0              | Approximate Chi Square Value (0.05)                         | 11.44 |
| Adjusted Level of Significance                         | 0.038             | Adjusted Chi Square Value                                   | 10.89 |
|  |                   |   |       |
|  | suming Gamma      |   |       |
| 95% Approximate Gamma UCL                              | 127.8             | 95% Adjusted Gamma UCL                                      | 134.2 |
|  | Lognormal GC      | DF Test   |       |
| Shapiro Wilk Test Statistic                            | 0.603             | Shapiro Wilk Lognormal GOF Test                             |       |
| 10% Shapiro Wilk Critical Value                        | 0.92              | Data Not Lognormal at 10% Significance Level                |       |
| Lilliefors Test Statistic                              | 0.235             | Lilliefors Lognormal GOF Test                               |       |
| 10% Lilliefors Critical Value                          | 0.176             | Data Not Lognormal at 10% Significance Level                |       |
| Data Not Lo  | ognormal at 10%   | 6 Significance Level  |       |
|  | Lognormal Sta     | atistics  |       |
| Minimum of Logged Data                                 | 2.398             | Mean of logged Data   | 3.166 |
| Maximum of Logged Data                                 | 6.908             | SD of logged Data   | 0.97  |
|  |                   |   |       |
|  |                   |   |       |
| 95% H-UCL  | 67.59             | 90% Chebyshev (MVUE) UCL                                    | 63.39 |
| 95% Chebyshev (MVUE) UCL                               | 75.45             | 97.5% Chebyshev (MVUE) UCL                                  | 92.2  |
| 99% Chebyshev (MVUE) UCL                               | 125.1             |   |       |
| -  |                   | Free UCL Statistics   |       |
| Data do no   | ot follow a Disce | mible Distribution  |       |
| Nonpar   | ametric Distribu  | tion Free UCLs  |       |
| 95% CLT UCL  | 150.9             | 95% BCA Bootstrap UCL                                       | 218.9 |
|  | 148.7             | 95% Bootstrap-t UCL   | 1579  |
| 95% Standard Bootstrap UCL                             | 140.7             |   |       |
| 95% Standard Bootstrap UCL<br>95% Hall's Bootstrap UCL | 821.8             | 95% Percentile Bootstrap UCL                                | 167.7 |
| -  |                   | 95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL |       |

|  | Suggested      | UCL to Use   |        |
|--|----------------|--|--------|
| 95% Student's-t UCL                                    | 155            |  |        |
|  |                |  |        |
| The calculated UCLs are based on assumption            | ns that the    | data were collected in a random and unbiased manner.                 |        |
| Please verify the da                                   | ata were co    | llected from random locations.                                       |        |
| If the data were collected                             | using judgm    | nental or other non-random methods,                                  |        |
| then contact a s                                       | tatistician to | o correctly calculate UCLs.  |        |
|  |                |  |        |
| Note: Suggestions regarding the selection of a 95%     | UCL are p      | rovided to help the user to select the most appropriate 95% UC       | L.     |
| Recommendations are based upon data size,              | data distrib   | ution, and skewness using results from simulation studies.           |        |
| However, simulations results will not cover all Real W | orld data se   | ets; for additional insight the user may want to consult a statistic | ian.   |
|  |                |  |        |
| C (soil   cumene   98-82-8)                            |                |  |        |
|  |                |  |        |
|  |                | Statistics   |        |
| Total Number of Observations                           | 11             | Number of Distinct Observations                                      | -      |
| Number of Detects                                      | 2              | Number of Non-Detects  | -      |
| Number of Distinct Detects                             | 2              | Number of Distinct Non-Detects                                       | -      |
| Minimum Detect   | 0.14           | Minimum Non-Detect   |        |
| Maximum Detect   | 0.49           | Maximum Non-Detect   | 0.0019 |
| Variance Detects                                       | 0.0613         | Percent Non-Detects  | 81.82% |
| Mean Detects   | 0.315          | SD Detects   | 0.247  |
| Median Detects   | 0.315          | CV Detects   | 0.786  |
| Skewness Detects                                       | N/A            | Kurtosis Detects   | N/A    |
| Mean of Logged Detects                                 | -1.34          | SD of Logged Detects   | 0.886  |
|  |                |  |        |
| _  |                | only 2 Detected Values.  |        |
|  | ne meaning     | ful or reliable statistics and estimates.                            |        |
|  |                |  |        |
| Norm   | al GOF Tas     | t on Detects Only  |        |
|  |                | Perform GOF Test   |        |
|  |                |  |        |
| Kaplan-Meier (KM) Statistics using                     | ı Normal Cr    | itical Values and other Nonparametric UCLs                           |        |
| KM Mean  | 0.0579         | KM Standard Error of Mean  | 0.0607 |
| 90KM SD  | 0.142          | 95% KM (BCA) UCL   | N/A    |
| 95% KM (t) UCL   | 0.168          | 95% KM (Percentile Bootstrap) UCL                                    | N/A    |
| 95% KM (z) UCL   | 0.158          | 95% KM Bootstrap t UCL   | N/A    |
| 90% KM Chebyshev UCL                                   | 0.24           | 95% KM Chebyshev UCL   | 0.322  |
| 97.5% KM Chebyshev UCL                                 | 0.437          | 99% KM Chebyshev UCL   | 0.662  |
|  |                | ,  |        |
| Gamma GOF  | Fests on De    | etected Observations Only  |        |
|  |                | Perform GOF Test   |        |
|  | -              |  |        |
| Gamma S  | Statistics on  | Detected Data Only   |        |
| k hat (MLE)  | 2.865          | k star (bias corrected MLE)  | N/A    |
| Theta hat (MLE)  | 0.11           | Theta star (bias corrected MLE)                                      | N/A    |
| nu hat (MLE)   | 11.46          | nu star (bias corrected)   | N/A    |
|  |                |  |        |

|  | 0.015              |   |       |
|--|--------------------|---|-------|
| Mean (detects)                                     | 0.315              |   |       |
| Estimates of Ga                                    | mma Parameters     | s using KM Estimates  |       |
| Mean (KM)  | 0.0579             | SD (KM)   | 0.142 |
| Variance (KM)                                      | 0.0203             | SE of Mean (KM)   | 0.060 |
| k hat (KM)   | 0.165              | k star (KM)   | 0.18  |
| nu hat (KM)  | 3.634              | nu star (KM)  | 3.97  |
| theta hat (KM)                                     | 0.35               | theta star (KM)   | 0.32  |
| 80% gamma percentile (KM)                          | 0.072              | 90% gamma percentile (KM)   | 0.17  |
| 95% gamma percentile (KM)                          | 0.306              | 99% gamma percentile (KM)   | 0.67  |
|  | 0.000              |   | 0.07  |
| Gamma  | a Kaplan-Meier (k  | (M) Statistics  |       |
|  | · · ·              | Adjusted Level of Significance (β)  | 0.02  |
| Approximate Chi Square Value (3.98, $\alpha$ )     | 0.712              | Adjusted Chi Square Value (3.98, β)   | 0.52  |
| 95% KM Approximate Gamma UCL                       | 0.323              | 95% KM Adjusted Gamma UCL   | 0.44  |
|  |                    |   | -     |
| Lognormal GOF                                      | Test on Detecte    | d Observations Only   |       |
| Not Eno  | ugh Data to Perfo  | orm GOF Test  |       |
|  |                    |   |       |
| Lognormal ROS                                      | Statistics Using   | Imputed Non-Detects   |       |
| Mean in Original Scale                             | 0.0591             | Mean in Log Scale   | -5.65 |
| SD in Original Scale                               | 0.149              | SD in Log Scale   | 2.36  |
| 95% t UCL (assumes normality of ROS data)          | 0.14               | 95% Percentile Bootstrap UCL  | 0.13  |
| 95% BCA Bootstrap UCL                              | 0.192              | 95% Bootstrap t UCL   | 3.98  |
| 95% H-UCL (Log ROS)                                | 4.985              |   |       |
|  |                    |   |       |
| Statistics using KM estimates of                   | n Logged Data ar   | nd Assuming Lognormal Distribution  |       |
| KM Mean (logged)                                   | -6.176             | KM Geo Mean   | 0.002 |
| KM SD (logged)                                     | 2.295              | 95% Critical H Value (KM-Log)   | 5.83  |
| KM Standard Error of Mean (logged)                 | 0.979              | 95% H-UCL (KM -Log)   | 1.99  |
| KM SD (logged)                                     | 2.295              | 95% Critical H Value (KM-Log)   | 5.83  |
| KM Standard Error of Mean (logged)                 | 0.979              |   |       |
|  |                    |   |       |
|  | DL/2 Statistic     | cs  |       |
| DL/2 Normal  |                    | DL/2 Log-Transformed  |       |
| Mean in Original Scale                             | 0.0579             | Mean in Log Scale   | -6.08 |
| SD in Original Scale                               | 0.149              | SD in Log Scale   | 2.37  |
| 95% t UCL (Assumes normality)                      | 0.14               | 95% H-Stat UCL  | 3.57  |
| DL/2 is not a recommended met                      | hod, provided for  | comparisons and historical reasons  |       |
|  |                    |   |       |
| -  |                    | ree UCL Statistics  |       |
| Data do no   | t follow a Discerr | ible Distribution   |       |
|  |                    |   |       |
|  | Suggested UCL t    | o Use   |       |
|  | 0.168              |   |       |
| 95% KM (t) UCL                                     |                    |   |       |
|  |                    |   |       |
| Note: Suggestions regarding the selection of a 95% |                    | d to help the user to select the most appropriate 95% UCL and skewness using results from simulation studies. | •     |

|                                    | General S      | Statistics   |        |
|------------------------------------|----------------|--|--------|
| Total Number of Observations       | 16             | Number of Distinct Observations  | 15     |
| Number of Detects                  | 4              | Number of Non-Detects  | 12     |
| Number of Distinct Detects         | 4              | Number of Distinct Non-Detects   | 11     |
| Minimum Detect                     | 0.66           | Minimum Non-Detect   | 0.32   |
| Maximum Detect                     | 2.2            | Maximum Non-Detect   | 0.65   |
| Variance Detects                   | 0.462          | Percent Non-Detects  | 75%    |
| Mean Detects                       | 1.291          | SD Detects   | 0.68   |
| Median Detects                     | 1.153          | CV Detects   | 0.52   |
| Skewness Detects                   | 0.94           | Kurtosis Detects   | -0.006 |
| Mean of Logged Detects             | 0.152          | SD of Logged Detects   | 0.5    |
| Norma                              |                | on Detects Only  |        |
| Shapiro Wilk Test Statistic        | 0.94           | Shapiro Wilk GOF Test  |        |
| 1% Shapiro Wilk Critical Value     | 0.687          | Detected Data appear Normal at 1% Significance Lev                     | /el    |
| Lilliefors Test Statistic          | 0.215          | Lilliefors GOF Test  |        |
| 1% Lilliefors Critical Value       | 0.413          | Detected Data appear Normal at 1% Significance Lev                     | /el    |
| Detected Data ap                   | pear Norma     | al at 1% Significance Level  |        |
| Note GOF tests m                   | ay be unreli   | able for small sample sizes  |        |
|                                    |                |  |        |
| Kaplan-Meier (KM) Statistics using | Normal Crit    | ical Values and other Nonparametric UCLs                               |        |
| KM Mean                            | 0.568          | KM Standard Error of Mean  | 0.1    |
| 90KM SD                            | 0.511          | 95% KM (BCA) UCL   | N/A    |
| 95% KM (t) UCL                     | 0.826          | 95% KM (Percentile Bootstrap) UCL                                      | N/A    |
| 95% KM (z) UCL                     | 0.81           | 95% KM Bootstrap t UCL   | N/A    |
| 90% KM Chebyshev UCL               | 1.01           | 95% KM Chebyshev UCL   | 1.2    |
| 97.5% KM Chebyshev UCL             | 1.489          | 99% KM Chebyshev UCL   | 2.0    |
| Gamma GOF T                        | ests on Det    | ected Observations Only  |        |
| A-D Test Statistic                 | 0.234          | Anderson-Darling GOF Test  |        |
| 5% A-D Critical Value              | 0.659          | Detected data appear Gamma Distributed at 5% Significant               | ce Lev |
| K-S Test Statistic                 | 0.225          | Kolmogorov-Smirnov GOF   |        |
| 5% K-S Critical Value              | 0.396          | Detected data appear Gamma Distributed at 5% Significant               | ce Lev |
| Detected data appear C             | Gamma Dist     | ributed at 5% Significance Level                                       |        |
| Note GOF tests m                   | ay be unreli   | able for small sample sizes  |        |
|                                    |                |  |        |
| Gamma S                            | tatistics on   | Detected Data Only   |        |
| k hat (MLE)                        | 5.005          | k star (bias corrected MLE)  | 1.4    |
| Theta hat (MLE)                    | 0.258          | Theta star (bias corrected MLE)  | 0.9    |
| nu hat (MLE)<br>Mean (detects)     | 40.04<br>1.291 | nu star (bias corrected)   | 11.3   |
|                                    |                |  |        |
|                                    |                | ng Imputed Non-Detects NDs with many tied observations at multiple DLs |        |
|                                    |                |  |        |

|  |                 | en the sample size is small.                                      |        |
|--|-----------------|---|--------|
|  |                 | ay be computed using gamma distribution on KM estimates           |        |
| Minimum  | 0.01            | Mean  | 0.33   |
| Maximum  | 2.2             | Median  | 0.01   |
| SD   | 0.649           | CV  | 1.964  |
| k hat (MLE)  | 0.299           | k star (bias corrected MLE)                                       | 0.285  |
| Theta hat (MLE)                                      | 1.105           | Theta star (bias corrected MLE)                                   | 1.161  |
| nu hat (MLE)   | 9.566           | nu star (bias corrected)  | 9.106  |
| Adjusted Level of Significance (β)                   | 0.0335          |   | 0.005  |
| Approximate Chi Square Value (9.11, α)               | 3.391           | Adjusted Chi Square Value (9.11, β)                               | 3.005  |
| 95% Gamma Approximate UCL                            | 0.887           | 95% Gamma Adjusted UCL  | N/A    |
| Estimates of Ga                                      | amma Parar      | neters using KM Estimates   |        |
| Mean (KM)  | 0.568           | SD (KM)   | 0.511  |
| Variance (KM)  | 0.261           | SE of Mean (KM)   | 0.147  |
| k hat (KM)   | 1.235           | k star (KM)   | 1.045  |
| nu hat (KM)  | 39.52           | nu star (KM)  | 33.45  |
| theta hat (KM)                                       | 0.46            | theta star (KM)   | 0.543  |
| 80% gamma percentile (KM)                            | 0.91            | 90% gamma percentile (KM)   | 1.293  |
| 95% gamma percentile (KM)                            | 1.675           | 99% gamma percentile (KM)   | 2.558  |
|  |                 |   |        |
|  |                 | eier (KM) Statistics  | 20.12  |
| Approximate Chi Square Value (33.45, α)              | 21.22<br>0.895  | Adjusted Chi Square Value (33.45, β)<br>95% KM Adjusted Gamma UCL | 0.944  |
| 95% KM Approximate Gamma UCL                         | 0.895           |   | 0.944  |
| Lognormal GO   | F Test on De    | etected Observations Only   |        |
| Shapiro Wilk Test Statistic                          | 0.983           | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                      | 0.792           | Detected Data appear Lognormal at 10% Significance L              | evel   |
| Lilliefors Test Statistic                            | 0.185           | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                        | 0.346           | Detected Data appear Lognormal at 10% Significance L              | evel.  |
|  | -               | mal at 10% Significance Level                                     |        |
| Note GOF tests r                                     | nay be unre     | liable for small sample sizes                                     |        |
| Lognormal ROS  | Statistics L    | Jsing Imputed Non-Detects   |        |
| Mean in Original Scale                               | 0.412           | Mean in Log Scale   | -1.571 |
| SD in Original Scale                                 | 0.606           | SD in Log Scale   | 1.07   |
| 95% t UCL (assumes normality of ROS data)            | 0.678           | 95% Percentile Bootstrap UCL                                      | 0.671  |
| 95% BCA Bootstrap UCL                                | 0.751           | 95% Bootstrap t UCL   | 0.962  |
| 95% H-UCL (Log ROS)                                  | 0.802           | · · ·   |        |
|  |                 |   |        |
|  |                 | ata and Assuming Lognormal Distribution KM Geo Mean               | 0.449  |
| KM Mean (logged)<br>KM SD (logged)                   | -0.801<br>0.595 | 95% Critical H Value (KM-Log)                                     | 2.155  |
| KM SD (logged)<br>KM Standard Error of Mean (logged) | 0.595           | 95% Chucai H Value (KM-Log)<br>95% H-UCL (KM -Log)                | 0.746  |
| KW Standard Error of Mean (logged)<br>KM SD (logged) | 0.172           | 95% Critical H Value (KM-Log)                                     | 2.155  |
| KM Standard Error of Mean (logged)                   | 0.595           | 3370 Childai H Value (KW-LUY)                                     | 2.100  |
|  |                 | 1   |        |
|  | DL/2 S          | tatistics   |        |
| DL/2 Normal  |                 | DL/2 Log-Transformed  |        |

| Maar in Original Ocale                             | 0.400          | Maan in Law Ocale  | 1.070   |
|--|----------------|--|---------|
| Mean in Original Scale                             |                | Mean in Log Scale  | -1.076  |
| SD in Original Scale                               |                | SD in Log Scale  | 0.804   |
| 95% t UCL (Assumes normality)                      |                | 95% H-Stat UCL   | 0.778   |
| DL/2 is not a recommended me                       | etnoa, provia  | ed for comparisons and historical reasons                              |         |
| Nonnorm  | trie Distribut | ion Free LICL Statistics   |         |
| -  |                | tion Free UCL Statistics   |         |
| Detected Data appea                                | r Normal Dis   | tributed at 1% Significance Level                                      |         |
|  | Suggested      |  |         |
|  |                | UCL to Use   |         |
| 95% KM (t) UCL                                     | 0.826          |  |         |
| Note: Suggestions regarding the selection of a 05% |                | rovided to help the user to select the most appropriate 95% UCL        |         |
|  |                | bution, and skewness using results from simulation studies.            |         |
|  |                | ets; for additional insight the user may want to consult a statisticia | 20      |
|  |                | is, for additional insight the user may want to consult a statistica   |         |
|  |                |  |         |
| C (soil   dibenz(a,h)anthracene   53-70-3)         |                |  |         |
|  | <u> </u>       | 0.44   |         |
|  |                | Statistics   |         |
| Total Number of Observations                       |                | Number of Distinct Observations  | 14      |
| Number of Detects                                  |                | Number of Non-Detects  | 18      |
| Number of Distinct Detects                         | 2              | Number of Distinct Non-Detects   | 13      |
| Minimum Detect                                     | -              | Minimum Non-Detect   | 0.187   |
| Maximum Detect                                     |                | Maximum Non-Detect   | 0.26    |
| Variance Detects                                   |                | Percent Non-Detects  | 90%     |
| Mean Detects                                       |                | SD Detects   | 0.0212  |
| Median Detects                                     |                | CV Detects   | 0.0943  |
| Skewness Detects                                   | N/A            | Kurtosis Detects   | N/A     |
| Mean of Logged Detects                             | -1.494         | SD of Logged Detects   | 0.0944  |
|  |                |  |         |
|  |                | only 2 Detected Values.  |         |
| I his is not enough to comp                        | oute meaning   | ful or reliable statistics and estimates.                              |         |
|  |                |  |         |
|  | 10057          |  |         |
|  |                | t on Detects Only  |         |
| Not En   | ougn Data to   | Perform GOF Test   |         |
|  |                |  |         |
|  | -              | itical Values and other Nonparametric UCLs                             | 0.00404 |
| KM Mean  | 0.191          | KM Standard Error of Mean  | 0.00421 |
| 90KM SD  |                | 95% KM (BCA) UCL   | N/A     |
| 95% KM (t) UCL                                     | 0.198          | 95% KM (Percentile Bootstrap) UCL                                      | N/A     |
| 95% KM (z) UCL                                     |                | 95% KM Bootstrap t UCL   | N/A     |
| 90% KM Chebyshev UCL                               | 0.203          | 95% KM Chebyshev UCL   | 0.209   |
| 97.5% KM Chebyshev UCL                             | 0.217          | 99% KM Chebyshev UCL   | 0.233   |
|  | <b>-</b>       |  |         |
|  |                | tected Observations Only   |         |
| Not En   | ough Data to   | Perform GOF Test   |         |
|  |                |  |         |
|  |                | Detected Data Only   |         |
| k hat (MLE)  | 224.7          | k star (bias corrected MLE)  | N/A     |

| TI . I . (1.11 P)                                  | 0.001          |   | N1/A       |
|--|----------------|---|------------|
| Theta hat (MLE)                                    |                | Theta star (bias corrected MLE)                                 | N/A<br>N/A |
| nu hat (MLE)                                       |                | nu star (bias corrected)  | IN/A       |
| Mean (detects)                                     | 0.225          |   |            |
| Estimates of G                                     | amma Parar     | neters using KM Estimates                                       |            |
| Mean (KM)  |                | SD (KM)   | 0.0128     |
| Variance (KM)                                      |                | SE of Mean (KM)   | 0.00421    |
| k hat (KM)   |                | k star (KM)   | 188.4      |
| nu hat (KM)  |                | nu star (KM)  | 7535       |
| theta hat (KM)                                     |                | theta star (KM)   | 0.00101    |
| 80% gamma percentile (KM)                          | 0.202          | 90% gamma percentile (KM)                                       | 0.209      |
| 95% gamma percentile (KM)                          |                | 99% gamma percentile (KM)                                       | 0.225      |
|  |                |   |            |
| Gamm   | na Kaplan-M    | eier (KM) Statistics  |            |
|  |                | Adjusted Level of Significance (β)                              | 0.038      |
| Approximate Chi Square Value (N/A, α)              | 7334           | Adjusted Chi Square Value (N/A, β)                              | 7318       |
| 95% KM Approximate Gamma UCL                       | 0.196          | 95% KM Adjusted Gamma UCL                                       | 0.196      |
|  |                | 1   |            |
| Lognormal GC                                       | F Test on D    | etected Observations Only                                       |            |
| Not En   | ough Data to   | Perform GOF Test  |            |
|  |                |   |            |
| Lognormal RO                                       | S Statistics L | Jsing Imputed Non-Detects                                       |            |
| Mean in Original Scale                             | 0.153          | Mean in Log Scale   | -1.888     |
| SD in Original Scale                               | 0.0272         | SD in Log Scale   | 0.155      |
| 95% t UCL (assumes normality of ROS data)          | 0.164          | 95% Percentile Bootstrap UCL                                    | 0.164      |
| 95% BCA Bootstrap UCL                              | 0.167          | 95% Bootstrap t UCL   | 0.175      |
| 95% H-UCL (Log ROS)                                | 0.163          |   |            |
|  | 1              | · · · · · ·   |            |
| Statistics using KM estimates                      | on Logged D    | ata and Assuming Lognormal Distribution                         |            |
| KM Mean (logged)                                   | -1.658         | KM Geo Mean   | 0.19       |
| KM SD (logged)                                     |                | 95% Critical H Value (KM-Log)                                   | N/A        |
| KM Standard Error of Mean (logged)                 | 0.0201         | 95% H-UCL (KM -Log)   | N/A        |
| KM SD (logged)                                     | 0.0611         | 95% Critical H Value (KM-Log)                                   | N/A        |
| KM Standard Error of Mean (logged)                 | 0.0201         |   |            |
|  |                |   |            |
|  | DL/2 S         | tatistics   |            |
| DL/2 Normal  |                | DL/2 Log-Transformed  |            |
| Mean in Original Scale                             |                | Mean in Log Scale   | -2.211     |
| SD in Original Scale                               |                | SD in Log Scale   | 0.256      |
| 95% t UCL (Assumes normality)                      |                | 95% H-Stat UCL  | 0.126      |
| DL/2 is not a recommended me                       | ethod, provid  | led for comparisons and historical reasons                      |            |
| NI   |                | sion Free LICL Statistics                                       |            |
|  |                | tion Free UCL Statistics  |            |
|  | or follow a D  | iscemible Distribution  |            |
|  | Suggested      |   |            |
|  |                | UCL to Use  |            |
| 95% KM (t) UCL                                     | 0.198          |   |            |
| New Owner of the Providence of the Comp            | ( 110)         |   |            |
| Note: Suggestions regarding the selection of a 95% | % UCL are p    | rovided to help the user to select the most appropriate 95% UCI |            |

## Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

C (soil | dibenzofuran | 132-64-9)

| C (soil   dibenzofuran   132-64-9) |                             |  |         |
|------------------------------------|-----------------------------|--|---------|
|                                    | General                     | Statistics   |         |
| Total Number of Observations       | 20                          | Number of Distinct Observations  | 19      |
| Number of Detects                  | 7                           | Number of Non-Detects  | 13      |
| Number of Distinct Detects         | 7                           | Number of Distinct Non-Detects   | 12      |
| Minimum Detect                     | 0.077                       | Minimum Non-Detect   | 0.382   |
| Maximum Detect                     | 3.6                         | Maximum Non-Detect   | 0.44    |
| Variance Detects                   | 2.119                       | Percent Non-Detects  | 65%     |
| Mean Detects                       | 1.077                       | SD Detects   | 1.456   |
| Median Detects                     | 0.27                        | CV Detects   | 1.352   |
| Skewness Detects                   | 1.279                       | Kurtosis Detects   | -0.123  |
| Mean of Logged Detects             | -0.941                      | SD of Logged Detects   | 1.608   |
| Norma                              | al GOF Test                 | on Detects Only  |         |
| Shapiro Wilk Test Statistic        | 0.74                        | Shapiro Wilk GOF Test  |         |
| 1% Shapiro Wilk Critical Value     | 0.73                        | Detected Data appear Normal at 1% Significance Leve                    | el      |
| Lilliefors Test Statistic          | 0.319                       | Lilliefors GOF Test  |         |
| 1% Lilliefors Critical Value       | 0.35                        | Detected Data appear Normal at 1% Significance Leve                    | el      |
| Detected Data a                    | ppear Norm                  | al at 1% Significance Level  |         |
| Note GOF tests n                   | n <mark>ay be unre</mark> l | iable for small sample sizes   |         |
| KM Mean                            | 0.466                       | tical Values and other Nonparametric UCLs<br>KM Standard Error of Mean | 0.224   |
| 90KM SD                            | 0.917                       | 95% KM (BCA) UCL   | 0.865   |
| 95% KM (t) UCL                     | 0.852                       | 95% KM (Percentile Bootstrap) UCL                                      | 0.839   |
| 95% KM (z) UCL                     | 0.833                       | 95% KM Bootstrap t UCL   | 2.012   |
| 90% KM Chebyshev UCL               | 1.136                       | 95% KM Chebyshev UCL   | 1.44    |
| 97.5% KM Chebyshev UCL             | 1.862                       | 99% KM Chebyshev UCL   | 2.69    |
| Gamma GOF <sup>-</sup>             | Tests on Det                | tected Observations Only   |         |
| A-D Test Statistic                 | 0.583                       | Anderson-Darling GOF Test  |         |
| 5% A-D Critical Value              | 0.745                       | Detected data appear Gamma Distributed at 5% Significanc               | e Level |
| K-S Test Statistic                 | 0.238                       | Kolmogorov-Smirnov GOF   |         |
| 5% K-S Critical Value              | 0.325                       | Detected data appear Gamma Distributed at 5% Significanc               | e Level |
| Detected data appear               | Gamma Dis                   | tributed at 5% Significance Level                                      |         |
| Note GOF tests n                   | n <mark>ay be unrel</mark>  | iable for small sample sizes   |         |
| Gamma S                            | Statistics on               | Detected Data Only   |         |
| k hat (MLE)                        | 0.608                       | k star (bias corrected MLE)  | 0.443   |
| Theta hat (MLE)                    | 1.771                       | Theta star (bias corrected MLE)  | 2.432   |
| nu hat (MLE)                       | 8.51                        | nu star (bias corrected)   | 6.196   |
| Mean (detects)                     | 1.077                       |  |         |
| Gamma ROS                          | Statistics us               | ing Imputed Non-Detects  |         |
|                                    |                             | 6 NDs with many tied observations at multiple DLs                      |         |
|                                    |                             |  |         |

| GROS |   |  | <1.0, especially when the sample size is small (e.g., <15-20)   |   |
|------|---|--|---|---|
|      |   |  | ield incorrect values of UCLs and BTVs  |   |
|      |   | -  | the sample size is small.   |   |
| For  | -   |  | be computed using gamma distribution on KM estimates  |   |
|      | Minimum   | 0.01   | Mean  | 0.39  |
|      | Maximum   | 3.6  | Median  | 0.01  |
|      | SD  | 0.967  | CV  | 2.44  |
|      | k hat (MLE)   | 0.307  | k star (bias corrected MLE)   | 0.29  |
|      | Theta hat (MLE)   | 1.286  | Theta star (bias corrected MLE)   | 1.34  |
|      | nu hat (MLE)  | 12.3   | nu star (bias corrected)  | 11.7  |
|      | Adjusted Level of Significance (β)  | 0.038  |   |   |
|      | Approximate Chi Square Value (11.79, $\alpha$ )   | 5.088  | Adjusted Chi Square Value (11.79, β)  | 4.74  |
|      | 95% Gamma Approximate UCL   | 0.916  | 95% Gamma Adjusted UCL  | 0.98  |
|      | Estimates of Ga   | mma Parame   | eters using KM Estimates  |   |
|      | Mean (KM)   | 0.466  | SD (KM)   | 0.91  |
|      | Variance (KM)   | 0.400  | SE of Mean (KM)   | 0.31  |
|      |   | 0.258  | · · · · · · · · · · · · · · · · · · ·   | 0.22  |
|      | k hat (KM)<br>nu hat (KM)   | 10.31  | k star (KM)   | 10.23   |
|      |   |  | nu star (KM)  |   |
|      | theta hat (KM)  | 1.806  | theta star (KM)   | 1.84  |
|      | 80% gamma percentile (KM)   | 0.678  | 90% gamma percentile (KM)   | 1.39  |
|      | 95% gamma percentile (KM)   | 2.247  | 99% gamma percentile (KM)   | 4.50  |
|      | Gamma   | Kanlan-Meir  | er (KM) Statistics  |   |
|      | Gammo   |  |   |   |
|      |   | -  |   | 3.70  |
|      | Approximate Chi Square Value (10.10, $\alpha$ )   | 4.004  | Adjusted Chi Square Value (10.10, $\beta$ )   | 3.70  |
|      |   | -  |   | 3.70<br>1.26  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL   | 4.004  | Adjusted Chi Square Value (10.10, $\beta$ )   |   |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL   | 4.004  | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL   |   |
| ,    | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic   | 4.004<br>1.174<br>Test on Dete<br>0.868  | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL<br>ected Observations Only<br>Shapiro Wilk GOF Test   | 1.26  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF  | 4.004<br>1.174   | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL<br>ected Observations Only  | 1.26  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic   | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838  | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL<br>ected Observations Only<br>Shapiro Wilk GOF Test<br>Detected Data appear Lognormal at 10% Significance L   | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value  | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.28  | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL<br>ected Observations Only<br>Shapiro Wilk GOF Test<br>Detected Data appear Lognormal at 10% Significance L<br>Lilliefors GOF Test  | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe  | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma  | Adjusted Chi Square Value (10.10, β)<br>95% KM Adjusted Gamma UCL<br>ected Observations Only<br>Shapiro Wilk GOF Test<br>Detected Data appear Lognormal at 10% Significance L<br>Lilliefors GOF Test<br>Detected Data appear Lognormal at 10% Significance L  | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m  | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorman<br>ay be unrelia  | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes   | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS   | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ray be unrelia<br>Statistics Us   | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         sing Imputed Non-Detects  | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appo<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale   | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467   | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         ing Imputed Non-Detects         Mean in Log Scale   | 1.20<br>evel<br>evel<br>-1.62   |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS   | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ray be unrelia<br>Statistics Us   | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         sing Imputed Non-Detects  | 1.20<br>evel<br>evel<br>-1.62   |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appo<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale   | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467   | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         ing Imputed Non-Detects         Mean in Log Scale   | 1.20<br>evel<br>evel<br>-1.62<br>1.05                                 |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale   | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognormation<br>ay be unrelia<br>Statistics Us<br>0.467<br>0.938  | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         Mean in Log Scale         SD in Log Scale   | 1.26<br>evel  |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>6 t UCL (assumes normality of ROS data)  | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467<br>0.938<br>0.83  | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         Mean in Log Scale         SD in Log Scale         SD in Log Scale         95% Percentile Bootstrap UCL  | 1.20<br>evel<br>evel<br>-1.62<br>1.05<br>0.83                         |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>6 t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467<br>0.938<br>0.83<br>0.83<br>0.965<br>0.664              | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         sing Imputed Non-Detects         Mean in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL   | 1.20<br>evel<br>evel<br>-1.62<br>1.05<br>0.83                         |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>(5 t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates or   | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br><b>ear Lognorma</b><br><b>statistics Us</b><br>0.467<br>0.938<br>0.83<br>0.965<br>0.664<br><b>h Logged Dat</b>  | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         Mean in Log Scale         SD in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL         95% Bootstrap t UCL  | 1.26<br>evel<br>-1.62<br>1.05<br>0.83<br>2.67                         |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>(5 t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates or<br>KM Mean (logged) | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467<br>0.938<br>0.83<br>0.83<br>0.965<br>0.664<br>-1.709    | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         ing Imputed Non-Detects         Mean in Log Scale         SD in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL         able for Mean in Log Scale   | 1.20<br>evel<br>evel<br>-1.62<br>1.05<br>0.83<br>2.67                 |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>(st UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates or<br>KM Mean (logged)<br>KM SD (logged)        | 4.004<br>1.174<br><b>Test on Dete</b><br>0.868<br>0.838<br>0.23<br>0.28<br><b>Bar Lognorma</b><br><b>Statistics Us</b><br>0.467<br>0.938<br>0.965<br>0.664<br><b>Logged Dat</b><br>-1.709<br>1.115 | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         sing Imputed Non-Detects         Mean in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL         95% Bootstrap t UCL         xta and Assuming Lognormal Distribution         KM Geo Mean         95% Critical H Value (KM-Log) | 1.26<br>evel<br>evel<br>-1.62<br>1.05<br>0.83<br>2.67<br>0.18<br>2.80 |
|      | Approximate Chi Square Value (10.10, α)<br>95% KM Approximate Gamma UCL<br>Lognormal GOF<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data appe<br>Note GOF tests m<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>SD in Original Scale<br>(5 t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates or<br>KM Mean (logged) | 4.004<br>1.174<br><b>Test on Deta</b><br>0.868<br>0.838<br>0.23<br>0.23<br>0.28<br>ear Lognorma<br>ay be unrelia<br>Statistics Us<br>0.467<br>0.938<br>0.83<br>0.83<br>0.965<br>0.664<br>-1.709    | Adjusted Chi Square Value (10.10, β)         95% KM Adjusted Gamma UCL         ected Observations Only         Shapiro Wilk GOF Test         Detected Data appear Lognormal at 10% Significance L         Lilliefors GOF Test         Detected Data appear Lognormal at 10% Significance L         al at 10% Significance Level         able for small sample sizes         ing Imputed Non-Detects         Mean in Log Scale         SD in Log Scale         95% Percentile Bootstrap UCL         95% Bootstrap t UCL         able for Mean in Log Scale   | 1.20<br>evel<br>evel<br>-1.62<br>1.05<br>0.83<br>2.67                 |

|   | DL/2 S         | tatistics  |         |
|---|----------------|--|---------|
| DL/2 Normal   |                | DL/2 Log-Transformed   |         |
| Mean in Original Scale                              | 0.508          | Mean in Log Scale  | -1.37   |
| SD in Original Scale                                | 0.923          | SD in Log Scale  | 0.96    |
| 95% t UCL (Assumes normality)                       | 0.865          | 95% H-Stat UCL   | 0.71    |
| DL/2 is not a recommended me                        | thod, provic   | led for comparisons and historical reasons                             |         |
|   |                |  |         |
| Nonparame   | tric Distribu  | tion Free UCL Statistics   |         |
| Detected Data appear                                | Normal Dis     | tributed at 1% Significance Level                                      |         |
|   |                |  |         |
|   |                | UCL to Use   |         |
| 95% KM (t) UCL                                      | 0.852          |  |         |
|   |                | · · · · · · · · · · · · · · · · · · ·                                  |         |
|   |                | data were collected in a random and unbiased manner.                   |         |
|   |                | llected from random locations.   |         |
|   |                | nental or other non-random methods,                                    |         |
|   | statistician t | o correctly calculate UCLs.  |         |
| Note: Suggestions regarding the selection of a 95%  |                | rovided to help the user to select the most appropriate 95% UCL        |         |
|   |                | pution, and skewness using results from simulation studies.            |         |
|   |                | ets; for additional insight the user may want to consult a statisticia | an      |
|   |                |  | 211.    |
| C (soil   dibromochloromethane   124-48-1)          |                |  |         |
|   |                |  |         |
|   | General        | Statistics   |         |
| Total Number of Observations                        | 11             | Number of Distinct Observations  | 10      |
| Number of Detects                                   | 0              | Number of Non-Detects  | 11      |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects   | 10      |
|   |                |  |         |
| Warning: All observations are Non-Detects           | (NDs), ther    | efore all statistics and estimates should also be NDs!                 |         |
| Specifically, sample mean, UCLs, UPLs, and          | other statis   | tics are also NDs lying below the largest detection limit!             |         |
| The Project Team may decide to use alternative site | e specific va  | lues to estimate environmental parameters (e.g., EPC, BTV).            |         |
|   |                |  |         |
| The data set for variable C (soil                   | dibromochl     | oromethane   124-48-1) was not processed!                              |         |
|   |                |  |         |
|   |                |  |         |
| C (soil   dibromomethane   74-95-3)                 |                |  |         |
|   |                |  |         |
|   |                | Statistics   |         |
| Total Number of Observations                        | 11             | Number of Distinct Observations  | 8       |
| Number of Detects Number of Distinct Detects        | 0              | Number of Non-Detects<br>Number of Distinct Non-Detects                | 11<br>8 |
|   | U              |  | 0       |
| Warning: All observations are Non-Detects           | (NDe) ther     | efore all statistics and estimates should also be NDs!                 |         |
|   | <u> </u>       | tics are also NDs lying below the largest detection limit!             |         |
|   |                | lues to estimate environmental parameters (e.g., EPC, BTV).            |         |
|   |                |  |         |
| The data set for variable C (s                      | oil   dibromo  | omethane   74-95-3) was not processed!                                 |         |
|   | • • • • • •    |  |         |

| C (soil   dichlorodifluoromethane   75-71-8)       |                 |   |    |
|--|-----------------|---|----|
|  | General         | Statistics  |    |
| Total Number of Observations                       | 11              | Number of Distinct Observations                             | 8  |
| Number of Detects                                  | 0               | Number of Non-Detects                                       | 11 |
| Number of Distinct Detects                         | 0               | Number of Distinct Non-Detects                              | 8  |
|  |                 |   |    |
| Warning: All observations are Non-Detects          | s (NDs), there  | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and         | other statist   | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative sit | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                 |   |    |
| The data set for variable C (soil                  | dichlorodiflu   | uoromethane   75-71-8) was not processed!                   |    |
|  |                 |   |    |
| C (soil   diethyl ether   60-29-7)                 |                 |   |    |
|  |                 |   |    |
|  | General         | Statistics  |    |
| Total Number of Observations                       |                 | Number of Distinct Observations                             | 8  |
| Number of Detects                                  | 0               | Number of Non-Detects                                       | 11 |
| Number of Distinct Detects                         | 0               | Number of Distinct Non-Detects                              | 8  |
|  |                 |   |    |
| Warning: All observations are Non-Detects          | (NDs), there    | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and         | other statist   | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative sit | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                 |   |    |
| The data set for variable C                        | (soil   dieth   | yl ether   60-29-7) was not processed!                      |    |
|  |                 |   |    |
| C (asil L diath dabthalata   94 66 2)              |                 |   |    |
| C (soil   diethylphthalate   84-66-2)              |                 |   |    |
|  | General         | Statistics  |    |
| Total Number of Observations                       |                 | Number of Distinct Observations                             | 15 |
| Number of Detects                                  |                 | Number of Non-Detects                                       | 20 |
| Number of Distinct Detects                         | 0               | Number of Distinct Non-Detects                              | 15 |
|  |                 |   |    |
| Warning: All observations are Non-Detects          | (NDs), there    | efore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and         | other statist   | tics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative sit | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |                 |   |    |
| The data set for variable C (                      | soil   diethylp | ohthalate   84-66-2) was not processed!                     |    |
|  |                 |   |    |
|  |                 |   |    |
| C (soil   diisopropyl ether   108-20-3)            |                 |   |    |
|  | General         | Statistics  |    |
| Total Number of Observations                       |                 | Number of Distinct Observations                             | 10 |
| Number of Detects                                  |                 | Number of Non-Detects                                       | 11 |
| Number of Distinct Detects                         |                 | Number of Distinct Non-Detects                              | 10 |
|  | -               |   |    |

| Morriss All shoes stars are blas Details            |                             | professional attraction and activity and a loss to ND-1   |    |
|---|-----------------------------|---|----|
| -   |                             | erefore all statistics and estimates should also be NDs!<br>stics are also NDs lying below the largest detection limit! |    |
|   |                             | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |                             |   |    |
| The data set for variable C (s                      | oil   diisopr               | opyl ether   108-20-3) was not processed!   |    |
|   |                             |   |    |
|   |                             |   |    |
| (soil   dimethylphthalate   131-11-3)               |                             |   |    |
|   | Genera                      | al Statistics   |    |
| Total Number of Observations                        | 20                          | Number of Distinct Observations   | 15 |
| Number of Detects                                   | 0                           | Number of Non-Detects   | 20 |
| Number of Distinct Detects                          | 0                           | Number of Distinct Non-Detects  | 15 |
|   |                             |   |    |
| Warning: All observations are Non-Detects           | (NDs), the                  | erefore all statistics and estimates should also be NDs!  |    |
| Specifically, sample mean, UCLs, UPLs, and          | other stati                 | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site | e specific v                | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |                             |   |    |
| The data set for variable C (so                     | oil   dimeth                | ylphthalate   131-11-3) was not processed!  |    |
| Total Number of Observations                        | 20                          | al Statistics Number of Distinct Observations   | 15 |
| Total Number of Observations                        | 20                          | Number of Distinct Observations   | 15 |
| Number of Detects                                   | 0                           | Number of Non-Detects   | 20 |
| Number of Distinct Detects                          | 0                           | Number of Distinct Non-Detects  | 15 |
| Warning: All observations are Non-Detects           | (NDs), the                  | erefore all statistics and estimates should also be NDs!  |    |
|   |                             | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative sit  | e specific v                | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |                             |   |    |
| The data set for variable C (so                     | oil   <mark>di-n-b</mark> u | tylphthalate   84-74-2) was not processed!  |    |
|   |                             |   |    |
|   |                             |   |    |
| (soil   di-n-octylphthalate   117-84-0)             |                             |   |    |
|   | Gener                       | al Statistics   |    |
| Total Number of Observations                        | 20                          | Number of Distinct Observations   | 15 |
| Number of Detects                                   | 0                           | Number of Distinct Observations   | 20 |
| Number of Distinct Detects                          | 0                           | Number of Distinct Non-Detects  | 15 |
|   | -                           |   |    |
| Warning: All observations are Non-Detects           | (NDs), the                  | erefore all statistics and estimates should also be NDs!  |    |
| Specifically complements UCLA UDLA and              |                             | stics are also NDs lying below the largest detection limit!   |    |
| Specifically, sample mean, UCLS, UPLS, and          | other stati                 |   |    |
|   |                             | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
| The Project Team may decide to use alternative site | e specific \                |   |    |

| ethyl benzene   100-41-4)                       |                |   |       |
|---|----------------|---|-------|
|   | Osmanski       |   |       |
| Total Number of Observations                    | General S      | Number of Distinct Observations                                 | 18    |
| Number of Detects                               | 10             | Number of Non-Detects   | 11    |
| Number of Distinct Detects                      | 10             | Number of Distinct Non-Detects                                  | 8     |
| Minimum Detect                                  | 0.019          | Minimum Non-Detect 4  |       |
| Maximum Detect                                  | 1.4            | Maximum Non-Detect  | 0.2   |
| Variance Detects                                | 0.219          | Percent Non-Detects   | 52.   |
| Mean Detects                                    | 0.406          | SD Detects  | 0.4   |
| Median Detects                                  | 0.165          | CV Detects  | 1.    |
| Skewness Detects                                | 1.261          | Kurtosis Detects  | 0.    |
| Mean of Logged Detects                          | -1.68          | SD of Logged Detects  | 1.    |
| Norma   | al GOF Test    | on Detects Only   |       |
| Shapiro Wilk Test Statistic                     | 0.815          | Shapiro Wilk GOF Test   |       |
| 1% Shapiro Wilk Critical Value                  | 0.781          | Detected Data appear Normal at 1% Significance Level            | el    |
| Lilliefors Test Statistic                       | 0.293          | Lilliefors GOF Test   |       |
| 1% Lilliefors Critical Value                    | 0.304          | Detected Data appear Normal at 1% Significance Level            | el    |
| Detected Data a                                 | opear Norm     | al at 1% Significance Level                                     |       |
| Kaplan-Meier (KM) Statistics using              | Normal Cri     | tical Values and other Nonparametric UCLs                       |       |
| KM Mean   | 0.197          | KM Standard Error of Mean                                       | 0.0   |
| 90KM SD   | 0.366          | 95% KM (BCA) UCL  | 0.3   |
| 95% KM (t) UCL                                  | 0.342          | 95% KM (Percentile Bootstrap) UCL                               | 0.3   |
| 95% KM (z) UCL                                  | 0.335          | 95% KM Bootstrap t UCL  | 0.4   |
| 90% KM Chebyshev UCL                            | 0.45           | 95% KM Chebyshev UCL  | 0.5   |
| 97.5% KM Chebyshev UCL                          | 0.723          | 99% KM Chebyshev UCL  | 1.(   |
| Gamma GOF 1                                     | ests on De     | tected Observations Only  |       |
| A-D Test Statistic                              | 0.347          | Anderson-Darling GOF Test                                       |       |
| 5% A-D Critical Value                           | 0.756          | Detected data appear Gamma Distributed at 5% Significance       | ce Le |
| K-S Test Statistic                              | 0.204          | Kolmogorov-Smirnov GOF  |       |
| 5% K-S Critical Value                           | 0.276          | Detected data appear Gamma Distributed at 5% Significance       | e Le  |
| Detected data appear (                          | Gamma Dis      | tributed at 5% Significance Level                               |       |
| Gamma S   | Statistics on  | Detected Data Only  |       |
| k hat (MLE)                                     | 0.767          | k star (bias corrected MLE)                                     | 0.0   |
| Theta hat (MLE)                                 | 0.529          | Theta star (bias corrected MLE)                                 | 0.0   |
| nu hat (MLE)<br>Mean (detects)                  | 15.33<br>0.406 | nu star (bias corrected)  | 12.   |
|   |                | ing Imputed Non-Detects   |       |
| GROS may not be used when data se               | t has > 50%    | NDs with many tied observations at multiple DLs                 |       |
| GROS may not be used when kstar of detects is s | mall such a    | s <1.0, especially when the sample size is small (e.g., <15-20) |       |
| For such situations, GROS m                     | nethod may     | yield incorrect values of UCLs and BTVs                         |       |
| This is ospecia                                 | lly true who   | n the sample size is small.                                     |       |

| Minimum  | 0.01           | Mean   | 0.199   |
|--|----------------|--|---------|
| Maximum  | 1.4            | Median   | 0.01    |
| SD   | 0.373          | CV   | 1.881   |
| k hat (MLE)  | 0.411          | k star (bias corrected MLE)  | 0.384   |
| Theta hat (MLE)                                      | 0.483          | Theta star (bias corrected MLE)  | 0.517   |
| nu hat (MLE)   | 17.25          | nu star (bias corrected)   | 16.12   |
| Adjusted Level of Significance (β)                   | 0.0383         |  |         |
| Approximate Chi Square Value (16.12, α)              | 8.045          | Adjusted Chi Square Value (16.12, β)   | 7.609   |
| 95% Gamma Approximate UCL                            | 0.398          | 95% Gamma Adjusted UCL   | 0.421   |
| Estimates of Q                                       |                |  |         |
|  |                | eters using KM Estimates   | 0.366   |
| Mean (KM)  | 0.197          | SD (KM)<br>SE of Mean (KM)   | 0.366   |
| Variance (KM)  |                | · · · · · · · · · · · · · · · · · · ·  | 0.0842  |
| k hat (KM)   | 0.29           | k star (KM)  |         |
| nu hat (KM)  | 12.18          | nu star (KM)   | 11.77   |
| theta hat (KM)                                       | 0.679          | theta star (KM)  | 0.703   |
| 80% gamma percentile (KM)                            | 0.297          | 90% gamma percentile (KM)  | 0.585   |
| 95% gamma percentile (KM)                            | 0.92           | 99% gamma percentile (KM)  | 1.799   |
| Gamm   | a Kaplan-Mei   | er (KM) Statistics   |         |
| Approximate Chi Square Value (11.77, α)              | 5.076          | Adjusted Chi Square Value (11.77, β)   | 4.742   |
| 95% KM Approximate Gamma UCL                         | 0.457          | 95% KM Adjusted Gamma UCL  | 0.489   |
|  |                |  |         |
| -  |                | tected Observations Only   |         |
| Shapiro Wilk Test Statistic                          | 0.954          | Shapiro Wilk GOF Test  | 1       |
| 10% Shapiro Wilk Critical Value                      | 0.869          | Detected Data appear Lognormal at 10% Significance L                                 | evel    |
| Lilliefors Test Statistic                            | 0.139          | Lilliefors GOF Test  | 1       |
| 10% Lilliefors Critical Value                        |                | Detected Data appear Lognormal at 10% Significance L<br>al at 10% Significance Level | evei    |
|  | Jear Loghonn   |  |         |
| Lognormal ROS  | Statistics Us  | sing Imputed Non-Detects   |         |
| Mean in Original Scale                               | 0.197          | Mean in Log Scale  | -3.52   |
| SD in Original Scale                                 | 0.374          | SD in Log Scale  | 2.105   |
| 95% t UCL (assumes normality of ROS data)            | 0.338          | 95% Percentile Bootstrap UCL   | 0.338   |
| 95% BCA Bootstrap UCL                                | 0.374          | 95% Bootstrap t UCL  | 0.444   |
| 95% H-UCL (Log ROS)                                  | 2.078          |  |         |
|  | <u> </u>       |  |         |
| _  |                | ta and Assuming Lognormal Distribution   | 0.00054 |
| KM Mean (logged)                                     | -4.652         | KM Geo Mean  | 0.00954 |
| KM SD (logged)                                       | 3.138          | 95% Critical H Value (KM-Log)  | 6.156   |
| KM Standard Error of Mean (logged)                   | 0.747          | 95% H-UCL (KM -Log)  | 98.54   |
| KM SD (logged)<br>KM Standard Error of Mean (logged) | 3.138<br>0.747 | 95% Critical H Value (KM-Log)  | 6.156   |
|  |                |  |         |
|  | DL/2 Sta       | atistics   |         |
| DL/2 Normal  |                | DL/2 Log-Transformed   |         |
| Mean in Original Scale                               | 0.204          | Mean in Log Scale  | -4.093  |
| SD in Original Scale                                 | 0.372          | SD in Log Scale  | 2.931   |
| 95% t UCL (Assumes normality)                        | 0.344          | 95% H-Stat UCL   | 54.13   |

|   | noa, proviaea to   | or comparisons and historical reasons  |   |
|---|--|--|---|
|   |  |  |   |
| -   |  | Free UCL Statistics  |   |
| Detected Data appear  | Normal Distribu  | ted at 1% Significance Level   |   |
|   | Suggested UCL  | to Use   |   |
| 95% KM (t) UCL  | 0.342  |  |   |
| The calculated UCLs are based on assumptio  | ns that the data   | were collected in a random and unbiased manner.  |   |
| Please verify the da  | ta were collecte   | ed from random locations.  |   |
| If the data were collected u  | using judgmenta  | al or other non-random methods,  |   |
| then contact a st   | tatistician to cor   | rectly calculate UCLs.   |   |
| Note: Suggestions regarding the selection of a 95%  |  | ed to help the user to select the most appropriate 95% UCL.  |   |
|   |  | n, and skewness using results from simulation studies.   |   |
| · · · · · · · · · · · · · · · · · · ·   |  | or additional insight the user may want to consult a statisticia   | n   |
|   |  |  |   |
| C (soil   ethyl tert-butyl ether   637-92-3)  |  |  |   |
|   |  |  |   |
|   | General Stati  |  |   |
| Total Number of Observations  | 11   | Number of Distinct Observations  | 10  |
| Number of Detects   | 0  | Number of Non-Detects  | 11  |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects   | 10  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and c   | other statistics a   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site  | other statistics a specific values   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site  | other statistics a specific values   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and c<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil   | other statistics a specific values   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and c<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil   | other statistics a<br>specific values<br>  ethyl tert-butyl  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!  |   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>C (soil   fluoranthene   206-44-0)   | other statistics a<br>specific values<br>  ethyl tert-butyl<br>General Stati   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics   | 10  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations   | ethyl tert-butyl<br>General Stati<br>20  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations  | 16  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil )<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects   | other statistics a         specific values           ethyl tert-butyl         General Stati         20         9   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects   | 11  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and c<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>c (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | other statistics a         specific values           ethyl tert-butyl         General Stati         20         9         9         9   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 11<br>8   |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and o<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil  <br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | other statistics a         specific values           ethyl tert-butyl         General Stati         20         9         0.0825  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 11<br>8<br>0.192  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and c<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>c (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | Specific values         specific values         ethyl tert-butyl         General Stati         20         9         0.0825         3   | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect   | 11<br>8<br>0.192<br>0.22  |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>c (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | Other statistics a         specific values           ethyl tert-butyl         General Stati         20         9         0.0825         3         1.412                                | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 11<br>8<br>0.192<br>0.22<br>55%                                     |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>(soil   fluoranthene   206-44-0)<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | Content statistics a         specific values         ethyl tert-butyl         General Stati         20         9         0.0825         3         1.412         1.043                  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects   | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188                            |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>(soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | other statistics a         specific values           ethyl tert-butyl         General Stati         20         9         0.0825         3         1.412         1.043         0.22     | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188<br>1.14                    |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | Content statistics a         specific values         ethyl tert-butyl         General Stati         20         9         0.0825         3         1.412         1.043                  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects   | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188                            |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>(soil   fluoranthene   206-44-0)<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | General Stati         20         9         0.0825         3         1.412         1.043         0.22         0.805         -0.825  | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects                  | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188<br>1.14<br>-1.234          |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>C (soil   fluoranthene   206-44-0)<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | General Stati         20       9         9       0.0825         3       1.412         1.043       0.22         0.805       -0.825         al GOF Test on       al GOF Test on          | e all statistics and estimates should also be NDs!<br>re also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>SD of Logged Detects | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188<br>1.14<br>-1.234          |
| Warning: All observations are Non-Detects (         Specifically, sample mean, UCLs, UPLs, and c         The Project Team may decide to use alternative site         The data set for variable C (soil)         C (soil   fluoranthene   206-44-0)         Total Number of Observations         Number of Detects         Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Normation         Shapiro Wilk Test Statistic | General Stati         20       9         9       0         0.0825       3         1.412       1.043         0.22       0.805         -0.825       3         al GOF Test on       0.791 | e all statistics and estimates should also be NDs!<br>re also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects<br>SD of Logged Detects   | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188<br>1.14<br>-1.234<br>1.507 |
| Warning: All observations are Non-Detects (<br>Specifically, sample mean, UCLs, UPLs, and of<br>The Project Team may decide to use alternative site<br>The data set for variable C (soil<br>C (soil   fluoranthene   206-44-0)<br>C (soil   fluoranthene   206-44-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | General Stati         20       9         9       0.0825         3       1.412         1.043       0.22         0.805       -0.825         al GOF Test on       al GOF Test on          | e all statistics and estimates should also be NDs!<br>re also NDs lying below the largest detection limit!<br>to estimate environmental parameters (e.g., EPC, BTV).<br>ether   637-92-3) was not processed!<br>stics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>SD of Logged Detects | 11<br>8<br>0.192<br>0.22<br>55%<br>1.188<br>1.14<br>-1.234<br>1.507 |

| 1% Lilliefors Critical Value  | 0.316         | Detected Data appear Normal at 1% Significance Lev               | el      |
|---|---------------|--|---------|
| Detected Data a   | ppear Norm    | al at 1% Significance Level                                      |         |
| Note GOF tests r  | nay be unre   | liable for small sample sizes                                    |         |
|   |               |  |         |
| Kaplan-Meier (KM) Statistics using  | g Normal Cr   | itical Values and other Nonparametric UCLs                       |         |
| KM Mean   | 0.533         | KM Standard Error of Mean  | 0.209   |
| 90KM SD   | 0.882         | 95% KM (BCA) UCL   | 0.894   |
| 95% KM (t) UCL  | 0.895         | 95% KM (Percentile Bootstrap) UCL                                | 0.88    |
| 95% KM (z) UCL  | 0.877         | 95% KM Bootstrap t UCL   | 1.067   |
| 90% KM Chebyshev UCL  | 1.161         | 95% KM Chebyshev UCL   | 1.445   |
| 97.5% KM Chebyshev UCL  | 1.84          | 99% KM Chebyshev UCL   | 2.616   |
| Commo COE   | Tosts on Do   | tected Observations Only   |         |
| A-D Test Statistic  | 0.739         | Anderson-Darling GOF Test  |         |
| 5% A-D Critical Value   | 0.755         | Detected data appear Gamma Distributed at 5% Significance        |         |
| K-S Test Statistic  | 0.733         | Kolmogorov-Smirnov GOF   | e Level |
|   |               |  |         |
| 5% K-S Critical Value   | 0.29          | Detected data appear Gamma Distributed at 5% Significance        | e Level |
|   |               | stributed at 5% Significance Level                               |         |
|   | nay be unre   | liable for small sample sizes                                    |         |
| Gamma   | Statistics on | Detected Data Only   |         |
| k hat (MLE)   | 0.698         | k star (bias corrected MLE)                                      | 0.539   |
| Theta hat (MLE)   | 1.494         | Theta star (bias corrected MLE)                                  | 1.933   |
| nu hat (MLE)  | 12.56         | nu star (bias corrected)   | 9.708   |
| Mean (detects)  | 1.043         |  | 0.700   |
|   |               |  |         |
| Gamma ROS   | Statistics us | sing Imputed Non-Detects   |         |
|   |               | % NDs with many tied observations at multiple DLs                |         |
| -   |               | is <1.0, especially when the sample size is small (e.g., <15-20) |         |
| -   |               | yield incorrect values of UCLs and BTVs                          |         |
|   |               | en the sample size is small.                                     |         |
|   |               | ay be computed using gamma distribution on KM estimates          |         |
| Minimum   | 0.01          | Mean   | 0.5     |
| Maximum   | 3             | Median   | 0.11    |
| SD  | 0.922         | CV   | 1.844   |
| k hat (MLE)   | 0.374         | k star (bias corrected MLE)                                      | 0.352   |
| Theta hat (MLE)   | 1.337         | Theta star (bias corrected MLE)                                  | 1.423   |
| nu hat (MLE)  | 14.97         | nu star (bias corrected)   | 14.06   |
| Adjusted Level of Significance (β)  | 0.038         |  | 1-1.00  |
| Adjusted Level of Significance (β)<br>Approximate Chi Square Value (14.06, α) | 6.613         | Adjusted Chi Square Value (14.06, β)                             | 6.212   |
| Approximate Cni Square Value (14.06, α)<br>95% Gamma Approximate UCL          | 1.064         | Adjusted Chi Square Value (14.06, β)<br>95% Gamma Adjusted UCL   | 1.132   |
| 95% Gamma Approximate UCL   | 1.004         | 95% Gamma Adjusted UCL   | 1.132   |
| Estimates of Ga   | amma Parar    | neters using KM Estimates  |         |
| Mean (KM)   | 0.533         | SD (KM)  | 0.882   |
| Variance (KM)   | 0.778         | SE of Mean (KM)  | 0.209   |
| k hat (KM)  | 0.365         | k star (KM)  | 0.343   |
| nu hat (KM)   | 14.59         | nu star (KM)   | 13.74   |
| theta hat (KM)  | 1.46          | theta star (KM)  | 1.551   |
| 80% gamma percentile (KM)   | 0.841         | 90% gamma percentile (KM)  | 1.543   |
|   | 5.011         |  |         |

| 95% gamma percentile (KM)                              | 2.331           | 99% gamma percentile (KM)   | 4.347  |
|--|-----------------|---|--------|
|  |                 |   |        |
|  | -               | pier (KM) Statistics  |        |
| Approximate Chi Square Value (13.74, α)                | 6.393           | Adjusted Chi Square Value (13.74, β)                                  | 6      |
| 95% KM Approximate Gamma UCL                           | 1.145           | 95% KM Adjusted Gamma UCL   | 1.22   |
| Lognormal GO   | F Test on De    | etected Observations Only   |        |
| Shapiro Wilk Test Statistic                            | 0.842           | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                        | 0.859           | Detected Data Not Lognormal at 10% Significance Lev                   | /el    |
| Lilliefors Test Statistic                              | 0.232           | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                          | 0.252           | Detected Data appear Lognormal at 10% Significance L                  | evel   |
| Detected Data appear Ap                                |                 | ognormal at 10% Significance Level                                    |        |
|  |                 | iable for small sample sizes  |        |
|  |                 | · · · · · · · · · · · · · · · · · · ·                                 |        |
| Lognormal ROS  | Statistics U    | Ising Imputed Non-Detects   |        |
| Mean in Original Scale                                 | 0.543           | Mean in Log Scale   | -1.514 |
| SD in Original Scale                                   | 0.9             | SD in Log Scale   | 1.202  |
| 95% t UCL (assumes normality of ROS data)              | 0.891           | 95% Percentile Bootstrap UCL  | 0.882  |
| 95% BCA Bootstrap UCL                                  | 0.961           | 95% Bootstrap t UCL   | 1.088  |
| 95% H-UCL (Log ROS)                                    | 1.019           |   |        |
|  |                 |   |        |
| Statistics using KM estimates of                       | on Logged Da    | ata and Assuming Lognormal Distribution                               |        |
| KM Mean (logged)                                       | -1.574          | KM Geo Mean   | 0.207  |
| KM SD (logged)   | 1.183           | 95% Critical H Value (KM-Log)   | 2.91   |
| KM Standard Error of Mean (logged)                     | 0.293           | 95% H-UCL (KM -Log)   | 0.92   |
| KM SD (logged)   | 1.183           | 95% Critical H Value (KM-Log)   | 2.91   |
| KM Standard Error of Mean (logged)                     | 0.293           |   |        |
|  | DL/2 St         | atistics  |        |
| DL/2 Normal  | 002.0           | DL/2 Log-Transformed  |        |
| Mean in Original Scale                                 | 0.525           | Mean in Log Scale   | -1.631 |
| SD in Original Scale                                   | 0.908           | SD in Log Scale   | 1.232  |
| 95% t UCL (Assumes normality)                          | 0.876           | 95% H-Stat UCL  | 0.972  |
|  |                 | ed for comparisons and historical reasons                             | 0.072  |
|  |                 | · ·   |        |
| Nonparame  | tric Distributi | ion Free UCL Statistics   |        |
| Detected Data appear                                   | Normal Dist     | tributed at 1% Significance Level                                     |        |
|  |                 |   |        |
|  | Suggested       | UCL to Use  |        |
| 95% KM (t) UCL   | 0.895           |   |        |
|  |                 |   |        |
|  |                 | data were collected in a random and unbiased manner.                  |        |
|  |                 | lected from random locations.   |        |
|  |                 | ental or other non-random methods,                                    |        |
| then contact a s                                       | statistician to | o correctly calculate UCLs.   |        |
| Nata Operation and the Lot of 000                      |                 |   |        |
|  |                 | ovided to help the user to select the most appropriate 95% UCL        |        |
|  |                 | ution, and skewness using results from simulation studies.            |        |
| However, simulations results will not cover all Real W | orld data se    | ts; for additional insight the user may want to consult a statisticia | an.    |

| Number of Detects         4         Number of Distinct Detects         1           Number of Distinct Detects         4         Number of Distinct Non-Detects         1           Minimum Detect         0.11         Minimum Non-Detect         0           Maximum Non-Detect         0.8         Maximum Non-Detect         0           Wanne Detects         0.363         SD Detects         0           Median Detects         0.363         SD Detects         0           Skewness Detects         1.534         Kurtosis Detects         0           Mean of Logged Detects         1.271         SD of Logged Detects         0           Shapiro Wilk Critical Value         0.687         Detected Data appear Normal at 1% Significance Level           Lilliefors Critical Value         0.487         Detected Data appear Normal at 1% Significance Level           Detected Data appear Normal at 1% Significance Level         0.413         Detected Data appear Normal at 1% Significance Level           Note GOF tests may be unreliable for small sample sizes         KM Mean         0.161         KM Standard Error of Mean           90KM SD         0.155         95% KM (BCA) UCL         N         95% KM (BCA) UCL         N           90%K MC hebyshev UCL         0.221         95% KM Chebyshev UCL         0.223 <t< th=""><th></th><th>Conoral</th><th>Natiation</th><th></th></t<> |  | Conoral                     | Natiation   |                       |  |
|--|--|-----------------------------|---|-----------------------|--|
| Number of Detects         4         Number of Non-Detects         1           Number of Distinct Detects         4         Number of Distinct Non-Detects         1           Minimum Detect         0.11         Minimum Non-Detects         0           Maximum Detect         0.032         Maximum Non-Detects         8           Variance Detects         0.0363         SD Detects         0           Mealan Detects         0.27         CV Detects         0           Skewness Detects         1.534         Kurtosis Detects         2           Mean of Logged Detects         -1.271         SD of Logged Detects         -1           Normal GOF Test on Detects Only         Stapiro Wilk Critical Value         0.687         Detected Deta appear Normal at 1% Significance Level           Lilliefors Test Statistic         0.306         Lilliefors GOF Test         Lilliefors GOF Test           1% Lilliefors Critical Value         0.413         Detected Deta appear Normal at 1% Significance Level         Lilliefors GOF Test           Note GOF tests may be unreliable for small sample sizes         SKM (0.20, UCL         0.22         95% KM (0.20, UCL         No           95% KM (1) UCL         0.23         95% KM (Chebysher UCL         0.411         95% KM (Chebysher UCL         0.411         95% KM (Chebysher UCL   | Total Number of Observations   |                             |   | 15                    |  |
| Number of Distinct Detects       4       Number of Distinct Non-Detects       1         Minimum Detect       0.11       Minimum Non-Detects       0         Wariance Detects       0.0924       Percent Non-Detects       8         Mean Detects       0.363       SD Detects       1         Mean Detects       0.27       CV Detects       0         Skewness Detects       1.534       Kurtosis Detects       0         Mean of Logged Detects       1.271       SD of Logged Detects       0         Normal GOF Test on Detects Only       Shapiro Wilk GOF Test       E       0         Shapiro Wilk Test Statistic       0.366       Lilliefors GOF Test       0         1% Shapiro Wilk Critical Value       0.687       Detected Data appear Normal at 1% Significance Level       0         Ulliefors Critical Value       0.431       Detected Data appear Normal at 1% Significance Level       0         Note GOF Tests may be unreliable for small sample sizes       0       0       0       0         Shapiro Wilk Critical Value       0.151       KM Standard Error of Mean       0       0         95% KM (bOL UL       0.23       95% KM (BCA) UL I       No       0         95% KM (bebyshev UC UL       0.241       95% KM (Chebyshev UC I       <  |  |                             |   | 15                    |  |
| Minimum Detect         0.11         Minimum Non-Detect         0.8           Maximum Non-Detect         0.8         Maximum Non-Detect         0.924           Variance Detects         0.924         Percent Non-Detects         8           Mean Detects         0.363         SD Detects         0.6           Median Detects         0.27         CV Detects         0.7           Mean of Logged Detects         -1.271         SD of Logged Detects         0.6           Normal GOF Test on Detects Only         Shapiro Wilk GOF Test         0.869         Shapiro Wilk GOF Test           1% Shapiro Wilk Test Statistic         0.869         Detected Data appear Normal at 1% Significance Level         Lilliefors Critical Value         0.413           1% Lilliefors Critical Value         0.413         Detected Data appear Normal at 1% Significance Level         Note GOF Test smay be unreliable for small sample sizes         0.161         KM Standard Error of Mean         0           90KM SD         0.155         95% KM (Percentile Bootstrap) UCL         N         95% KM (2) UCL         0.226         95% KM Chebyshev UCL         0.21           90% KM Chebyshev UCL         0.221         95% KM Chebyshev UCL         0.221         95% KM Chebyshev UCL         0.221           97.5% KM Chebyshev UCL         0.227         Kolmogorov-Sm                                     |  |                             |   | 10                    |  |
| Maximum Detect         0.8         Maximum Non-Detects         0           Variance Detects         0.0924         Percent Non-Detects         8           Mean Detects         0.363         SD Detects         0           Mean Detects         0.27         CV Detects         0           Mean of Logged Detects         1.534         Kurtosis Detects         0           Mean of Logged Detects         -1.271         SD of Logged Detects         0           Shapiro Wilk Cort Statistic         0.869         Shapiro Wilk GOF Test         0           1% Shapiro Wilk Critical Value         0.687         Detected Data appear Normal at 1% Significance Level         0.813           1% Lilliefors Critical Value         0.413         Detected Data appear Normal at 1% Significance Level         0.161         KM Standard Error of Mean         0           Note GOF tests may be unreliable for small sample sizes         0.155         95% KM (CA) UCL         N         95% KM (b(2) UCL         0.226         95% KM (CA) UCL         N           95% KM (c) UCL         0.226         95% KM Chebyshev UCL         0.261         Anderson-Darling GOF Test         0           95% KM (c) UCL         0.227         Anderson-Darling GOF Test         0.277         Anderson-Darling GOF Test         0           95%   |  |                             |   | 0.18                  |  |
| Variance Detects     0.0924     Percent Non-Detects     8       Mean Detects     0.363     SD Detects     0       Median Detects     0.27     CV Detects     0       Skewness Detects     1.534     Kurtosis Detects     0       Mean of Logged Detects     -1.271     SD of Logged Detects     0       Normal GOF Test on Detects Only     Shapiro Wilk Coff Test     0.869     Shapiro Wilk GOF Test       1% Shapiro Wilk Test Statistic     0.869     Detected Data appear Normal at 1% Significance Level     Lillefors GOF Test       1% Lilliefors Test Statistic     0.306     Lillefors GOF Test     Detected Data appear Normal at 1% Significance Level       Detected Data appear Normal at 1% Significance Level     Note GOF tests may be unreliable for small sample sizes     0       Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs     KM Mean     0.161     KM Standard Error of Mean     0       90KM SD     0.155     95% KM (BCA) UCL     N     95% KM (CA) UCL     N     95% KM (CA) UCL     N       90% KM Chebyshev UCL     0.226     95% KM Chebyshev UCL     0.21     95% KM Chebyshev UCL     0.227       Gamma GOF Tests on Detected Observations Only     A-D Test Statistic     0.227     Kolmogorov-Sminov GOF       6.39% KM Chebyshev UCL     0.411     99% KM Chebyshev UCL     0.22  |  |                             |   | 0.10                  |  |
| Mean Detects       0.363       SD Detects       0         Median Detects       0.27       CV Detects       0         Skewness Detects       1.534       Kurtosis Detects       2         Mean of Logged Detects       -1.271       SD of Logged Detects       0         Normal GOF Test on Detects Only       Shapiro Wilk Cest Statistic       0.869       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.687       Detected Data appear Normal at 1% Significance Level       Lilliefors GOF Test         1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level       Detected Data appear Normal at 1% Significance Level         Note GOF tests may be unreliable for small sample sizes       Note GOF tests may be unreliable for small sample sizes       0         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs       KM Mean       0.161       KM Standard Error of Mean       0         90% KM 0, UCL       0.23       95% KM (BCA) UCL       N       N       N       N       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0       0       0       N       0         90% KM Chebyshev UCL       0.287       Anderson-Darling GOF Test       0       0       0       0       0       <   |  |                             |   | 80%                   |  |
| Median Detects     0.27     CV Detects     0.0       Skewness Detects     1.534     Kurtosis Detects     2       Mean of Logged Detects     -1.271     SD of Logged Detects     0       Shapiro Wilk Test Statistic     0.669     Shapiro Wilk CoP Test     0       1% Shapiro Wilk Test Statistic     0.667     Detected Data appear Normal at 1% Significance Level     Ullifefors GOF Test       1% Lilliefors Test Statistic     0.306     Lilliefors GOF Test     0.413       Detected Data appear Normal at 1% Significance Level     Note GOF tests may be unreliable for small sample sizes     Volte GOF test may be unreliable for small sample sizes       Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs     Note GOF tests may be unreliable for small sample sizes     0.161     KM Standard Error of Mean     0.161       90KM SD     0.155     95% KM (BCA) UCL     N     N     95% KM (BCA) UCL     N       90% KM Chebyshev UCL     0.281     95% KM (BCA) UCL     N     N       90% KM Chebyshev UCL     0.281     95% KM (Chebyshev UCL     0.261       97.5% KM Chebyshev UCL     0.281     95% KM Chebyshev UCL     0.271       97.5% KM Chebyshev UCL     0.281     95% KM Chebyshev UCL     0.271       97.5% KM Chebyshev UCL     0.281     95% KM Chebyshev UCL     0.271       AD Test S  |  |                             |   | 0.30                  |  |
| Skewness Detects       1.534       Kurtosis Detects       2         Mean of Logged Detects       -1.271       SD of Logged Detects       0         Shapiro Wilk Corp Test on Detects Only       Shapiro Wilk GOF Test       0.869       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.687       Detected Data appear Normal at 1% Significance Level       Uilliefors GOF Test         1% Lilliefors Test Statistic       0.306       Lilliefors GOF Test       Uilliefors GOF Test         1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level       Note GOF tests may be unreliable for small sample sizes         Kaplan-Meler (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (9cA) UCL       N         90%K MC hebyshev UCL       0.281       95% KM Chebyshev UCL       N         90% KM Chebyshev UCL       0.411       98% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       98% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.461       Detected data appear Gamma Distributed at 5% Significance Level       K-S Test Statistic       0.257       Anderson-Darling GOF Test       0         641   |  |                             |   | 0.83                  |  |
| Mean of Logged Detects     -1.271     SD of Logged Detects     Image: Control of Logged Detects       Normal GOF Test on Detects Only       Shapiro Wilk Test Statistic     0.869     Shapiro Wilk GOF Test       1% Shapiro Wilk Critical Value     0.687     Detected Data appear Normal at 1% Significance Level       Lilliefors Critical Value     0.413     Detected Data appear Normal at 1% Significance Level       Detected Data appear Normal at 1% Significance Level     Note GOF tests may be unreliable for small sample sizes       Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs       KM Mean     0.161     KM Standard Error of Mean     0       90K KM D0L     0.23     95% KM (BCA) UCL     N       95% KM (2) UCL     0.226     95% KM (BCA) UCL     N       90% KM Chebyshev UCL     0.411     95% KM Chebyshev UCL     0       97.5% KM Chebyshev UCL     0.411     95% KM Chebyshev UCL     0       97.5% KM Chebyshev UCL     0.257     Anderson-Daring GOF Test       S% AD Critical Value     0.38     Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes     Significance Level       Camma GOF Test statistic     0.227     Kolmogorov-Smimov GOF       5% K-S Critical Value     0.38     Detected data appear Gamma Distributed at 5% Significa                      |  | -                           |   | 2.54                  |  |
| Shapiro Wilk Test Statistic       0.869       Shapiro Wilk GOF Test         1% Shapiro Wilk Critical Value       0.687       Detected Data appear Normal at 1% Significance Level         Lilliefors Test Statistic       0.306       Lilliefors GOF Test         1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level         Detected Data appear Normal at 1% Significance Level       Note GOF tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs       KM Mean         0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         90KM SD       0.155       95% KM (Percentile Bootstrap) UCL       N         90% KM Chebyshev UCL       0.226       95% KM (Chebyshev UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         90% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         90% KM Chebyshev UCL       0.257       Anderson-Darling GOF Test       0         Shaper Statistic       0.227       Kolmogorov-Smimov GOF       5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample si   |  |                             |   | 0.82                  |  |
| 1% Shapiro Wilk Critical Value       0.687       Detected Data appear Normal at 1% Significance Level         Lilliefors Test Statistic       0.306       Lilliefors GOF Test         1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level         Detected Data appear Normal at 1% Significance Level         Note GOF Tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.226       95% KM (Bootstrap t UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.257       Anderson-Darling GOF Test         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance Level         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes       Note GOF tests may be unrel  | Norma  | al GOF Test                 | on Detects Only                                     |                       |  |
| Lilliefors Test Statistic       0.306       Lilliefors GOF Test         1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level         Detected Data appear Normal at 1% Significance Level         Note GOF tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (z) UCL       0.226       95% KM (BCA) UCL       N         95% KM (z) UCL       0.226       95% KM Chebyshev UCL       N         90% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       N         Gamma GOF Tests on Detected Observations Only         Anderson-Darling GOF Test         Significance L         Kol Robyshev UCL       0.257         Anderson-Darling GOF Test         Significance Level         Kol Robogrov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level <td col<="" td=""><td>Shapiro Wilk Test Statistic</td><td>0.869</td><td>Shapiro Wilk GOF Test</td><td></td></td>   | <td>Shapiro Wilk Test Statistic</td> <td>0.869</td> <td>Shapiro Wilk GOF Test</td> <td></td> | Shapiro Wilk Test Statistic | 0.869   | Shapiro Wilk GOF Test |  |
| 1% Lilliefors Critical Value       0.413       Detected Data appear Normal at 1% Significance Level         Detected Data appear Normal at 1% Significance Level         Note GOF tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.26       95% KM Chebyshev UCL       0         90% KM Chebyshev UCL       0.411       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         Gamma GOF Tests on Detected Observations Only       K-S Test Statistic       0.257       Anderson-Darling GOF Test         A-D Test Statistic       0.227       Kolmogorov-Smirnov GOF       K-S Test Statistic       0.227         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF       S% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes       Camm   | 1% Shapiro Wilk Critical Value   | 0.687                       | Detected Data appear Normal at 1% Significance Leve | el                    |  |
| Detected Data appear Normal at 1% Significance Level         Note GOF tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.226       95% KM Chebyshev UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         90% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         Gamma GOF Tests on Detected Observations Only         A-D Test Statistic       0.227       Anderson-Darling GOF Test         5% K-S Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance L       Detected data appear Gamma Distributed at 5% Significance L         0.66       Detected data appear Gamma Distributed at 5% Significance L       Detected data appear Gamma Distributed at 5% Significance L         0.67       K-S Tritical Value       0.398       Detected d   | Lilliefors Test Statistic  | 0.306                       | Lilliefors GOF Test                                 |                       |  |
| Note GOF tests may be unreliable for small sample sizes         Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.26       95% KM Chebyshev UCL       0         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         Gamma GOF Tests on Detected Observations Only       K       K       K         A-D Test Statistic       0.257       Anderson-Darling GOF Test       K         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L       K         K-S Test Statistic       0.227       Kolmogorov-Smimov GOF       K         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L Evel       Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)  | 1% Lilliefors Critical Value   | 0.413                       | Detected Data appear Normal at 1% Significance Leve | el                    |  |
| Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs         KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.226       95% KM (Debyshev UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Critical Value       0.257       Anderson-Darling GOF Test       0         5% A-D Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L       0         0.5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes          K tat (MLE)       2.103       <   | Detected Data a  | ppear Norma                 | al at 1% Significance Level                         |                       |  |
| KM Mean       0.161       KM Standard Error of Mean       0         90KM SD       0.155       95% KM (BCA) UCL       N         95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.226       95% KM Bootstrap t UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         98       Detected Observations Only       5% Significance L       5% Significance L         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L       Detected data appear Gamma Distributed at 5% Significance L   |  |                             | ·   |                       |  |
| 90KM SD0.15595% KM (BCA) UCLN95% KM (t) UCL0.2395% KM (Percentile Bootstrap) UCLN95% KM (z) UCL0.22695% KM Bootstrap t UCLN90% KM Chebyshev UCL0.28195% KM Chebyshev UCL097.5% KM Chebyshev UCL0.41199% KM Chebyshev UCL097.5% KM Chebyshev UCL0.41199% KM Chebyshev UCL0Gamma GOF Tests on Detected Observations OnlyK-S Totical Value0.66Detected data appear Gamma Distributed at 5% Significance L5% A-D Critical Value0.398Detected data appear Gamma Distributed at 5% Significance L5% K-S Critical Value0.398Detected data appear Gamma Distributed at 5% Significance LDetected data appear Gamma Distributed at 5% Significance LevelNote GOF tests may be unreliable for small sample sizesGamma Statistics on Detected Data Onlyk hat (MLE)2.103k star (bias corrected MLE)00.172Theta star (bias corrected MLE)00.172Note Gorrected MLE)0.172Theta star (bias corrected MLE)0.172   |  |                             | -   |                       |  |
| 95% KM (t) UCL       0.23       95% KM (Percentile Bootstrap) UCL       N         95% KM (z) UCL       0.226       95% KM Bootstrap t UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KA Chebyshev UCL       0.257       Anderson-Darling GOF Test       0         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L       0         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF       0         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level       0  |  |                             |   | 0.04                  |  |
| 95% KM (z) UCL       0.226       95% KM Bootstrap t UCL       N         90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         98       0.257       Anderson-Darling GOF Test       0         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L       0         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L       0         Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes       0         Gamma Statistics on Detected Data Only       K star (bias corrected MLE)       0       0         K hat (MLE)       2.103       K star (bias corrected MLE)       0       0         10 mu hat (MLE)       16.82       nu star (bias corrected MLE)       9       9  |  |                             |   | N/A                   |  |
| 90% KM Chebyshev UCL       0.281       95% KM Chebyshev UCL       0         97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         Gamma GOF Tests on Detected Observations Only         A-D Test Statistic       0.257       Anderson-Darling GOF Test         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         M hat (MLE)       0.172       Theta star (bias corrected MLE)       0   |  |                             |   | N/A                   |  |
| 97.5% KM Chebyshev UCL       0.411       99% KM Chebyshev UCL       0         Gamma GOF Tests on Detected Observations Only         A-D Test Statistic       0.257       Anderson-Darling GOF Test         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level       Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected MLE)       9   |  |                             |   | 0.3                   |  |
| Gamma GOF Tests on Detected Observations Only         A-D Test Statistic       0.257       Anderson-Darling GOF Test         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level       Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes       Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected MLE)       9   | •  |                             |   | 0.5                   |  |
| A-D Test Statistic       0.257       Anderson-Darling GOF Test         5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level       Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes       K star (bias corrected MLE)       Q         K hat (MLE)       2.103       k star (bias corrected MLE)       Q         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       Q         nu hat (MLE)       16.82       nu star (bias corrected MLE)       S  | ·  |                             |   | 0.0                   |  |
| 5% A-D Critical Value       0.66       Detected data appear Gamma Distributed at 5% Significance L         K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level       Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes       Gamma Statistics on Detected Data Only         K hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5  | Gamma GOF 1  | Fests on Det                | ected Observations Only                             |                       |  |
| K-S Test Statistic       0.227       Kolmogorov-Smirnov GOF         5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance L         Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103         K star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5   | A-D Test Statistic   | 0.257                       | Anderson-Darling GOF Test                           |                       |  |
| 5% K-S Critical Value       0.398       Detected data appear Gamma Distributed at 5% Significance Level         Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103         K star (bias corrected MLE)       0         Theta hat (MLE)       0.172         Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5   | 5% A-D Critical Value  | 0.66                        |   | e Leve                |  |
| Detected data appear Gamma Distributed at 5% Significance Level         Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5   | K-S Test Statistic   | 0.227                       | Kolmogorov-Smirnov GOF                              |                       |  |
| Note GOF tests may be unreliable for small sample sizes         Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5   |  |                             |   | e Leve                |  |
| Gamma Statistics on Detected Data Only         k hat (MLE)       2.103       k star (bias corrected MLE)       0         Theta hat (MLE)       0.172       Theta star (bias corrected MLE)       0         nu hat (MLE)       16.82       nu star (bias corrected)       5   |  |                             | -   |                       |  |
| k hat (MLE)2.103k star (bias corrected MLE)0Theta hat (MLE)0.172Theta star (bias corrected MLE)0nu hat (MLE)16.82nu star (bias corrected)5   | Note GOF tests m   | nay be unreli               | able for small sample sizes                         |                       |  |
| Theta hat (MLE)     0.172     Theta star (bias corrected MLE)       nu hat (MLE)     16.82     nu star (bias corrected)  | Gamma S  | Statistics on               | Detected Data Only                                  |                       |  |
| nu hat (MLE) 16.82 nu star (bias corrected)  | k hat (MLE)  | 2.103                       | k star (bias corrected MLE)                         | 0.6                   |  |
|  | Theta hat (MLE)  | 0.172                       | Theta star (bias corrected MLE)                     | 0.5                   |  |
|  |  |                             | nu star (bias corrected)                            | 5.5                   |  |
|  |  |                             |   |                       |  |
| Gamma ROS Statistics using Imputed Non-Detects<br>GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs   | 0  | 04-4'-4'                    | n a lasa sta d Nan. Data ata                        |                       |  |

| This is especia  | ally true whe | n the sample size is small.   |        |
|--|---------------|---|--------|
| For gamma distributed detected data, BTVs ar                 | nd UCLs ma    | y be computed using gamma distribution on KM estimates                      |        |
| Minimum  | 0.01          | Mean  | 0.0991 |
| Maximum  | 0.8           | Median  | 0.0188 |
| SD   | 0.184         | CV  | 1.858  |
| k hat (MLE)  | 0.637         | k star (bias corrected MLE)   | 0.575  |
| Theta hat (MLE)  | 0.156         | Theta star (bias corrected MLE)   | 0.172  |
| nu hat (MLE)   | 25.49         | nu star (bias corrected)  | 23     |
| Adjusted Level of Significance (β)                           | 0.038         |   |        |
| Approximate Chi Square Value (23.00, α)                      | 13.09         | Adjusted Chi Square Value (23.00, $\beta$ )                                 | 12.5   |
| 95% Gamma Approximate UCL                                    | 0.174         | 95% Gamma Adjusted UCL  | N/A    |
| Estimates of Ga  | mma Param     | eters using KM Estimates  |        |
| Mean (KM)  | 0.161         | SD (KM)   | 0.155  |
| Variance (KM)  | 0.0241        | SE of Mean (KM)   | 0.0401 |
| k hat (KM)   | 1.07          | k star (KM)   | 0.943  |
| nu hat (KM)  | 42.82         | nu star (KM)  | 37.73  |
| theta hat (KM)   | 0.15          | theta star (KM)   | 0.17   |
| 80% gamma percentile (KM)                                    | 0.259         | 90% gamma percentile (KM)   | 0.375  |
| 95% gamma percentile (KM)                                    | 0.491         | 99% gamma percentile (KM)   | 0.761  |
| Gamma  | a Kaplan-Me   | ier (KM) Statistics   |        |
| Approximate Chi Square Value (37.73, α)                      | 24.66         | Adjusted Chi Square Value (37.73, β)  | 23.83  |
| 95% KM Approximate Gamma UCL                                 | 0.246         | 95% KM Adjusted Gamma UCL   | 0.254  |
|  |               |   |        |
| _  | 0.992         | tected Observations Only  |        |
| Shapiro Wilk Test Statistic                                  | 0.992         | Shapiro Wilk GOF Test   | aval   |
| 10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | 0.792         | Detected Data appear Lognormal at 10% Significance L<br>Lilliefors GOF Test | evei   |
| 10% Lilliefors Critical Value                                | 0.346         | Detected Data appear Lognormal at 10% Significance L                        | ovol   |
|  |               | nal at 10% Significance Level   | evei   |
|  |               | able for small sample sizes   |        |
|  |               |   |        |
| -  |               | sing Imputed Non-Detects  |        |
| Mean in Original Scale                                       | 0.151         | Mean in Log Scale   | -2.138 |
| SD in Original Scale   | 0.164         | SD in Log Scale   | 0.594  |
| 95% t UCL (assumes normality of ROS data)                    | 0.214         | 95% Percentile Bootstrap UCL  | 0.216  |
| 95% BCA Bootstrap UCL  | 0.255         | 95% Bootstrap t UCL   | 0.384  |
| 95% H-UCL (Log ROS)  | 0.188         |   |        |
| Statistics using KM estimates of                             | n Logged Da   | ata and Assuming Lognormal Distribution                                     |        |
| KM Mean (logged)   | -2.02         | KM Geo Mean   | 0.133  |
| KM SD (logged)   | 0.493         | 95% Critical H Value (KM-Log)   | 2.012  |
| KM Standard Error of Mean (logged)                           | 0.127         | 95% H-UCL (KM -Log)   | 0.188  |
| KM SD (logged)   | 0.493         | 95% Critical H Value (KM-Log)   | 2.012  |
| KM Standard Error of Mean (logged)                           | 0.127         |   |        |
|  | DL/2 St       | atistics  |        |
|  |               |   |        |

| Mean in Original Scale                                 | 0.152          | Mean in Log Scale   | -2.098 |
|--|----------------|---|--------|
| SD in Original Scale                                   | 0.162          | SD in Log Scale   | 0.538  |
| 95% t UCL (Assumes normality)                          | 0.215          | 95% H-Stat UCL  | 0.183  |
| DL/2 is not a recommended me                           | thod, provid   | ed for comparisons and historical reasons                             |        |
|  |                |   |        |
| Nonparame  | tric Distribut | tion Free UCL Statistics  |        |
| Detected Data appear                                   | · Normal Dis   | tributed at 1% Significance Level                                     |        |
|  |                |   |        |
|  | Suggested      | UCL to Use  |        |
| 95% KM (t) UCL   | 0.23           |   |        |
|  |                | · · · · · · · · · · · · · · · · · · ·                                 |        |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are p    | rovided to help the user to select the most appropriate 95% UCL       |        |
| Recommendations are based upon data size               | , data distrib | ution, and skewness using results from simulation studies.            |        |
| However, simulations results will not cover all Real W | /orld data se  | ts; for additional insight the user may want to consult a statisticia | an.    |
|  |                |   |        |
| C (soil   hexachlorobenzene   118-74-1)                |                |   |        |
|  |                |   |        |
|  |                | Statistics  |        |
| Total Number of Observations                           | 20             | Number of Distinct Observations                                       | 15     |
| Number of Detects                                      | 0              | Number of Non-Detects   | 20     |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects  | 15     |
|  |                | · · · · · · · · · · · · · · · · · · ·                                 |        |
|  |                | efore all statistics and estimates should also be NDs!                |        |
|  |                | tics are also NDs lying below the largest detection limit!            |        |
| I he Project Team may decide to use alternative site   | e specific va  | lues to estimate environmental parameters (e.g., EPC, BTV).           |        |
|  |                |   |        |
|  | I   nexachior  | obenzene   118-74-1) was not processed!                               |        |
|  |                |   |        |
| C (apil L havaphlarahutadiana L 97 69 2)               |                |   |        |
| C (soil   hexachlorobutadiene   87-68-3)               |                |   |        |
|  | Conorol        | Statistics  |        |
| Total Number of Observations                           | 20             | Number of Distinct Observations                                       | 18     |
| Number of Detects                                      | 20             | Number of Distinct Observations                                       | 20     |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects  | 18     |
|  | 0              |   | 10     |
| Warning: All absonutions are Non Detecto               | (NDo) ther     | efore all statistics and estimates should also be NDs!                |        |
|  |                | tics are also NDs lying below the largest detection limit!            |        |
|  |                | lues to estimate environmental parameters (e.g., EPC, BTV).           |        |
|  | e specific va  |   |        |
| The data set for variable C (soi                       | l l heyachlor  | obutadiene   87-68-3) was not processed!                              |        |
|  |                |   |        |
|  |                |   |        |
| C (soil   hexachlorocyclopentadiene   77-47-4)         |                |   |        |
|  |                |   |        |
|  | General        | Statistics  |        |
| Total Number of Observations                           | 20             | Number of Distinct Observations                                       | 15     |
| Number of Detects                                      | 20             | Number of Distinct Observations                                       | 20     |
|  |                |   |        |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects  | 15     |

|   |  | as to astimate anyironmental parameters (a.g. EDC BT\/)   |   |
|---|--|---|---|
| The Project Team may decide to use alternative sit  | e specific value   | es lo estimate environmental parameters (e.g., EFO, DTV).   |   |
|   |  |   |   |
| The data set for variable C (soil   h   | exachlorocyclo   | opentadiene   77-47-4) was not processed!   |   |
|   |  |   |   |
| C (soil   hexachloroethane   67-72-1)   |  |   |   |
|   | General St   | atistics  |   |
| Total Number of Observations  | 1  | Number of Distinct Observations   | 15  |
| Number of Detects   | 0  | Number of Non-Detects   | 20  |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects  | 15  |
|   | <u> </u>   | I   |   |
|   |  | ore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and  | other statistics   | are also NDs lying below the largest detection limit!   |   |
| The Project Team may decide to use alternative sit  | e specific value   | es to estimate environmental parameters (e.g., EPC, BTV).   |   |
|   |  |   |   |
| The data set for variable C (s  | oil   hexachlord   | bethane   67-72-1) was not processed!   |   |
|   |  |   |   |
|   |  |   |   |
| c (soil   indeno(1,2,3-cd)pyrene   193-39-5)  |  |   |   |
|   |  |   |   |
|   | Conorol St   | atiatica  |   |
| Total Number of Observations  | General St   |   | 16  |
| Total Number of Observations  | 20   | Number of Distinct Observations   | 16  |
| Number of Detects   | 20<br>4  | Number of Distinct Observations<br>Number of Non-Detects  | 16  |
|   | 20<br>4<br>4   | Number of Distinct Observations   | 16<br>12  |
| Number of Detects<br>Number of Distinct Detects   | 20<br>4<br>4<br>0.15   | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 16<br>12  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | 20<br>4<br>4<br>0.15<br>0.73   | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 16<br>12<br>0.187   |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905   | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect  | 16<br>12<br>0.187<br>0.22<br>80%  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418  | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301                                     |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395   | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>Percent Non-Detects<br>SD Detects  | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721                            |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detects         Percent Non-Detects         SD Detects         CV Detects   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322                  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects   | 20<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115   | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detects         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322                  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115  | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322                  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic  | 20<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828   | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         n Detects Only         Shapiro Wilk GOF Test   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Mean Detects Median Detects Skewness Detects Mean of Logged Detects Norm Shapiro Wilk Test Statistic 1% Shapiro Wilk Critical Value   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687   | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         n Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev  | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic  | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         n Detects Only         Shapiro Wilk GOF Test   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value  | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>nal GOF Test o<br>0.828<br>0.687<br>0.295<br>0.413  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         In Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         n Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         In Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev         at 1% Significance Level   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Median Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data         Note GOF tests   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test o<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal<br>may be unrelia   | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         In Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev         at 1% Significance Level   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at         Note GOF tests         Kaplan-Meier (KM) Statistics usin   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal<br>may be unrelia<br>appear Critic<br>0.212  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         n Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev         at 1% Significance Level         ble for small sample sizes   | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835         |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Mean of Logged Detects         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at         Note GOF tests         Kaplan-Meier (KM) Statistics usin         KM Mean         90KM SD | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal<br>may be unrelia<br>may be unrelia<br>g Normal Critico<br>0.212<br>0.156                          | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         SD Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev         at 1% Significance Level         ble for small sample sizes         cal Values and other Nonparametric UCLs         KM Standard Error of Mean         95% KM (BCA) UCL  | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835<br>//el |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at         Note GOF tests         Kaplan-Meier (KM) Statistics usin   | 20<br>4<br>4<br>0.15<br>0.73<br>0.0905<br>0.418<br>0.395<br>0.111<br>-1.115<br>mal GOF Test of<br>0.828<br>0.687<br>0.295<br>0.413<br>appear Normal<br>may be unrelia<br>appear Normal<br>may be unrelia<br>g Normal Critic<br>0.212<br>0.156<br>0.282 | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects         SD of Logged Detects         Detected Data appear Normal at 1% Significance Lev         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Lev         at 1% Significance Level         ble for small sample sizes         cal Values and other Nonparametric UCLs         KM Standard Error of Mean | 16<br>12<br>0.187<br>0.22<br>80%<br>0.301<br>0.721<br>-5.322<br>0.835<br>//el |

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!

| 90% KM Chebyshev UCL                            | 0.334         | 95% KM Chebyshev UCL   | 0.389          |
|---|---------------|--|----------------|
| 97.5% KM Chebyshev UCL                          | 0.466         | 99% KM Chebyshev UCL   | 0.618          |
|   |               |  | 0.0.0          |
| Gamma GOF                                       | Tests on De   | tected Observations Only   |                |
| A-D Test Statistic                              | 0.542         | Anderson-Darling GOF Test  |                |
| 5% A-D Critical Value                           | 0.66          | Detected data appear Gamma Distributed at 5% Significan          | ce Level       |
| K-S Test Statistic                              | 0.323         | Kolmogorov-Smirnov GOF   |                |
| 5% K-S Critical Value                           | 0.398         | Detected data appear Gamma Distributed at 5% Significan          | ce Level       |
| Detected data appear                            | Gamma Dis     | stributed at 5% Significance Level                               |                |
| Note GOF tests r                                | nay be unre   | liable for small sample sizes                                    |                |
|   |               |  |                |
| Gamma   | Statistics on | Detected Data Only   |                |
| k hat (MLE)                                     | 2.219         | k star (bias corrected MLE)                                      | 0.721          |
| Theta hat (MLE)                                 | 0.188         | Theta star (bias corrected MLE)                                  | 0.579          |
| nu hat (MLE)                                    | 17.75         | nu star (bias corrected)   | 5.77           |
| Mean (detects)                                  | 0.418         |  |                |
|   |               | 11   |                |
| Gamma ROS                                       | Statistics us | sing Imputed Non-Detects   |                |
| GROS may not be used when data so               | et has > 50%  | % NDs with many tied observations at multiple DLs                |                |
| GROS may not be used when kstar of detects is s | mall such a   | is <1.0, especially when the sample size is small (e.g., <15-20) |                |
| For such situations, GROS r                     | nethod may    | yield incorrect values of UCLs and BTVs                          |                |
|   |               | en the sample size is small.                                     |                |
|   |               | ay be computed using gamma distribution on KM estimates          |                |
| Minimum   | 0.0656        | Mean   | 0.218          |
| Maximum   | 0.73          | Median   | 0.165          |
| SD  | 0.165         | CV   | 0.758          |
| k hat (MLE)                                     | 3.062         | k star (bias corrected MLE)                                      | 2.636          |
| Theta hat (MLE)                                 | 0.0711        | Theta star (bias corrected MLE)                                  | 0.0825         |
| nu hat (MLE)                                    | 122.5         | nu star (bias corrected)   | 105.5          |
| Adjusted Level of Significance (β)              | 0.038         |  |                |
| Approximate Chi Square Value (105.46, α)        | 82.76         | Adjusted Chi Square Value (105.46, β)                            | 81.17          |
| 95% Gamma Approximate UCL                       | 0.277         | 95% Gamma Adjusted UCL   | N/A            |
|   | 0.277         |  | 10// (         |
| Entimator of Oc                                 | mme Doror     | neters using KM Estimates  |                |
| Mean (KM)                                       | 0.212         | SD (KM)  | 0.156          |
|   | 0.212         |  | 0.0408         |
| Variance (KM)                                   | 1.844         | SE of Mean (KM)  | 1.6            |
| k hat (KM)                                      |               | k star (KM)  |                |
| nu hat (KM)                                     | 73.75         | nu star (KM)   | 64.02          |
| theta hat (KM)                                  | 0.115         | theta star (KM)  | 0.132          |
| 80% gamma percentile (KM)                       | 0.325         | 90% gamma percentile (KM)  | 0.434          |
| 95% gamma percentile (KM)                       | 0.539         | 99% gamma percentile (KM)  | 0.776          |
|   |               |  |                |
|   |               | eier (KM) Statistics   | / <b>-</b> · · |
| Approximate Chi Square Value (64.02, α)         | 46.61         | Adjusted Chi Square Value (64.02, β)                             | 45.44          |
| 95% KM Approximate Gamma UCL                    | 0.29          | 95% KM Adjusted Gamma UCL  | 0.298          |
|   |               |  |                |
| _   |               | etected Observations Only  |                |
| Shapiro Wilk Test Statistic                     | 0.814         | Shapiro Wilk GOF Test  |                |
| 10% Shapiro Wilk Critical Value                 | 0.792         | Detected Data appear Lognormal at 10% Significance L             | evel           |

|   | 0.284  | Lilliefors GOF Test   |   |
|---|--|---|---|
| 10% Lilliefors Critical Value   | 0.346  | Detected Data appear Lognormal at 10% Significance L  | evel                                      |
| Detected Data app   | pear Lognorma  | al at 10% Significance Level  |   |
| Note GOF tests  | may be unrelia   | ble for small sample sizes  |   |
| Lognormal RO  | S Statistics Usi   | ing Imputed Non-Detects   |   |
| Mean in Original Scale  | 0.222  | Mean in Log Scale   | -1.646                                    |
| SD in Original Scale  | 0.16   | SD in Log Scale   | 0.472                                     |
| 95% t UCL (assumes normality of ROS data)   | 0.283  | 95% Percentile Bootstrap UCL  | 0.283                                     |
| 95% BCA Bootstrap UCL   | 0.305  | 95% Bootstrap t UCL   | 0.466                                     |
| 95% H-UCL (Log ROS)   | 0.267  |   |   |
| Statistics using KM estimates of  | on Logged Dat  | a and Assuming Lognormal Distribution   |   |
| KM Mean (logged)  | -1.691   | KM Geo Mean   | 0.184                                     |
| KM SD (logged)  | 0.436  | 95% Critical H Value (KM-Log)   | 1.96                                      |
| KM Standard Error of Mean (logged)  |  | 95% H-UCL (KM -Log)   | 0.247                                     |
| KM SD (logged)  | 0.436  | 95% Critical H Value (KM-Log)   | 1.96                                      |
| KM Standard Error of Mean (logged)  |  |   |   |
|   | DL/2 Stat  | tistics   |   |
| DL/2 Normal   |  | DL/2 Log-Transformed  |   |
| Mean in Original Scale  | 0.163  | Mean in Log Scale   | -2.067                                    |
| SD in Original Scale  | 0.177  | SD in Log Scale   | 0.592                                     |
| 95% t UCL (Assumes normality)   | 0.232  | 95% H-Stat UCL  | 0.201                                     |
|   | thod, provided   | d for comparisons and historical reasons  |   |
| Nonparame   | tric Distributio   | n Free UCL Statistics   |   |
| -   |  |   |   |
| Detected Data appeal  | r Normal Distri  | buted at 1% Significance Level  |   |
|   |  |   |   |
|   | Suggested U  |   |   |
| 95% KM (t) UCL  |  |   |   |
| 95% KM (t) UCL  | Suggested U  | CL to Use   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%  | Suggested U<br>0.282   | CL to Use vided to help the user to select the most appropriate 95% UCL   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use vided to help the user to select the most appropriate 95% UCL   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut   | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.<br>; for additional insight the user may want to consult a statistici   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut<br>/orld data sets  | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.<br>; for additional insight the user may want to consult a statistici   |   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(soil   iron   7439-89-6)   | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut<br>/orld data sets<br>General St  | CL to Use<br>vided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.<br>; for additional insight the user may want to consult a statistici<br>tatistics  | an.                                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(soil   iron   7439-89-6)   | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut<br>/orld data sets<br>General St<br>20  | CL to Use vided to help the user to select the most appropriate 95% UCL tion, and skewness using results from simulation studies. ; for additional insight the user may want to consult a statistic tatistics Number of Distinct Observations Number of Missing Observations  | an.<br>17                                 |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(soil   iron   7439-89-6)<br>Total Number of Observations                             | Suggested U<br>0.282<br>6 UCL are prov<br>6 UCL are prov<br>7 data distribut<br>7 orld data sets<br>6 data sets<br>7 data distribut<br>7 orld data sets<br>7 data distribut<br>7 data distribut<br>7 data distribut<br>7 orld data sets<br>7 data distribut<br>7 | CL to Use vided to help the user to select the most appropriate 95% UCL tion, and skewness using results from simulation studies. ; for additional insight the user may want to consult a statistici tatistics Number of Distinct Observations Number of Missing Observations Mean                                    | an.<br>17<br>0                            |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(soil   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum       | Suggested U<br>0.282<br>6 UCL are prov<br>6 UCL are prov<br>7 data distribut<br>7 orld data sets<br>6 data sets<br>7 data distribut<br>7 orld data sets<br>7 data distribut<br>7 data distribut<br>7 data distribut<br>7 orld data sets<br>7 data distribut<br>7 | CL to Use vided to help the user to select the most appropriate 95% UCL tion, and skewness using results from simulation studies. ; for additional insight the user may want to consult a statistici tatistics Number of Distinct Observations Number of Missing Observations Mean                                    | an.<br>17<br>0<br>39083<br>24583          |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (soil   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum     | Suggested U<br>0.282<br>6 UCL are prov<br>, data distribut<br>/orld data sets<br>Ceneral St<br>20<br>11000<br>330000   | CL to Use vided to help the user to select the most appropriate 95% UCL tion, and skewness using results from simulation studies. ; for additional insight the user may want to consult a statistic tatistics Number of Distinct Observations Number of Missing Observations Mean Median                              | an.<br>17<br>0<br>39083<br>24583<br>15392 |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(soil   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD | Suggested U<br>0.282<br>6 UCL are prov<br>6 UCL are prov<br>7 data distribut<br>7 orld data sets<br>7 data distribut<br>7 data distrib   | CL to Use vided to help the user to select the most appropriate 95% UCL tion, and skewness using results from simulation studies. ; for additional insight the user may want to consult a statistici tatistics Number of Distinct Observations Number of Missing Observations Mean Median Std. Error of Mean Skewness | an.<br>17<br>0<br>39083<br>24583          |

| 10/ Chaming Mills Critical Makes                            | 0.868           | Data Nat Narmal at 10/ Cignificance Lough                      |                |
|---|-----------------|--|----------------|
| 1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic |                 | Data Not Normal at 1% Significance Level Lilliefors GOF Test   |                |
| 1% Lilliefors Critical Value                                |                 |  |                |
|   |                 | Data Not Normal at 1% Significance Level % Significance Level  |                |
|   |                 |  |                |
|   | suming Norr     | nal Distribution   |                |
| 95% Normal UCL  |                 | 95% UCLs (Adjusted for Skewness)                               |                |
| 95% Student's-t UCL   | 65698           |  | 80562          |
|   |                 | 95% Modified-t UCL (Johnson-1978)                              | 68219          |
|   | Gamma           | GOF Test   |                |
| A-D Test Statistic  |                 | Anderson-Darling Gamma GOF Test                                |                |
| 5% A-D Critical Value                                       | 0.761           | Data Not Gamma Distributed at 5% Significance Lev              | el             |
| K-S Test Statistic  | 0.364           | Kolmogorov-Smirnov Gamma GOF Test                              |                |
| 5% K-S Critical Value                                       | 0.198           | Data Not Gamma Distributed at 5% Significance Lev              | el             |
| Data Not Gam  | na Distribute   | d at 5% Significance Level                                     |                |
|   | 0               |  |                |
| k bet (MLE)   |                 |  | 1.181          |
| k hat (MLE)   |                 | k star (bias corrected MLE)<br>Theta star (bias corrected MLE) | 33093          |
| Theta hat (MLE)   |                 |  |                |
| nu hat (MLE)  | 54.01           | nu star (bias corrected)                                       | 47.24          |
| MLE Mean (bias corrected)                                   | 39083           |  | 35964          |
| Advected Level of Ober Service                              | 0.020           | Approximate Chi Square Value (0.05)                            | 32.47          |
| Adjusted Level of Significance                              | 0.038           | Adjusted Chi Square Value                                      | 31.5           |
| As  | suming Gam      | ma Distribution  |                |
| 95% Approximate Gamma UCL                                   | 56867           | 95% Adjusted Gamma UCL   | 58614          |
|   | Lognorma        | I GOF Test   |                |
| Shapiro Wilk Test Statistic                                 | -               | Shapiro Wilk Lognormal GOF Test                                |                |
| 10% Shapiro Wilk Critical Value                             |                 | Data Not Lognormal at 10% Significance Level                   |                |
| Lilliefors Test Statistic                                   | 0.266           | Lilliefors Lognormal GOF Test                                  |                |
| 10% Lilliefors Critical Value                               | 0.176           | Data Not Lognormal at 10% Significance Level                   |                |
| Data Not L  | ognormal at     | 10% Significance Level   |                |
|   | Lognormo        | Statistica   |                |
| Minimum of Longood Date                                     | -               | I Statistics   | 10.10          |
| Minimum of Logged Data<br>Maximum of Logged Data            |                 | Mean of logged Data<br>SD of logged Data                       | 10.16<br>0.686 |
|   | 12.71           | SD 01 logged Data  | 0.000          |
| Ass   | uming Logno     | rmal Distribution  |                |
| 95% H-UCL   | 46382           | 90% Chebyshev (MVUE) UCL                                       | 48048          |
| 95% Chebyshev (MVUE) UCL                                    | 55208           | 97.5% Chebyshev (MVUE) UCL                                     | 65146          |
| 99% Chebyshev (MVUE) UCL                                    | 84668           |  |                |
| Nonparame   | etric Distribut | ion Free UCL Statistics  |                |
| ·   |                 | iscernible Distribution  |                |
|   |                 |  |                |
| Nonpa<br>95% CLT UCL  |                 | ribution Free UCLs<br>95% BCA Bootstrap UCL                    | 85650          |
| 95% CLI UCL   | 04401           | 95% BCA BOOISTRAD UCL  | 00000          |

|  | 00704  |   |                                    |
|--|--|---|------------------------------------|
| 95% Standard Bootstrap UCL   |  | 95% Bootstrap-t UCL   |                                    |
| 95% Hall's Bootstrap UCL   |  | 95% Percentile Bootstrap UCL  |                                    |
| 90% Chebyshev(Mean, Sd) UCL  |  | 95% Chebyshev(Mean, Sd) UCL   |                                    |
| 97.5% Chebyshev(Mean, Sd) UCL  | 135206   | 99% Chebyshev(Mean, Sd) UCL   | 192231                             |
|  | Suggested  |   |                                    |
|  | 65698  |   |                                    |
| 35% Student 3-t OCL  | 00000  |   |                                    |
| The calculated UCLs are based on assumption  | ons that the   | data were collected in a random and unbiased manner.  |                                    |
|  |  | lected from random locations.   |                                    |
| -  |  | nental or other non-random methods,   |                                    |
|  |  | o correctly calculate UCLs.   |                                    |
|  |  | · · · · · · · · · · · · · · · · · · ·   |                                    |
| Note: Suggestions regarding the selection of a 95%   |  | rovided to help the user to select the most appropriate 95% UCL   |                                    |
|  | · · · ·  | ution, and skewness using results from simulation studies.  |                                    |
|  |  | ts; for additional insight the user may want to consult a statisticia   | <u></u>                            |
|  | onu uata se  |   | d11.                               |
|  |  |   |                                    |
| C (soil   isophorone   78-59-1)  |  |   |                                    |
|  | General  | Chatlation  |                                    |
| Total Number of Observations   |  | Number of Distinct Observations   | 15                                 |
|  | 20   |   | 15                                 |
| Number of Detects  | 0  | Number of Non-Detects   | 20                                 |
|  | <u>^</u>   |   | 4 5                                |
| Specifically, sample mean, UCLs, UPLs, and   | other statist  | Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | (NDs), there<br>other statist  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!   | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | (NDs), there<br>other statist  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | (NDs), there<br>other statist  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C  | (NDs), there<br>other statist  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C  | (NDs), there<br>other statist  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C  | (NDs), there<br>other statist<br>e specific val  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!  | 15                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C  | (NDs), there<br>other statist<br>e specific val<br>c (soil   isoph   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!  |                                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C  | (NDs), there<br>other statist<br>e specific val<br>c (soil   isoph   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations   | 18                                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>Total Number of Observations   | (NDs), there<br>other statist<br>a specific val<br>c (soil   isoph<br>General s<br>20  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations   | 18 0                               |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>Total Number of Observations<br>Minimum  | (NDs), there<br>other statist<br>e specific val<br>c (soil   isoph<br>General S<br>20<br>7.2   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean   | 18<br>0<br>15.76<br>12.73          |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>C (soil   lead   7439-92-1)<br>Total Number of Observations<br>Minimum<br>Maximum  | (NDs), there<br>other statist<br>a specific val<br>c (soil   isoph<br>c (soil   isoph<br>20<br>7.2<br>64.63  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median   | 18<br>0<br>15.76                   |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD   | (NDs), there<br>other statistic<br>e specific val<br>c (soil   isoph<br>c  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Std. Error of Mean   | 18<br>0<br>15.76<br>12.73<br>2.758 |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative site         The data set for variable C         (soil   lead   7439-92-1)         Total Number of Observations         Minimum         Maximum         SD         Coefficient of Variation  | (NDs), there<br>other statistic<br>e specific val<br>c (soil   isoph<br>c  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness   | 18<br>0<br>15.76<br>12.73<br>2.758 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD<br>Coefficient of Variation   | (NDs), there<br>other statistic<br>e specific val<br>c (soil   isoph<br>c  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>horone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Std. Error of Mean<br>Std. Error of Mean<br>Stkewness  | 18<br>0<br>15.76<br>12.73<br>2.758 |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative site         The data set for variable C         (soil   lead   7439-92-1)         Total Number of Observations         Minimum         Maximum         SD         Coefficient of Variation  | (NDs), there<br>other statistic<br>e specific val<br>c (soil   isoph<br>c  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Std. Error of Mean<br>Skewness<br>GOF Test<br>Data Not Normal at 1% Significance Level | 18<br>0<br>15.76<br>12.73<br>2.758 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C<br>(soil   lead   7439-92-1)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD<br>Coefficient of Variation   | (NDs), there<br>other statistic<br>e specific val<br>c (soil   isoph<br>c  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>horone   78-59-1) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Std. Error of Mean<br>Std. Error of Mean<br>Std. Error of Mean<br>Skewness                           | 18<br>0<br>15.76<br>12.73<br>2.758 |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative site         The data set for variable C         (soil   lead   7439-92-1)         Total Number of Observations         Minimum         Maximum         SD         Coefficient of Variation         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value | (NDs), there<br>other statist<br>e specific val<br>c (soil   isoph<br>c (s | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>norone   78-59-1) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Std. Error of Mean<br>Skewness<br>GOF Test<br>Data Not Normal at 1% Significance Level | 18<br>0<br>15.76<br>12.73<br>2.758 |

| 95% Normal UCL  | suming Normal I  | 95% UCLs (Adjusted for Skewness)  |          |
|---|--|---|----------|
| 95% Student's-t UCL   | 20.53  | 95% Adjusted-CLT UCL (Chen-1995)  | 22.68    |
|   | 20.00  | 95% Modified-t UCL (Johnson-1978)   | 20.9     |
|   |  | L   |          |
|   | Gamma GOF  |   |          |
| A-D Test Statistic  | 1.737  | Anderson-Darling Gamma GOF Test   |          |
| 5% A-D Critical Value   | 0.746  | Data Not Gamma Distributed at 5% Significance Leve  | el       |
| K-S Test Statistic  | 0.296  | Kolmogorov-Smirnov Gamma GOF Test   |          |
| 5% K-S Critical Value   | 0.195  | Data Not Gamma Distributed at 5% Significance Level 5% Significance Level   | el       |
|   |  |   |          |
|   | Gamma Stat   | istics  |          |
| k hat (MLE)   | 3.605  | k star (bias corrected MLE)   | 3.09     |
| Theta hat (MLE)   | 4.371  | Theta star (bias corrected MLE)   | 5.08     |
| nu hat (MLE)  | 144.2  | nu star (bias corrected)  | 123.9    |
| MLE Mean (bias corrected)   | 15.76  | MLE Sd (bias corrected)   | 8.9      |
|   |  | Approximate Chi Square Value (0.05)   | 99.2     |
| Adjusted Level of Significance  | 0.038  | Adjusted Chi Square Value   | 97.4     |
| A   |  | Distribution  |          |
| Ass<br>95% Approximate Gamma UCL  | uming Gamma  | Distribution<br>95% Adjusted Gamma UCL  | 20.0     |
|   | 19.09  |   | 20.0     |
|   | Lognormal GC   | E Toet  |          |
| Shapiro Wilk Test Statistic   | 0.828  | Shapiro Wilk Lognormal GOF Test   |          |
| 10% Shapiro Wilk Critical Value   | 0.92   | Data Not Lognormal at 10% Significance Level  |          |
| Lilliefors Test Statistic   | 0.244  | Lilliefors Lognormal GOF Test   |          |
| 10% Lilliefors Critical Value   | 0.176  | Data Not Lognormal at 10% Significance Level  |          |
|   |  | Significance Level  |          |
|   |  |   |          |
|   | Lognormal Sta  |   |          |
| Minimum of Logged Data  | 1.974  | Mean of logged Data   | 2.6      |
| Maximum of Logged Data  | 4.169  | SD of logged Data   | 0.4      |
|   |  |   |          |
| Assu  | iming Lognorma   | Distribution  |          |
| Assu<br>95% H-UCL   | ming Lognorma  | Distribution<br>90% Chebyshev (MVUE) UCL  | 20.2     |
|   |  |   |          |
| 95% H-UCL   | 19.01  | 90% Chebyshev (MVUE) UCL  |          |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL   | 19.01       22.48       31.83  | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL  |          |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame  | 19.01<br>22.48<br>31.83  | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL  |          |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame  | 19.01<br>22.48<br>31.83  | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL  | 20.2     |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame<br>Data do no  | 19.01<br>22.48<br>31.83  | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution   |          |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame<br>Data do no  | 19.01<br>22.48<br>31.83<br>tric Distribution I<br>ot follow a Disce                                      | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution   | 25.6     |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame<br>Data do no<br>Nonpar  | 19.01<br>22.48<br>31.83<br>tric Distribution I<br>ot follow a Disce                                      | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution   | 25.6     |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame<br>Data do no<br>Nonpara<br>95% CLT UCL                              | 19.01<br>22.48<br>31.83<br>tric Distribution I<br>ot follow a Disce<br>ametric Distribut<br>20.3         | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution<br>tion Free UCLs<br>95% BCA Bootstrap UCL                        | 25.6<br> |
| 95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparame<br>Data do no<br>Nonpar<br>95% CLT UCL<br>95% Standard Bootstrap UCL | 19.01<br>22.48<br>31.83<br>tric Distribution I<br>ot follow a Disce<br>ametric Distribut<br>20.3<br>20.2 | 90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution<br>tion Free UCLs<br>95% BCA Bootstrap UCL<br>95% Bootstrap-t UCL |          |

|  | Suggested UCI                            | . to Use  |   |
|--|--|---|---|
| 95% Student's-t UCL  | 20.53                                    |   |   |
| Network Commenting the selection of a OFO  |  |   |   |
|  |  | led to help the user to select the most appropriate 95% UCL.  | •   |
|  |  | n, and skewness using results from simulation studies.  |   |
| However, simulations results will not cover all Real W   | orld data sets; f                        | or additional insight the user may want to consult a statisticia  | an.   |
|  |  |   |   |
| I   manganese   7439-96-5)   |  |   |   |
|  | General Stat                             | istics  |   |
| Total Number of Observations   | 20                                       | Number of Distinct Observations   | 20  |
|  |  | Number of Missing Observations  | 0   |
| Minimum  | 61                                       | Mean  | 292.1   |
| Maximum  | 2700                                     | Median  | 130   |
| SD   | 580                                      | Std. Error of Mean  | 129.7   |
| Coefficient of Variation   | 1.986                                    | Skewness  | 4.1   |
|  | Normal GOF                               | Test  |   |
| Shapiro Wilk Test Statistic  | 0.377                                    | Shapiro Wilk GOF Test   |   |
| 1% Shapiro Wilk Critical Value   | 0.868                                    | Data Not Normal at 1% Significance Level  |   |
| Lilliefors Test Statistic  | 0.42                                     | Lilliefors GOF Test   |   |
| 1% Lilliefors Critical Value   | 0.223                                    | Data Not Normal at 1% Significance Level  |   |
| 95% Normal UCL   |  | 95% UCLs (Adjusted for Skewness)  |   |
|  |  |   |   |
| 95% Student's-t UCL  | 516.3                                    | 95% Adjusted-CLT UCL (Chen-1995)  | 634.6   |
|  |  | 95% Modified-t UCL (Johnson-1978)   | 536.5   |
|  | Gamma GOF                                | Test  |   |
| A-D Test Statistic   | 2.666                                    | Anderson-Darling Gamma GOF Test   |   |
| 5% A-D Critical Value  | 0.769                                    | Data Not Gamma Distributed at 5% Significance Leve  | el  |
| K-S Test Statistic   | 0.305                                    | Kolmogorov-Smirnov Gamma GOF Test   |   |
| 5% K-S Critical Value  | 0.2                                      | Data Not Gamma Distributed at 5% Significance Leve  | əl  |
| Data Not Gamm  | na Distributed at                        | 5% Significance Level   |   |
|  | Gamma Stat                               | istics  |   |
|  | 0.978                                    | k star (bias corrected MLE)   | 0.8   |
| k hat (MLE)  | 0.978                                    |   |   |
| k hat (MLE)<br>Theta hat (MLE)   | 298.8                                    | Theta star (bias corrected MLE)   | 337.9   |
|  |  | Theta star (bias corrected MLE)<br>nu star (bias corrected)   |   |
| Theta hat (MLE)  | 298.8                                    |   | 34.5  |
| Theta hat (MLE)<br>nu hat (MLE)  | 298.8<br>39.1                            | nu star (bias corrected)  | 34.5<br>314.2                                   |
| Theta hat (MLE)<br>nu hat (MLE)  | 298.8<br>39.1                            | nu star (bias corrected)<br>MLE Sd (bias corrected)   | 34.5<br>314.2<br>22.1                           |
| Theta hat (MLE)<br>nu hat (MLE)<br>MLE Mean (bias corrected)<br>Adjusted Level of Significance | 298.8       39.1       292.1       0.038 | nu star (bias corrected)<br>MLE Sd (bias corrected)<br>Approximate Chi Square Value (0.05)<br>Adjusted Chi Square Value                 | 34.5<br>314.2<br>22.1                           |
| Theta hat (MLE)<br>nu hat (MLE)<br>MLE Mean (bias corrected)<br>Adjusted Level of Significance | 298.8       39.1       292.1             | nu star (bias corrected)<br>MLE Sd (bias corrected)<br>Approximate Chi Square Value (0.05)<br>Adjusted Chi Square Value                 | 337.9<br>34.5<br>314.2<br>22.1<br>21.3<br>473.3 |
| Theta hat (MLE)<br>nu hat (MLE)<br>MLE Mean (bias corrected)<br>Adjusted Level of Significance | 298.8<br>39.1<br>292.1<br>0.038          | nu star (bias corrected)<br>MLE Sd (bias corrected)<br>Approximate Chi Square Value (0.05)<br>Adjusted Chi Square Value<br>Distribution | 34.5<br>314.2<br>22.1<br>21.3                   |

|  | 0.803   | Shapiro Wilk Lognormal GOF Test  |                                   |
|--|---|--|-----------------------------------|
| 10% Shapiro Wilk Critical Value  | 0.92  | Data Not Lognormal at 10% Significance Level   |                                   |
| Lilliefors Test Statistic  | 0.2   | Lilliefors Lognormal GOF Test  |                                   |
| 10% Lilliefors Critical Value  | 0.176   | Data Not Lognormal at 10% Significance Level   |                                   |
| Data Not Lo  | gnormal at 10%  | Significance Level   |                                   |
|  | Lognormal Stat  | tistics  |                                   |
| Minimum of Logged Data   | 4.111   | Mean of logged Data  | 5.085                             |
| Maximum of Logged Data   | 7.901   | SD of logged Data  | 0.854                             |
| ۵۶۵  | ming Lognormal  | Distribution   |                                   |
| 95% H-UCL  | 374.7   | 90% Chebyshev (MVUE) UCL   | 369.6                             |
| 95% Chebyshev (MVUE) UCL   | 434.1   | 97.5% Chebyshev (MVUE) UCL   | 523.6                             |
| 99% Chebyshev (MVUE) UCL   | 699.4   |  | 020.0                             |
|  |   |  |                                   |
| -  |   | ree UCL Statistics nible Distribution  |                                   |
|  |   |  |                                   |
| -  | ametric Distributi  |  | 005.0                             |
| 95% CLT UCL  | 505.4   | 95% BCA Bootstrap UCL  | 685.2                             |
| 95% Standard Bootstrap UCL   | 499   | 95% Bootstrap-t UCL  | 1892                              |
| 95% Hall's Bootstrap UCL   | 1464  | 95% Percentile Bootstrap UCL   | 538.5                             |
| 90% Chebyshev(Mean, Sd) UCL  | 681.1   | 95% Chebyshev(Mean, Sd) UCL  | 857.3                             |
| 97.5% Chebyshev(Mean, Sd) UCL  | 1102  | 99% Chebyshev(Mean, Sd) UCL  | 1582                              |
|  |   |  |                                   |
|  | Suggested UCL   | to Use   |                                   |
| 95% Student's-t UCL  | Suggested UCL     516.3   | to Use   |                                   |
| 95% Student's-t UCL  | 516.3   |  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio  | 516.3   | were collected in a random and unbiased manner.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da  | 516.3<br>Ins that the data  | were collected in a random and unbiased manner.<br>d from random locations.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the data<br>If the data were collected o  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta  | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the data<br>If the data were collected o  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta  | were collected in a random and unbiased manner.<br>d from random locations.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s   | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%   | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide  | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statisticia  |                                   |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected u<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo  | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution<br>orld data sets; fo                   | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>stics<br>Number of Distinct Observations   | an.<br>18                         |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>c (soil   mercury   7439-97-6)   | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution<br>orld data sets; fo<br>General Statis | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>ar additional insight the user may want to consult a statistician<br>stics  | an.                               |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>c (soil   mercury   7439-97-6)   | 516.3<br>Ins that the data<br>ata were collecte<br>using judgmenta<br>tatistician to corr<br>UCL are provide<br>data distribution<br>orld data sets; fo<br>General Statis | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>stics<br>Number of Distinct Observations   | an.<br>18<br>0                    |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>s (soil   mercury   7439-97-6)<br>Total Number of Observations                       | 516.3 Ins that the data ata were collecte using judgmenta tatistician to corr UCL are provide data distribution orld data sets; fo General Statis 20                      | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>ar additional insight the user may want to consult a statisticia<br>stics<br>Number of Distinct Observations<br>Number of Missing Observations                    | an.<br>18<br>0<br>0.037           |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>c (soil   mercury   7439-97-6)<br>Total Number of Observations<br>Minimum            | 516.3  Ins that the data ata were collecte using judgmenta tatistician to corr UCL are provide data distribution orld data sets; fo General Statis 20 0.011               | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statisticia<br>stics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean            | an.<br>18<br>0<br>0.0370<br>0.029 |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumptio<br>Please verify the da<br>If the data were collected of<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>s (soil   mercury   7439-97-6)<br>Total Number of Observations<br>Minimum<br>Maximum | 516.3 Ins that the data ata were collecte using judgmenta tatistician to corr UCL are provide data distribution orld data sets; fo General Statis 20 0.011 0.16           | were collected in a random and unbiased manner.<br>d from random locations.<br>I or other non-random methods,<br>rectly calculate UCLs.<br>ed to help the user to select the most appropriate 95% UCL<br>a, and skewness using results from simulation studies.<br>ar additional insight the user may want to consult a statistician<br>stics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median | an.<br>18<br>0<br>0.0370          |

| 1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value | 0.667<br>0.868<br>0.269<br>0.223 | Shapiro Wilk GOF Test Data Not Normal at 1% Significance Level Lilliefors GOF Test |         |
|---|----------------------------------|--|---------|
| Lilliefors Test Statistic 1% Lilliefors Critical Value                                      | 0.269<br>0.223                   |  |         |
| 1% Lilliefors Critical Value  | 0.223                            |  |         |
|   |                                  | Data Not Normal at 1% Significance Level   |         |
|   | rmal at 1%                       | 6 Significance Level   |         |
|   |                                  |  |         |
| Assum   | ning Norm                        | al Distribution  |         |
| 95% Normal UCL  | -                                | 95% UCLs (Adjusted for Skewness)   |         |
| 95% Student's-t UCL   | 0.0503                           | 95% Adjusted-CLT UCL (Chen-1995)   | 0.0549  |
|   |                                  | 95% Modified-t UCL (Johnson-1978)  | 0.0511  |
|   | Commo ()                         |  |         |
| · · · · · · · · · · · · · · · · · · ·   | Gamma G<br>0.628                 |  |         |
|   |                                  | Anderson-Darling Gamma GOF Test  |         |
|   | 0.751                            | Detected data appear Gamma Distributed at 5% Significanc                           | e Level |
|   | 0.189                            | Kolmogorov-Smirnov Gamma GOF Test  | - 11    |
|   | 0.196                            | Detected data appear Gamma Distributed at 5% Significance                          | e Level |
|   | imma Dist                        | ributed at 5% Significance Level   |         |
|   | Gamma S                          | itatistics   |         |
| k hat (MLE)   | 2.375                            | k star (bias corrected MLE)  | 2.052   |
| Theta hat (MLE)   | 0.0158                           | Theta star (bias corrected MLE)  | 0.0183  |
| nu hat (MLE)  | 94.98                            | nu star (bias corrected)   | 82.07   |
| MLE Mean (bias corrected)   | 0.0376                           | MLE Sd (bias corrected)  | 0.0262  |
| I   |                                  | Approximate Chi Square Value (0.05)  | 62.19   |
| Adjusted Level of Significance  | 0.038                            | Adjusted Chi Square Value  | 60.83   |
|   |                                  | <b>N</b>   |         |
|   | -                                | na Distribution 95% Adjusted Gamma UCL   | 0.0507  |
| 95% Approximate Gamma UCL   | 0.0496                           | 95% Adjusted Gamma UCL   | 0.0507  |
| Lc  | ognormal                         | GOF Test   |         |
| Shapiro Wilk Test Statistic   | 0.959                            | Shapiro Wilk Lognormal GOF Test  |         |
| 10% Shapiro Wilk Critical Value   | 0.92                             | Data appear Lognormal at 10% Significance Level                                    |         |
| Lilliefors Test Statistic   | 0.138                            | Lilliefors Lognormal GOF Test  |         |
| 10% Lilliefors Critical Value   | 0.176                            | Data appear Lognormal at 10% Significance Level                                    |         |
| Data appear Log   | normal at                        | 10% Significance Level   |         |
|   | ognormal                         | Statistics   |         |
|   | 4.51                             | Mean of logged Data  | -3.506  |
|   | 1.833                            | SD of logged Data  | 0.64    |
|   |                                  |  |         |
|   |                                  | mal Distribution   |         |
|   | 0.0506                           | 90% Chebyshev (MVUE) UCL   | 0.0529  |
|   | 0.0604                           | 97.5% Chebyshev (MVUE) UCL   | 0.0708  |
| 99% Chebyshev (MVUE) UCL  | 0.0912                           |  |         |
| Nonparametric   | Distributio                      | on Free UCL Statistics   |         |
|   |                                  | Discernible Distribution   |         |
|   |                                  |  |         |
| Nonparame   | etric Distri                     | ibution Free UCLs  |         |

| A-D Test Statistic  | 0.514                  | Anderson-Darling GOF Test  |         |
|---|------------------------|--|---------|
| Gamma GOF   | lests on Detect        | ed Observations Only   |         |
|   |                        |  |         |
| 97.5% KM Chebyshev UCL                                      | 0.872                  | 99% KM Chebyshev UCL   | 1.302   |
| 90% KM Chebyshev UCL  | 0.495                  | 95% KM Chebyshev UCL   | 0.653   |
| 95% KM (z) UCL  | 0.338                  | 95% KM Bootstrap t UCL   | N/A     |
| 95% KM (t) UCL  | 0.357                  | 95% KM (Percentile Bootstrap) UCL  | N/A     |
| 90KM SD   | 0.314                  | 95% KM (BCA) UCL   | N/A     |
| KM Mean   | 0.147                  | KM Standard Error of Mean  | 0.116   |
| Kaplan-Meier (KM) Statistics using                          | g Normal Critica       | I Values and other Nonparametric UCLs  |         |
|   |                        | le for small sample sizes  |         |
|   |                        | t 1% Significance Level  |         |
| 1% Lilliefors Critical Value                                | 0.201                  | Detected Data appear Normal at 1% Significance Leve  | ما      |
| 1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | 0.753                  | Lilliefors GOF Test  | el      |
| Shapiro Wilk Test Statistic                                 | 0.957                  | Shapiro Wilk GOF Test Detected Data appear Normal at 1% Significance Leve  |         |
|   | al GOF Test on         | -  |         |
|   |                        | Detects Only   |         |
| -   |                        | or reliable statistics and estimates.  |         |
|   | ata set has only       | 3 Detected Values.   |         |
| Mean of Logged Detects                                      | -1.993                 | SD of Logged Detects   | 3.04    |
| Skewness Detects  | -1.012                 | Kurtosis Detects   | N/A     |
| Median Detects  | 0.65                   | CV Detects   | 0.904   |
| Mean Detects  | 0.535                  | SD Detects   | 0.483   |
| Variance Detects  | 0.234                  | Percent Non-Detects  | 72.73   |
| Maximum Detect  | 0.95                   | Maximum Non-Detect   | 0.0019  |
| Minimum Detect  | 0.0041                 | Minimum Non-Detect   | 0.0013  |
| Number of Distinct Detects                                  | 3                      | Number of Distinct Non-Detects   | •<br>5  |
| Number of Detects   | 3                      | Number of Distinct Observations Number of Non-Detects  | 8       |
| Total Number of Observations                                | General Stat           | istics<br>Number of Distinct Observations  | 8       |
|   | Conord Ot-             | liation  |         |
| C (soil   methyl acetate   79-20-9)                         |                        |  |         |
|   |                        | in, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia | <u></u> |
|   |                        | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.       | •       |
| Note: Suggestions regarding the collection of a 05%         |                        | ded to help the user to calent the most appropriate 05% LICL   |         |
| 95% Adjusted Gamma UCL                                      | Suggested UC<br>0.0507 | L to Use   |         |
|   |                        |  |         |
| 97.5% Chebyshev(Mean, Sd) UCL                               | 0.0835                 | 99% Chebyshev(Mean, Sd) UCL  | 0.111   |
| 90% Chebyshev(Mean, Sd) UCL                                 | 0.0596                 | 95% Chebyshev(Mean, Sd) UCL  | 0.069   |
| 95% Standard Dootstrap UCL<br>95% Hall's Bootstrap UCL      | 0.102                  | 95% Percentile Bootstrap UCL   | 0.003   |
| 95% CLT UCL<br>95% Standard Bootstrap UCL                   | 0.0497                 | 95% BCA Bootstrap UCL<br>95% Bootstrap-t UCL   | 0.056   |

| 5% A-D Critical Value                         | 0.654              | Detected data appear Gamma Distributed at 5% Significant         | ce Level |
|---|--------------------|--|----------|
| K-S Test Statistic                            | 0.4                | Kolmogorov-Smirnov GOF   |          |
| 5% K-S Critical Value                         | 0.45               | Detected data appear Gamma Distributed at 5% Significant         | ce Level |
| Detected Data Not C                           | amma Distr         | ibuted at 5% Significance Level                                  |          |
|   |                    |  |          |
|   |                    | Detected Data Only   |          |
| k hat (MLE)                                   | 0.469              | k star (bias corrected MLE)                                      | N/A      |
| Theta hat (MLE)                               | 1.139              | Theta star (bias corrected MLE)                                  | N/A      |
| nu hat (MLE)                                  | 2.816              | nu star (bias corrected)   | N/A      |
| Mean (detects)                                | 0.535              |  |          |
| Gamma ROS                                     | Statistics us      | sing Imputed Non-Detects   |          |
| GROS may not be used when data s              | et has > 50%       | 6 NDs with many tied observations at multiple DLs                |          |
| GROS may not be used when kstar of detects is | small such a       | s <1.0, especially when the sample size is small (e.g., <15-20)  |          |
| For such situations, GROS                     | method may         | yield incorrect values of UCLs and BTVs                          |          |
| This is especi                                | ally true whe      | en the sample size is small.                                     |          |
| For gamma distributed detected data, BTVs a   | ind UCLs ma        | ay be computed using gamma distribution on KM estimates          |          |
| Minimum                                       | 0.0041             | Mean   | 0.153    |
| Maximum                                       | 0.95               | Median   | 0.01     |
| SD  | 0.327              | CV   | 2.135    |
| k hat (MLE)                                   | 0.336              | k star (bias corrected MLE)                                      | 0.305    |
| Theta hat (MLE)                               | 0.456              | Theta star (bias corrected MLE)                                  | 0.502    |
| nu hat (MLE)                                  | 7.388              | nu star (bias corrected)   | 6.706    |
| Adjusted Level of Significance (β)            | 0.0278             |  |          |
| Approximate Chi Square Value (6.71, α)        | 2.011              | Adjusted Chi Square Value (6.71, β)                              | 1.619    |
| 95% Gamma Approximate UCL                     | 0.511              | 95% Gamma Adjusted UCL   | N/A      |
| Estimates of Ga                               | amma Parar         | neters using KM Estimates  |          |
| Mean (KM)                                     | 0.147              | SD (KM)  | 0.314    |
| Variance (KM)                                 | 0.0989             | SE of Mean (KM)  | 0.116    |
| k hat (KM)                                    | 0.218              | k star (KM)  | 0.219    |
| nu hat (KM)                                   | 4.793              | nu star (KM)   | 4.819    |
| theta hat (KM)                                | 0.674              | theta star (KM)  | 0.67     |
| 80% gamma percentile (KM)                     | 0.202              | 90% gamma percentile (KM)  | 0.444    |
| 95% gamma percentile (KM)                     | 0.738              | 99% gamma percentile (KM)  | 1.537    |
|   |                    |  |          |
|   |                    | eier (KM) Statistics   | 0.014    |
| Approximate Chi Square Value (4.82, α)        | 1.07<br>0.661      | Adjusted Chi Square Value (4.82, β)<br>95% KM Adjusted Gamma UCL | 0.814    |
| 95% KM Approximate Gamma UCL                  | 100.0              | 95% KM Adjusted Gamma UCL  | 0.009    |
|   |                    | etected Observations Only  |          |
| Shapiro Wilk Test Statistic                   | 0.802              | Shapiro Wilk GOF Test  |          |
| 10% Shapiro Wilk Critical Value               | 0.789              | Detected Data appear Lognormal at 10% Significance L             | evel     |
| Lilliefors Test Statistic                     | 0.363              | Lilliefors GOF Test  |          |
| 10% Lilliefors Critical Value                 | 0.389              | Detected Data appear Lognormal at 10% Significance L             | evel     |
| Detected Data app                             | pear Lognor        | nal at 10% Significance Level                                    |          |
| Note GOF tests                                | <b>nay be unre</b> | liable for small sample sizes                                    |          |
| Lognormal ROS                                 | S Statistics L     | Jsing Imputed Non-Detects  |          |
| Logiomaritov                                  |                    |  |          |

| Mean in Original Scale                               | 0.146          | Mean in Log Scale  | -10.39  |
|--|----------------|--|---------|
| SD in Original Scale                                 | 0.33           | SD in Log Scale  | 5.946   |
| 95% t UCL (assumes normality of ROS data)            | 0.326          | 95% Percentile Bootstrap UCL   | 0.319   |
| 95% BCA Bootstrap UCL                                | 0.378          | 95% Bootstrap t UCL  | 39.08   |
| 95% H-UCL (Log ROS)                                  | 1.131E+15      |  |         |
| Statistics using KM catimates a                      |                | ate and Assuming Lagranmal Distribution  |         |
| KM Mean (logged)                                     | -5.358         | ata and Assuming Lognormal Distribution KM Geo Mean  | 0.00471 |
| Kin Mean (logged)<br>KM SD (logged)                  | 2.435          | 95% Critical H Value (KM-Log)  | 6.159   |
| KM Standard Error of Mean (logged)                   | 0.899          | 95% Childar H Valde (KW-Log)<br>95% H-UCL (KM -Log)  | 10.46   |
| KW Standard Error of Mean (logged)<br>KM SD (logged) | 2.435          | 95% Critical H Value (KM-Log)  | 6.159   |
| KM Standard Error of Mean (logged)                   | 0.899          |  | 0.159   |
|  | 0.899          |  |         |
|  | DL/2 S         | tatistics  |         |
| DL/2 Normal  |                | DL/2 Log-Transformed   |         |
| Mean in Original Scale                               | 0.146          | Mean in Log Scale  | -5.689  |
| SD in Original Scale                                 | 0.33           | SD in Log Scale  | 2.737   |
| 95% t UCL (Assumes normality)                        | 0.327          | 95% H-Stat UCL   | 54.76   |
| DL/2 is not a recommended me                         | thod, provid   | ed for comparisons and historical reasons  |         |
| Nonparame  | tric Dietribut | ion Free UCL Statistics  |         |
|  |                | tributed at 1% Significance Level  |         |
|  |                |  |         |
|  | Suggested      | UCL to Use   |         |
| 95% KM (t) UCL                                       | 0.357          |  |         |
| Recommendations are based upon data size             | , data distrib | rovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia |         |
| C (soil   methyl tert-butyl ether   1634-04-4)       |                |  |         |
|  | General        | Statistics   |         |
| Total Number of Observations                         | 11             | Number of Distinct Observations  | 11      |
| Number of Detects                                    | 0              | Number of Non-Detects  | 11      |
| Number of Distinct Detects                           | 0              | Number of Distinct Non-Detects   | 11      |
|  | 0              |  |         |
| Warning: All observations are Non-Detects            | (NDs), there   | efore all statistics and estimates should also be NDs!   |         |
|  | · · ·          | ics are also NDs lying below the largest detection limit!  |         |
|  |                | lues to estimate environmental parameters (e.g., EPC, BTV).  |         |
|  |                |  |         |
| The data set for variable C (soil                    | methyl tert-   | outyl ether   1634-04-4) was not processed!  |         |
|  |                |  |         |
|  |                |  |         |
| C (soil   methylcyclohexane   108-87-2)              |                |  |         |
|  |                |  |         |
|  | General        |  |         |
| Total Number of Observations                         | 11             | Number of Distinct Observations  | 8       |
| Number of Detects                                    | 2              | Number of Non-Detects  |         |

| Number of Distinct Detects             | 2              | Number of Distinct Non-Detects                         | 6      |  |
|--|----------------|--|--------|--|
| Minimum Detect                         | 5.3            | Minimum Non-Detect                                     |        |  |
| Maximum Detect                         | 22             | Maximum Non-Detect                                     | 0.0019 |  |
| Variance Detects                       | 139.4          | Percent Non-Detects                                    | 81.82% |  |
| Mean Detects                           | 13.65          | SD Detects   | 11.81  |  |
| Median Detects                         | 13.65          | CV Detects   | 0.865  |  |
| Skewness Detects                       | N/A            | Kurtosis Detects                                       | N/A    |  |
| Mean of Logged Detects                 | 2.379          | SD of Logged Detects                                   | 1.006  |  |
|  | 2.379          | SD of Logged Delects                                   | 1.000  |  |
| Warning: D                             | ata set has o  | only 2 Detected Values.                                |        |  |
| -                                      |                | ful or reliable statistics and estimates.              |        |  |
|  | •              |  |        |  |
|  |                |  |        |  |
| Norm                                   | al GOF Tes     | t on Detects Only                                      |        |  |
| Not End                                | ough Data to   | Perform GOF Test                                       |        |  |
|  |                |  |        |  |
|  | -              | itical Values and other Nonparametric UCLs             |        |  |
| KM Mean                                | 2.482          | KM Standard Error of Mean                              | 2.71   |  |
| 90KM SD                                | 6.355          | 95% KM (BCA) UCL                                       | N/A    |  |
| 95% KM (t) UCL                         | 7.394          | 95% KM (Percentile Bootstrap) UCL                      | N/A    |  |
| 95% KM (z) UCL                         | 6.94           | 95% KM Bootstrap t UCL                                 | N/A    |  |
| 90% KM Chebyshev UCL                   | 10.61          | 95% KM Chebyshev UCL                                   | 14.29  |  |
| 97.5% KM Chebyshev UCL                 | 19.41          | 99% KM Chebyshev UCL                                   | 29.45  |  |
|  |                |  |        |  |
|  |                | etected Observations Only                              |        |  |
| Not End                                | ough Data to   | Perform GOF Test                                       |        |  |
|  |                |  |        |  |
|  |                | Detected Data Only                                     |        |  |
| k hat (MLE)                            | 2.286          | k star (bias corrected MLE)                            | N/A    |  |
| Theta hat (MLE)                        |                | Theta star (bias corrected MLE)                        | N/A    |  |
| nu hat (MLE)                           | 9.145          | nu star (bias corrected)                               | N/A    |  |
| Mean (detects)                         | 13.65          |  |        |  |
| Entimates of O                         | ommo Doros     | meters using KM Estimates                              |        |  |
| Mean (KM)                              | 2.482          | SD (KM)  | 6.355  |  |
| Variance (KM)                          | 40.39          | SE of Mean (KM)  | 2.71   |  |
| k hat (KM)                             | 40.39<br>0.153 | k star (KM)  | 0.172  |  |
| nu hat (KM)                            | 3.356          | nu star (KM)   | 3.774  |  |
| theta hat (KM)                         | 16.27          | theta star (KM)  | 14.47  |  |
| 80% gamma percentile (KM)              |                | 90% gamma percentile (KM)                              | 7.465  |  |
| 95% gamma percentile (KM)              | 2.986<br>13.28 | 90% gamma percentile (KM)<br>99% gamma percentile (KM) | 29.72  |  |
| 95 /o gamma percentile (KM)            | 13.20          | 55 % gamma percenule (KNI)                             | 23.12  |  |
| Camm                                   | a Kanlan-M     | eier (KM) Statistics                                   |        |  |
|  |                | Adjusted Level of Significance (β)                     | 0.0278 |  |
| Approximate Chi Square Value (3.77, α) | 0.635          | Adjusted Chi Square Value (3.77, β)                    | 0.461  |  |
| 95% KM Approximate Gamma UCL           | 14.76          | 95% KM Adjusted Gamma UCL                              | 20.34  |  |
|  | 17.70          |  | 20.04  |  |
|  | F Test on D    | etected Observations Only                              |        |  |
| -                                      |                | -  |        |  |
| Not Enough Data to Perform GOF Test    |                |  |        |  |

| Lognormal RO   | S Statistics I  | Jsing Imputed Non-Detects  |  |
|--|---|--|--|
| Mean in Original Scale   |   | Mean in Log Scale  | -2.51  |
| SD in Original Scale   |   | SD in Log Scale  | 2.68   |
| 95% t UCL (assumes normality of ROS data)  |   | 95% Percentile Bootstrap UCL   | 6.06   |
| 95% BCA Bootstrap UCL  |   | 95% Bootstrap t UCL  | 295.1  |
| 95% H-UCL (Log ROS)  |   |  |  |
| Statistics using KM estimates  | on Loaged D   | ata and Assuming Lognormal Distribution  |  |
| KM Mean (logged)   |   | KM Geo Mean  | 0.004  |
| KM SD (logged)   |   | 95% Critical H Value (KM-Log)  | 9.19   |
| KM Standard Error of Mean (logged)   |   | 95% H-UCL (KM -Log)  |  |
| KM SD (logged)   |   | 95% Critical H Value (KM-Log)  | 9.19   |
| KM Standard Error of Mean (logged)   |   |  |  |
|  | DL/2 S  | tatistics  |  |
| DL/2 Normal  |   | DL/2 Log-Transformed   |  |
| Mean in Original Scale   | 2.482   | Mean in Log Scale  | -5.40  |
| SD in Original Scale   | 6.666   | SD in Log Scale  | 3.8  |
| 95% t UCL (Assumes normality)  | 6.125   | 95% H-Stat UCL   | 971043   |
|  |   | ed for comparisons and historical reasons  |  |
|  |   |  |  |
|  | Suggested   | UCL to Use   |  |
| 95% KM (t) UCL   |   | UCL to Use   |  |
|  | 7.394   | UCL to Use   |  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 7.394<br>% UCL are pr   | rovided to help the user to select the most appropriate 95% UCI ution, and skewness using results from simulation studies.   |  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 7.394<br>% UCL are pr   | rovided to help the user to select the most appropriate 95% UCI  |  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 7.394<br>% UCL are pr   | rovided to help the user to select the most appropriate 95% UCI ution, and skewness using results from simulation studies.   |  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 7.394<br>% UCL are pr<br>e, data distrib<br>Vorld data se   | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici  |  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 7.394<br>% UCL are pr<br>e, data distrib<br>Vorld data se<br>General  | rovided to help the user to select the most appropriate 95% UCI<br>oution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici  | an.  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations  | 7.394<br>% UCL are pr<br>e, data distrib<br>Vorld data se<br>General<br>11  | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>its; for additional insight the user may want to consult a statistici<br>Statistics   | an.  |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects   | 7.394<br>% UCL are pr<br>e, data distrib<br>Vorld data se<br>General<br>11<br>3   | rovided to help the user to select the most appropriate 95% UCI<br>oution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | an.  |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | 7.394<br>% UCL are provided the formation of the formation   | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>its; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 9<br>8<br>6  |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | 7.394<br>7.394<br>% UCL are provided the second | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>tts; for additional insight the user may want to consult a statistici<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect   | an.<br>9<br>8<br>6<br>5.6000   |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data se<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4  | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect   | 9<br>8<br>6<br>5.6000<br>1.6   |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects  | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data se<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9   | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>tts; for additional insight the user may want to consult a statistici<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect   | 9<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7                            |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Variance Detects<br>Mean Detects  | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data second<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9<br>6.6333E-4  | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects  | an.<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7<br>3.7859                |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Mean Detects<br>Median Detects  | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distribit<br>Vorld data second<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9<br>6.6333E-4<br>6.8000E-4   | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects  | 9<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7<br>3.7859<br>0.05          |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Variance Detects<br>Mean Detects  | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data second<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9<br>6.6333E-4<br>6.8000E-4<br>-1.597   | rovided to help the user to select the most appropriate 95% UCI<br>ution, and skewness using results from simulation studies.<br>Its; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects  | 9<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7                            |
| Note: Suggestions regarding the selection of a 959<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  methylene chloride   75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data second<br>Ceneral<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9<br>6.6333E-4<br>6.8000E-4<br>-1.597<br>-7.319   | rovided to help the user to select the most appropriate 95% UCI         ution, and skewness using results from simulation studies.         tts; for additional insight the user may want to consult a statistici         Statistics         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Maximum Non-Detects         SD Detects         CV Detects         Kurtosis Detects         SD of Logged Detects | an.<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7<br>3.7859<br>0.05<br>N/A |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>methylene chloride [ 75-09-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects   | 7.394<br>7.394<br>6 UCL are pro-<br>e, data distrib<br>Vorld data sec<br>General<br>11<br>3<br>6.2000E-4<br>6.9000E-4<br>1.4333E-9<br>6.6333E-4<br>6.8000E-4<br>-1.597<br>-7.319<br>Pata set has c  | rovided to help the user to select the most appropriate 95% UCI         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statistici         Statistics         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Minimum Non-Detect         Percent Non-Detects         SD Detects         CV Detects         Kurtosis Detects                               | an.<br>9<br>8<br>6<br>5.6000<br>1.6<br>72.7<br>3.7859<br>0.05<br>N/A |

|  | al GOF Test  | on Detects Only   |   |
|--|--|---|---|
| Shapiro Wilk Test Statistic  | 0.855  | Shapiro Wilk GOF Test   |   |
| 1% Shapiro Wilk Critical Value   | 0.753  | Detected Data appear Normal at 1% Significance Lev  | /el   |
| Lilliefors Test Statistic  | 0.337  | Lilliefors GOF Test   |   |
| 1% Lilliefors Critical Value   | 0.429  | Detected Data appear Normal at 1% Significance Lev  | /el   |
| Detected Data a  | ppear Norma  | al at 1% Significance Level   |   |
|  |  | iable for small sample sizes  |   |
|  |  |   |   |
| Kaplan-Meier (KM) Statistics usin  | a Normal Crit  | tical Values and other Nonparametric UCLs   |   |
|  | 6.3750E-4  | KM Standard Error of Mean   | 3.1930E-  |
|  | 5.2142E-5  | 95% KM (BCA) UCL  | N/A   |
| 95% KM (t) UCL   | 6.9537E-4  | 95% KM (Percentile Bootstrap) UCL   | N/A   |
| 95% KM (z) UCL   |  | 95% KM Bootstrap t UCL  | N/A   |
| 90% KM Chebyshev UCL   |  | 95% KM Chebyshev UCL  |   |
| 97.5% KM Chebyshev UCL   |  | 99% KM Chebyshev UCL  |   |
|  | 0.00002  |   | 0.00202   |
| Gamma GOE  | Tests on Det   | ected Observations Only   |   |
| A-D Test Statistic   | 0.461  | Anderson-Darling GOF Test   |   |
| 5% A-D Critical Value  | 0.635  | Detected data appear Gamma Distributed at 5% Significant  |   |
| K-S Test Statistic   | 0.374  | Kolmogorov-Smirnov GOF  |   |
| 5% K-S Critical Value  | 0.431  | Detected data appear Gamma Distributed at 5% Significant  |   |
|  |  | buted at 5% Significance Level  |   |
| k hat (MLE)  | 450.8  | k star (bias corrected MLE)   | N/A   |
| k hat (MLE)  | 450.8  | k star (bias corrected MLE)   | N/A   |
| Theta hat (MLE)  | 1.4716E-6  | Theta star (bias corrected MLE)   | N/A<br>N/A  |
| Theta hat (MLE)<br>nu hat (MLE)  | 1.4716E-6<br>2705  |   |   |
| Theta hat (MLE)  | 1.4716E-6<br>2705  | Theta star (bias corrected MLE)   | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)  | 1.4716E-6<br>2705<br>6.6333E-4   | Theta star (bias corrected MLE)<br>nu star (bias corrected)   | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi   | Theta star (bias corrected MLE)<br>nu star (bias corrected)   | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%   | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs   | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as  | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)  | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may  | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs   | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especie  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when  | Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.  | N/A   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma  | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>in the sample size is small.<br>y be computed using gamma distribution on KM estimates   | N/A<br>N/A  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS ro<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4   | Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean   | N/A<br>N/A  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01   | Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median   | N/A<br>N/A<br>0.007<br>0.01   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is se<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436  | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>ing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>in the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV   | N/A<br>N/A<br>0.007<br>0.01<br>0.58   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261   | Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)  | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97   |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is se<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591  | Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         o NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74   | Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)  | N/A<br>N/A  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74<br>0.0278   | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected) | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007<br>21.5  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)  | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74   | Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         o NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)   | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74<br>0.0278   | Theta star (bias corrected MLE)<br>nu star (bias corrected)<br>nu star (bias corrected)<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected) | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007<br>21.5  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is se<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (21.51, α)<br>95% Gamma Approximate UCL | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74<br>0.0278<br>11.97<br>0.0134                          | Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007<br>21.5  |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data so<br>GROS may not be used when kstar of detects is so<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (21.51, α)<br>95% Gamma Approximate UCL              | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74<br>0.0278<br>11.97<br>0.0134                          | Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         o NDs with many tied observations at multiple DLs         is <1.0, especially when the sample size is small (e.g., <15-20)   | N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007<br>21.5 <sup>-</sup><br>10.8 <sup>-</sup><br>N/A |
| Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is se<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Adjusted Level of Significance (β)<br>Approximate Chi Square Value (21.51, α)<br>95% Gamma Approximate UCL | 1.4716E-6<br>2705<br>6.6333E-4<br>Statistics usi<br>et has > 50%<br>small such as<br>method may<br>ally true when<br>nd UCLs ma<br>6.2000E-4<br>0.01<br>0.00436<br>1.261<br>0.00591<br>27.74<br>0.0278<br>11.97<br>0.0134<br>amma Param<br>6.3750E-4 | Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | N/A<br>N/A<br>N/A<br>0.007<br>0.01<br>0.58<br>0.97<br>0.007<br>21.5<br>10.8<br>N/A<br>5.2142E         |

|  | 140 5           |  | 100.0     |
|--|-----------------|--|-----------|
| k hat (KM)   |                 | k star (KM)  | 108.8     |
| nu hat (KM)  |                 | nu star (KM)   |           |
| theta hat (KM)   |                 | theta star (KM)  |           |
| 80% gamma percentile (KM)  |                 | 90% gamma percentile (KM)  |           |
| 95% gamma percentile (KM)  | 7.4126E-4       | 99% gamma percentile (KM)  | 7.8825E-4 |
| Gamn   | na Kaplan-Me    | eier (KM) Statistics   |           |
| Approximate Chi Square Value (N/A, α)  | 2280            | Adjusted Chi Square Value (N/A, β)                                     | 2262      |
| 95% KM Approximate Gamma UCL   | 6.6899E-4       | 95% KM Adjusted Gamma UCL  | 6.7430E-4 |
|  | E Toot on D     | etected Observations Only  |           |
|  |                 | Shapiro Wilk GOF Test  |           |
| Shapiro Wilk Test Statistic  |                 |  |           |
| 10% Shapiro Wilk Critical Value  |                 | Detected Data appear Lognormal at 10% Significance Lilliefors GOF Test | Levei     |
| Lilliefors Test Statistic  |                 |  |           |
| 10% Lilliefors Critical Value  |                 | Detected Data appear Lognormal at 10% Significance                     | Level     |
|  |                 | nal at 10% Significance Level  |           |
| Note GOF tests   | may be unre     | liable for small sample sizes  |           |
|  | C Ototiotico I  | laing Imputed New Detecto  |           |
| _  |                 | Ising Imputed Non-Detects  | -7.355    |
| Mean in Original Scale<br>SD in Original Scale   |                 | Mean in Log Scale<br>SD in Log Scale                                   | 0.0557    |
| 95% t UCL (assumes normality of ROS data)  |                 | 95% Percentile Bootstrap UCL   |           |
| 95% BCA Bootstrap UCL  |                 | 95% Bootstrap t UCL  |           |
| 95% BCA BOOSTAP UCL<br>95% H-UCL (Log ROS)   |                 | 95% Boolstrap t OCL  | 0.00002-4 |
| 95% H-UCL (LOG RUS)  | N/A             |  |           |
| Statistics using KM estimates  | on Loaaed D     | ata and Assuming Lognormal Distribution                                |           |
| KM Mean (logged)   |                 | KM Geo Mean  | 6.3531E-4 |
| KM SD (logged)   |                 | 95% Critical H Value (KM-Log)  | N/A       |
| KM Standard Error of Mean (logged)   |                 | 95% H-UCL (KM -Log)  | N/A       |
| KM SD (logged)   |                 | 95% Critical H Value (KM-Log)  | N/A       |
| KM Standard Error of Mean (logged)   |                 |  |           |
|  |                 |  |           |
|  | DL/2 St         | tatistics  |           |
| DL/2 Normal  | 0.404           | DL/2 Log-Transformed   |           |
| Mean in Original Scale   |                 | Mean in Log Scale  | -5.038    |
| SD in Original Scale   |                 | SD in Log Scale  | 2.51      |
| 95% t UCL (Assumes normality)  |                 | 95% H-Stat UCL<br>ed for comparisons and historical reasons            | 23.15     |
|  | sulou, proviu   |  |           |
| Nonparame  | atric Distribut | ion Free UCL Statistics  |           |
| -  |                 | tributed at 1% Significance Level                                      |           |
|  |                 |  |           |
|  | Suggested       | UCL to Use   |           |
| 95% KM (t) UCL   |                 |  |           |
|  |                 | ceeds the maximum observation  |           |
|  |                 |  |           |
|  |                 | ovided to help the user to select the most appropriate 95% UC          | L         |
|  |                 | ution, and skewness using results from simulation studies.             |           |
| Li successo a la constata de la Const | Vorld data as   | ts; for additional insight the user may want to consult a statistic    |           |

| il   naphthalene   91-20-3)                 |                      |   |      |
|---|----------------------|---|------|
|   | General              | Statistics  |      |
| Total Number of Observations                | 30                   | Number of Distinct Observations                                 | 28   |
| Number of Detects                           | 23                   | Number of Non-Detects   | 7    |
| Number of Distinct Detects                  | 21                   | Number of Distinct Non-Detects                                  | 7    |
| Minimum Detect                              | 0.053                | Minimum Non-Detect  | 0.06 |
| Maximum Detect                              | 11                   | Maximum Non-Detect  | 0.2  |
| Variance Detects                            | 8.016                | Percent Non-Detects   | 23.3 |
| Mean Detects                                | 1.605                | SD Detects  | 2.8  |
| Median Detects                              | 0.183                | CV Detects  | 1.7  |
| Skewness Detects                            | 2.438                | Kurtosis Detects  | 5.7  |
| Mean of Logged Detects                      | -0.884               | SD of Logged Detects  | 1.7  |
| Norma                                       | al GOF Test          | t on Detects Only   |      |
| Shapiro Wilk Test Statistic                 | 0.612                | Shapiro Wilk GOF Test   |      |
| 1% Shapiro Wilk Critical Value              | 0.881                | Detected Data Not Normal at 1% Significance Level               |      |
| Lilliefors Test Statistic                   | 0.31                 | Lilliefors GOF Test   |      |
| 1% Lilliefors Critical Value                | 0.209                | Detected Data Not Normal at 1% Significance Level               |      |
| Detected Data                               | Not Normal           | at 1% Significance Level  |      |
| Kaplan-Meier (KM) Statistics using          | <b>j Normal Cr</b> i | itical Values and other Nonparametric UCLs                      |      |
| KM Mean                                     | 1.25                 | KM Standard Error of Mean                                       | 0.4  |
| 90KM SD                                     | 2.509                | 95% KM (BCA) UCL  | 2.0  |
| 95% KM (t) UCL                              | 2.046                | 95% KM (Percentile Bootstrap) UCL                               | 2.0  |
| 95% KM (z) UCL                              | 2.02                 | 95% KM Bootstrap t UCL  | 2.9  |
| 90% KM Chebyshev UCL                        | 2.655                | 95% KM Chebyshev UCL  | 3.2  |
| 97.5% KM Chebyshev UCL                      | 4.175                | 99% KM Chebyshev UCL  | 5.9  |
| Gamma GOF                                   | Fests on De          | tected Observations Only  |      |
| A-D Test Statistic                          | 1.383                | Anderson-Darling GOF Test                                       |      |
| 5% A-D Critical Value                       | 0.811                | Detected Data Not Gamma Distributed at 5% Significance          | Leve |
| K-S Test Statistic                          | 0.242                | Kolmogorov-Smirnov GOF  |      |
| 5% K-S Critical Value                       | 0.193                | Detected Data Not Gamma Distributed at 5% Significance          | Leve |
| Detected Data Not G                         | amma Distr           | ibuted at 5% Significance Level                                 |      |
|   |                      | Detected Data Only  |      |
| k hat (MLE)                                 | 0.472                | k star (bias corrected MLE)                                     | 0.4  |
| Theta hat (MLE)                             | 3.4                  | Theta star (bias corrected MLE)                                 | 3.6  |
| nu hat (MLE)<br>Mean (detects)              | 21.72                | nu star (bias corrected)  | 20.2 |
|   |                      |   |      |
|   |                      | 6 NDs with many tied observations at multiple DLs               |      |
|   |                      | s <1.0, especially when the sample size is small (e.g., <15-20) |      |
|   |                      | yield incorrect values of UCLs and BTVs                         |      |
|   |                      | on the sample size is small.                                    |      |
| For gamma distributed detected data, BTVs a | nd UCLs ma           | ay be computed using gamma distribution on KM estimates         |      |

| Minimum                                   | 0.01         | Mean  | 1.233          |
|---|--------------|---|----------------|
| Maximum                                   | 11           | Median  | 0.125          |
| SD  | 2.56         | CV  | 2.076          |
| k hat (MLE)                               | 0.344        | k star (bias corrected MLE)                                       | 0.332          |
| Theta hat (MLE)                           | 3.587        | Theta star (bias corrected MLE)                                   | 3.719          |
| nu hat (MLE)                              | 20.63        | nu star (bias corrected)  | 19.9           |
| Adjusted Level of Significance (β)        | 0.041        |   |                |
| Approximate Chi Square Value (19.90, α)   | 10.78        | Adjusted Chi Square Value (19.90, β)                              | 10.39          |
| 95% Gamma Approximate UCL                 | 2.277        | 95% Gamma Adjusted UCL  | 2.362          |
|   |              |   |                |
|   | amma Parar   | neters using KM Estimates   |                |
| Mean (KM)                                 | 1.25         | SD (KM)   | 2.509          |
| Variance (KM)                             | 6.294        | SE of Mean (KM)   | 0.468          |
| k hat (KM)                                | 0.248        | k star (KM)   | 0.246          |
| nu hat (KM)                               | 14.89        | nu star (KM)  | 14.73          |
| theta hat (KM)                            | 5.036        | theta star (KM)   | 5.089          |
| 80% gamma percentile (KM)                 | 1.803        | 90% gamma percentile (KM)   | 3.756          |
| 95% gamma percentile (KM)                 | 6.082        | 99% gamma percentile (KM)   | 12.29          |
|   |              |   |                |
|   |              | eier (KM) Statistics  | 6 771          |
| Approximate Chi Square Value (14.73, α)   | 7.077        | Adjusted Chi Square Value (14.73, β)<br>95% KM Adjusted Gamma UCL | 6.771<br>2.719 |
| 95% KM Approximate Gamma UCL              | 2.602        | 95% KM Aujusted Gamma OCL   | 2.719          |
|   | E Test on D  | etected Observations Only   |                |
| Shapiro Wilk Test Statistic               | 0.9          | Shapiro Wilk GOF Test   |                |
| 10% Shapiro Wilk Critical Value           | 0.928        | Detected Data Not Lognormal at 10% Significance Lev               | ام             |
| Lilliefors Test Statistic                 | 0.204        | Lilliefors GOF Test   |                |
| 10% Lilliefors Critical Value             | 0.165        | Detected Data Not Lognormal at 10% Significance Lev               | /el            |
|   |              | al at 10% Significance Level                                      |                |
|   |              |   |                |
| Lognormal ROS                             | Statistics L | Jsing Imputed Non-Detects   |                |
| Mean in Original Scale                    | 1.248        | Mean in Log Scale   | -1.327         |
| SD in Original Scale                      | 2.552        | SD in Log Scale   | 1.734          |
| 95% t UCL (assumes normality of ROS data) | 2.04         | 95% Percentile Bootstrap UCL                                      | 2.071          |
| 95% BCA Bootstrap UCL                     | 2.316        | 95% Bootstrap t UCL   | 2.9            |
| 95% H-UCL (Log ROS)                       | 3.702        |   |                |
|   |              |   |                |
| Statistics using KM estimates o           | n Logged D   | ata and Assuming Lognormal Distribution                           |                |
| KM Mean (logged)                          | -1.282       | KM Geo Mean   | 0.277          |
| KM SD (logged)                            | 1.644        | 95% Critical H Value (KM-Log)                                     | 3.381          |
| KM Standard Error of Mean (logged)        | 0.309        | 95% H-UCL (KM -Log)   | 3.011          |
| KM SD (logged)                            | 1.644        | 95% Critical H Value (KM-Log)                                     | 3.381          |
| KM Standard Error of Mean (logged)        | 0.309        |   |                |
|   | DI /0.0      |   |                |
| DL/2 Normal                               | DL/2 S       | tatistics DL/2 Log-Transformed                                    |                |
| Mean in Original Scale                    | 1.249        | Mean in Log Scale   | -1.303         |
| SD in Original Scale                      | 2.552        | SD in Log Scale   | 1.697          |
| 95% t UCL (Assumes normality)             | 2.04         | 95% H-Stat UCL  | 3.411          |
|   | v T          |   | 2              |

| DL/2 is not a recommended met                      | hod, provide    | d for comparisons and historical reasons                            |              |
|--|-----------------|---|--------------|
| Nonparamet   | ric Distributio | on Free UCL Statistics  |              |
| -  |                 | scernible Distribution  |              |
|  | Suggested L     | JCL to Use  |              |
| 95% KM (t) UCL                                     | 2.046           |   |              |
|  | I.              | · · · · · · · · · · · · · · · · · · ·                               |              |
| •  |                 | ata were collected in a random and unbiased manner.                 |              |
| Please verify the da                               | ta were colle   | ected from random locations.  |              |
| If the data were collected u                       | ising judgme    | ental or other non-random methods,                                  |              |
| then contact a s                                   | tatistician to  | correctly calculate UCLs.   |              |
| Note: Suggestions regarding the selection of a 95% | UCL are pro     | ovided to help the user to select the most appropriate 95% UCL      |              |
|  |                 | ition, and skewness using results from simulation studies.          |              |
|  |                 | s; for additional insight the user may want to consult a statistici | ian.         |
|  |                 |   |              |
| : (soil   n-butylbenzene   104-51-8)               |                 |   |              |
|  |                 |   |              |
|  | General S       | statistics  |              |
| Total Number of Observations                       | 11              | Number of Distinct Observations                                     | 8            |
| Number of Detects                                  | 2               | Number of Non-Detects   | 9            |
| Number of Distinct Detects                         | 2               | Number of Distinct Non-Detects                                      | 6            |
| Minimum Detect                                     | 0.056           | Minimum Non-Detect  | 5.1000E-4    |
| Maximum Detect                                     | 0.43            | Maximum Non-Detect  | 0.0019       |
| Variance Detects                                   | 0.0699          | Percent Non-Detects   | 81.82%       |
| Mean Detects                                       | 0.243           | SD Detects  | 0.264        |
| Median Detects                                     | 0.243           | CV Detects  | 1.088        |
| Skewness Detects                                   | N/A             | Kurtosis Detects  | N/A          |
| Mean of Logged Detects                             | -1.863          | SD of Logged Detects  | 1.441        |
| Waming: Da   | ta set has or   | nly 2 Detected Values.  |              |
| -  |                 | ul or reliable statistics and estimates.                            |              |
|  |                 |   |              |
|  |                 |   |              |
| Norma  | al GOF Test     | on Detects Only   |              |
| Not Eno  | ugh Data to     | Perform GOF Test  |              |
|  |                 |   |              |
|  |                 | ical Values and other Nonparametric UCLs                            | 0.050        |
| KM Mean  | 0.0446          | KM Standard Error of Mean   | 0.0524       |
| 90KM SD  | 0.123           | 95% KM (BCA) UCL  | N/A          |
| 95% KM (t) UCL                                     | 0.14            | 95% KM (Percentile Bootstrap) UCL                                   | N/A          |
| 95% KM (z) UCL                                     | 0.131           | 95% KM Bootstrap t UCL  | N/A<br>0.273 |
| 90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL     | 0.202           | 95% KM Chebyshev UCL<br>99% KM Chebyshev UCL                        | 0.273        |
| 97.5% KM Chebyshev UCL                             | 0.372           | 55% KW Chebysnev UCL  | 0.000        |
| Gamma GOF 1  | ests on Det     | ected Observations Only   |              |
|  |                 | Perform GOF Test  |              |

| Gamma                                     | Statistics or | Detected Data Only                                |         |
|---|---------------|---|---------|
| k hat (MLE)                               | 1.255         | k star (bias corrected MLE)                       | N/A     |
| Theta hat (MLE)                           | 0.194         | Theta star (bias corrected MLE)                   | N/A     |
| nu hat (MLE)                              | 5.021         | nu star (bias corrected)                          | N/A     |
| Mean (detects)                            | 0.243         |   |         |
|   |               |   |         |
|   |               | meters using KM Estimates                         |         |
| Mean (KM)                                 | 0.0446        | SD (KM)   | 0.123   |
| Variance (KM)                             | 0.0151        | SE of Mean (KM)                                   | 0.0524  |
| k hat (KM)                                | 0.132         | k star (KM)                                       | 0.156   |
| nu hat (KM)                               | 2.897         | nu star (KM)                                      | 3.44    |
| theta hat (KM)                            | 0.339         | theta star (KM)                                   | 0.285   |
| 80% gamma percentile (KM)                 | 0.0502        | 90% gamma percentile (KM)                         | 0.133   |
| 95% gamma percentile (KM)                 | 0.243         | 99% gamma percentile (KM)                         | 0.561   |
| Gamm                                      | a Kaplan-M    | eier (KM) Statistics                              |         |
|   |               | Adjusted Level of Significance (β)                | 0.0278  |
| Approximate Chi Square Value (3.44, α)    | 0.514         | Adjusted Chi Square Value (3.44, β)               | 0.367   |
| 95% KM Approximate Gamma UCL              | 0.299         | 95% KM Adjusted Gamma UCL                         | 0.418   |
|   |               |   |         |
| Lognormal GO                              | F Test on D   | etected Observations Only                         |         |
|   | -             | Derform GOF Test Using Imputed Non-Detects        |         |
| Mean in Original Scale                    | 0.0443        | Mean in Log Scale                                 | -8.877  |
| SD in Original Scale                      | 0.129         | SD in Log Scale                                   | 3.842   |
| 95% t UCL (assumes normality of ROS data) | 0.115         | 95% Percentile Bootstrap UCL                      | 0.117   |
| 95% BCA Bootstrap UCL                     | 0.162         | 95% Bootstrap t UCL                               | 38.36   |
| 95% H-UCL (Log ROS)                       | 22637         |   |         |
|   |               |   |         |
| Statistics using KM estimates of          | n Logged D    | bata and Assuming Lognormal Distribution          |         |
| KM Mean (logged)                          | -6.541        | KM Geo Mean                                       | 0.00144 |
| KM SD (logged)                            | 2.248         | 95% Critical H Value (KM-Log)                     | 5.724   |
| KM Standard Error of Mean (logged)        | 0.958         | 95% H-UCL (KM -Log)                               | 1.055   |
| KM SD (logged)                            | 2.248         | 95% Critical H Value (KM-Log)                     | 5.724   |
| KM Standard Error of Mean (logged)        | 0.958         |   |         |
|   |               | tatistics   |         |
| DL/2 Normal                               | 5520          | DL/2 Log-Transformed                              |         |
| Mean in Original Scale                    | 0.0448        | Mean in Log Scale                                 | -6.207  |
| SD in Original Scale                      | 0.129         | SD in Log Scale                                   | 2.227   |
| 95% t UCL (Assumes normality)             | 0.115         | 95% H-Stat UCL                                    | 1.309   |
|   | thod, provid  | led for comparisons and historical reasons        |         |
|   |               |   |         |
|   |               | tion Free UCL Statistics Discernible Distribution |         |
|   |               |   |         |
|   | Suggested     | UCL to Use  |         |

The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.

Please verify the data were collected from random locations.

If the data were collected using judgmental or other non-random methods,

then contact a statistician to correctly calculate UCLs.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

C (soil | nickel | 7440-02-0)

| General Statistics           |       |                                 |       |  |
|------------------------------|-------|---------------------------------|-------|--|
| Total Number of Observations | 20    | Number of Distinct Observations | 17    |  |
|                              |       | Number of Missing Observations  | 0     |  |
| Minimum                      | 8.467 | Mean                            | 48.92 |  |
| Maximum                      | 730   | Median                          | 13.16 |  |
| SD                           | 160.3 | Std. Error of Mean              | 35.85 |  |
| Coefficient of Variation     | 3.278 | Skewness                        | 4.469 |  |

|                                | Normal C    | GOF Test                                 |
|--------------------------------|-------------|--|
| Shapiro Wilk Test Statistic    | 0.253       | Shapiro Wilk GOF Test                    |
| 1% Shapiro Wilk Critical Value | 0.868       | Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic      | 0.517       | Lilliefors GOF Test                      |
| 1% Lilliefors Critical Value   | 0.223       | Data Not Normal at 1% Significance Level |
| Data Not                       | Normal at 1 | % Significance Level                     |

| As                  | suming Nori | nal Distribution                        |
|---------------------|-------------|---|
| 95% Normal UCL      |             | 95% UCLs (Adjusted for Skewness)        |
| 95% Student's-t UCL | 110.9       | 95% Adjusted-CLT UCL (Chen-1995) 146.2  |
|                     |             | 95% Modified-t UCL (Johnson-1978) 116.9 |

| Gamma GOF Test        |                  |   |
|-----------------------|------------------|---|
| A-D Test Statistic    | 5.832            | Anderson-Darling Gamma GOF Test                     |
| 5% A-D Critical Value | 0.798            | Data Not Gamma Distributed at 5% Significance Level |
| K-S Test Statistic    | 0.469            | Kolmogorov-Smirnov Gamma GOF Test                   |
| 5% K-S Critical Value | 0.204            | Data Not Gamma Distributed at 5% Significance Level |
| Data Not Gamm         | a Distributed at | 5% Significance Level                               |

|                                | Gamma | Statistics                          |       |
|--------------------------------|-------|-------------------------------------|-------|
| k hat (MLE)                    | 0.545 | k star (bias corrected MLE)         | 0.497 |
| Theta hat (MLE)                | 89.72 | Theta star (bias corrected MLE)     | 98.47 |
| nu hat (MLE)                   | 21.81 | nu star (bias corrected)            | 19.87 |
| MLE Mean (bias corrected)      | 48.92 | MLE Sd (bias corrected)             | 69.41 |
| I                              |       | Approximate Chi Square Value (0.05) | 10.76 |
| Adjusted Level of Significance | 0.038 | Adjusted Chi Square Value           | 10.23 |

Assuming Gamma Distribution

| 95% Approximate Gamma UCL  | 90.38  | 95% Adjusted Gamma UCL   | 95.0  |
|--|--|--|-------|
|  | Lognormal GOF  | Test   |       |
| Shapiro Wilk Test Statistic  | 0.479  | Shapiro Wilk Lognormal GOF Test  |       |
| 10% Shapiro Wilk Critical Value  | 0.92   | Data Not Lognormal at 10% Significance Level   |       |
| Lilliefors Test Statistic  | 0.311  | Lilliefors Lognormal GOF Test  |       |
| 10% Lilliefors Critical Value  | 0.176  | Data Not Lognormal at 10% Significance Level   |       |
| Data Not Lo  | gnormal at 10% S   | ignificance Level  |       |
|  | Lognormal Stati  | stics  |       |
| Minimum of Logged Data   | 2.136  | Mean of logged Data  | 2.74  |
| Maximum of Logged Data   | 6.593  | SD of logged Data  | 0.94  |
|  | 0.000  |  | 0.0   |
| Assu   | ming Lognormal [   |  |       |
| 95% H-UCL  | 41.83  | 90% Chebyshev (MVUE) UCL   | 39.7  |
| 95% Chebyshev (MVUE) UCL   | 47.21  | 97.5% Chebyshev (MVUE) UCL   | 57.5  |
| 99% Chebyshev (MVUE) UCL   | 77.73  |  |       |
| Nonparame  | tric Distribution Fr   | ee UCL Statistics  |       |
| -  | ot follow a Discern  |  |       |
|  |  |  |       |
| Nonpar<br>95% CLT UCL  | ametric Distributio  | n Free UCLs<br>95% BCA Bootstrap UCL   | 157   |
| 95% Standard Bootstrap UCL   | 107.9  | 95% Bootstrap UCL  | 2196  |
| 95% Hall's Bootstrap UCL   | 914.5  | 95% Bootstrap-t OCL<br>95% Percentile Bootstrap UCL  | 120.5 |
| 90% Chebyshev(Mean, Sd) UCL  | 156.5  | 95% Chebyshev(Mean, Sd) UCL  | 205.2 |
| 97.5% Chebyshev(Mean, Sd) UCL  | 272.8  | 99% Chebyshev(Mean, Sd) UCL  | 405.7 |
|  |  |  |       |
|  |  |  |       |
|  | Suggested UCL t  | Jose   |       |
| 95% Student's-t UCL  | Suggested UCL t<br>110.9   | Jose   |       |
| 95% Student's-t UCL  | 110.9  |  |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption   | 110.9  | rere collected in a random and unbiased manner.  |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected   | 110.9<br>ons that the data wata were collected<br>using judgmental   | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected   | 110.9<br>ons that the data wata were collected<br>using judgmental   | ere collected in a random and unbiased manner.<br>from random locations.   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s   | 110.9<br>ons that the data w<br>ata were collected<br>using judgmental<br>statistician to corre  | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a set<br>Note: Suggestions regarding the selection of a 95%   | 110.9<br>ons that the data w<br>ata were collected<br>using judgmental<br>statistician to corre  | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | 110.9<br>ons that the data wate collected<br>using judgmental<br>statistician to correct   | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a second<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W                           | 110.9<br>ons that the data wate collected<br>using judgmental<br>statistician to correct   | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | 110.9<br>ons that the data wate collected<br>using judgmental<br>statistician to correct   | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.<br>d to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.   |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a second<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W                           | 110.9<br>ons that the data wate collected<br>using judgmental<br>statistician to correct   | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.<br>If to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statisticia |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a second<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W                           | 110.9<br>Ins that the data wata were collected<br>using judgmental<br>statistician to correct<br>UCL are provide<br>data distribution,<br>orld data sets; for                    | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.<br>If to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statisticia |       |
| 95% Student's-t UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a set<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>I nitrobenzene   98-95-3) | 110.9<br>Ins that the data wata were collected<br>using judgmental<br>statistician to correct<br>UCL are provide<br>data distribution,<br>orld data sets; for<br>General Statist | ere collected in a random and unbiased manner.<br>from random locations.<br>or other non-random methods,<br>ctly calculate UCLs.<br>If to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statisticia | an.   |

| The Project Team may decide to use alternative site | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|---|---------------|---|----|
| The data set for variable C                         | (soil   nitro | obenzene   98-95-3) was not processed!                        |    |
|   |               |   |    |
| C (soil   n-nitrosodimethylamine   62-75-9)         |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                        | 20            | Number of Distinct Observations                               | 15 |
| Number of Detects                                   | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                                | 15 |
| Warning: All observations are Non-Detects           | (NDs), the    | erefore all statistics and estimates should also be NDs!      |    |
|   | <u> </u>      | stics are also NDs lying below the largest detection limit!   |    |
|   |               | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |               |   |    |
| The data set for variable C (soil                   | n-nitroso     | dimethylamine   62-75-9) was not processed!                   |    |
|   |               |   |    |
|   |               |   |    |
| C (soil   n-nitroso-di-n-propylamine   621-64-7)    |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                        | 20            | Number of Distinct Observations                               | 15 |
| Number of Detects                                   | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                                | 15 |
|   |               |   |    |
| •   | · ·           | erefore all statistics and estimates should also be NDs!      |    |
|   |               | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site | e specific v  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for veriable C (seil L                 | nitropo di    | -n-propylamine   621-64-7) was not processed!                 |    |
|   | -nitroso-ai   | -n-propylamine   621-64-7) was not processed!                 |    |
|   |               |   |    |
| C (soil   n-nitrosodiphenylamine   86-30-6)         |               |   |    |
|   |               |   |    |
|   | Genera        | al Statistics   |    |
| Total Number of Observations                        | 20            | Number of Distinct Observations                               | 15 |
| Number of Detects                                   | 0             | Number of Non-Detects   | 20 |
| Number of Distinct Detects                          | 0             | Number of Distinct Non-Detects                                | 15 |
| Warning: All observations are Non Detects           |               | erefore all statistics and estimates should also be NDs!      |    |
| -   |               | stics are also NDs lying below the largest detection limit!   |    |
|   |               | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |               |   |    |
| The data set for variable C (soil                   | n-nitroso     | diphenylamine   86-30-6) was not processed!                   |    |
|   |               |   |    |
|   |               |   |    |
| C (soil   n-propylbenzene   103-65-1)               |               |   |    |

|  | General Sta      | tistics   |           |
|--|------------------|---|-----------|
| Total Number of Observations                   | 11               | Number of Distinct Observations                               | 8         |
| Number of Detects                              | 2                | Number of Non-Detects   | 9         |
| Number of Distinct Detects                     | 2                | Number of Distinct Non-Detects                                | 6         |
| Minimum Detect                                 | 0.13             | Minimum Non-Detect  | 3.8333E-4 |
| Maximum Detect                                 | 0.7              | Maximum Non-Detect  | 0.0019    |
| Variance Detects                               | 0.162            | Percent Non-Detects   | 81.82%    |
| Mean Detects                                   | 0.415            | SD Detects  | 0.403     |
| Median Detects                                 | 0.415            | CV Detects  | 0.971     |
| Skewness Detects                               | N/A              | Kurtosis Detects  | N/A       |
| Mean of Logged Detects                         | -1.198           | SD of Logged Detects  | 1.19      |
| _  |                  | / 2 Detected Values.<br>or reliable statistics and estimates. |           |
| Norma  | al GOF Test or   | n Detects Only  |           |
| Not Eno  | ugh Data to Pe   | erform GOF Test   |           |
| Kaplan-Meier (KM) Statistics using             | Normal Critica   | al Values and other Nonparametric UCLs                        |           |
| KM Mean  | 0.0758           | KM Standard Error of Mean                                     | 0.0856    |
| 90KM SD  | 0.201            | 95% KM (BCA) UCL  | N/A       |
| 95% KM (t) UCL                                 | 0.231            | 95% KM (Percentile Bootstrap) UCL                             | N/A       |
| 95% KM (z) UCL                                 | 0.217            | 95% KM Bootstrap t UCL  | N/A       |
| 90% KM Chebyshev UCL                           | 0.333            | 95% KM Chebyshev UCL  | 0.449     |
| 97.5% KM Chebyshev UCL                         | 0.611            | 99% KM Chebyshev UCL  | 0.928     |
|  |                  | ted Observations Only   |           |
| Not Eno  | ugh Data to Pe   | erform GOF Test   |           |
| Gamma  | Statistics on De | etected Data Only   |           |
| k hat (MLE)                                    | 1.715            | k star (bias corrected MLE)                                   | N/A       |
| Theta hat (MLE)                                | 0.242            | Theta star (bias corrected MLE)                               | N/A       |
| nu hat (MLE)                                   | 6.861            | nu star (bias corrected)                                      | N/A       |
| Mean (detects)                                 | 0.415            |   |           |
| Estimates of Ga                                | mma Paramet      | ers using KM Estimates  |           |
| Mean (KM)                                      | 0.0758           | SD (KM)   | 0.201     |
| Variance (KM)                                  | 0.0403           | SE of Mean (KM)   | 0.0856    |
| k hat (KM)                                     | 0.142            | k star (KM)   | 0.164     |
| nu hat (KM)                                    | 3.131            | nu star (KM)  | 3.61      |
| theta hat (KM)                                 | 0.532            | theta star (KM)   | 0.462     |
| 80% gamma percentile (KM)                      | 0.0884           | 90% gamma percentile (KM)                                     | 0.227     |
| 95% gamma percentile (KM)                      | 0.409            | 99% gamma percentile (KM)                                     | 0.929     |
| Gamma  | a Kaplan-Meier   | r (KM) Statistics   |           |
|  |                  | Adjusted Level of Significance (β)                            | 0.0278    |
| Approximate Chi Square Value (3.61, $\alpha$ ) | 0.574            | Adjusted Chi Square Value (3.61, $\beta$ )                    | 0.413     |
| 95% KM Approximate Gamma UCL                   |                  | 95% KM Adjusted Gamma UCL                                     | 0.662     |

|   |  | etected Observations Only   |               |
|---|--|---|---------------|
| Not Enc   | ough Data to   | Perform GOF Test  |               |
| L ognormal POS  | Statiation II  | sing Imputed Non-Detects  |               |
| Mean in Original Scale  | 0.0759   | Mean in Log Scale   | -6.991        |
| SD in Original Scale  | 0.211  | SD in Log Scale   | 3.173         |
| 95% t UCL (assumes normality of ROS data)   | 0.191  | 95% Percentile Bootstrap UCL  | 0.192         |
| 95% BCA Bootstrap UCL   | 0.267  | 95% Bootstrap t UCL   | 20.64         |
| 95% H-UCL (Log ROS)   | 389.3  |   |               |
|   |  |   |               |
|   |  | ata and Assuming Lognormal Distribution   | 0.0010        |
| KM Mean (logged)  | -6.654   | KM Geo Mean   | 0.0012        |
| KM SD (logged)  | 2.597  | 95% Critical H Value (KM-Log)   | 6.538         |
| KM Standard Error of Mean (logged)  | 1.107  | 95% H-UCL (KM -Log)   | 8.058         |
| KM SD (logged)  | 2.597  | 95% Critical H Value (KM-Log)   | 6.538         |
| KM Standard Error of Mean (logged)  | 1.107  |   |               |
|   | DL/2 St  |   |               |
| DL/2 Normal   |  | DL/2 Log-Transformed  |               |
| Mean in Original Scale  | 0.0761   | Mean in Log Scale   | -6.112        |
| SD in Original Scale  | 0.211  | SD in Log Scale   | 2.501         |
| 95% t UCL (Assumes normality)   | 0.191  | 95% H-Stat UCL  | 7.437         |
| DL/2 is not a recommended me  | tnoa, proviae  | ed for comparisons and historical reasons   |               |
|   |  |   |               |
| Nagara  |  |   |               |
|   |  | on Free UCL Statistics  |               |
|   |  | on Free UCL Statistics<br>scemible Distribution   |               |
| Data do no  | ot follow a Di   | scemible Distribution   |               |
| Data do no  | ot follow a Di<br>Suggested l  | scemible Distribution   |               |
| Data do no  | ot follow a Di   | scemible Distribution   |               |
| Data do no<br>95% KM (t) UCL  | Suggested I  | scemible Distribution JCL to Use  |               |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%  | Suggested U<br>0.231   | scemible Distribution JCL to Use ovided to help the user to select the most appropriate 95% UCL   |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested L<br>0.231<br>0 UCL are pro<br>data distribu   | scernible Distribution<br>JCL to Use<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.  |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested L<br>0.231<br>0 UCL are pro<br>data distribu   | scemible Distribution JCL to Use ovided to help the user to select the most appropriate 95% UCL   |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested L<br>0.231<br>0 UCL are pro<br>data distribu   | scernible Distribution<br>JCL to Use<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.  |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested L<br>0.231<br>0 UCL are pro<br>data distribu   | scernible Distribution<br>JCL to Use<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.  |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested L<br>0.231<br>0 UCL are pro<br>data distribu   | scernible Distribution<br>JCL to Use<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.<br>is; for additional insight the user may want to consult a statisticia   |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | ot follow a Di<br>Suggested U<br>0.231<br>6 UCL are pro<br>data distribu<br>'orld data set   | scernible Distribution<br>JCL to Use<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.<br>is; for additional insight the user may want to consult a statisticia   |               |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)   | Suggested U<br>0.231<br>0 UCL are pro<br>data distribu<br>forld data set<br>General S  | Statistics  | an.           |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations   | Suggested U<br>0.231<br>0 UCL are pro<br>data distribu<br>forld data set<br>General S<br>6   | Statistics Number of District Observations  | an.<br>6      |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | Suggested U<br>0.231<br>0 UCL are pro<br>data distribut<br>forld data set<br>6<br>0<br>0<br>0  | Statistics Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects  | an.<br>6<br>6 |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects   | Suggested U<br>0.231<br>0 UCL are pro<br>data distribu<br>forld data set<br>6<br>0<br>0<br>0<br>(NDs), there                                     | Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects  | an.<br>6<br>6 |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and           | Suggested U<br>0.231<br>0 UCL are pro-<br>data distribution<br>forld data set<br>6<br>0<br>0<br>0<br>(NDs), there<br>other statisti              | scernible Distribution JCL to Use ovided to help the user to select the most appropriate 95% UCL ution, and skewness using results from simulation studies. is; for additional insight the user may want to consult a statisticia Statistics Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects fore all statistics and estimates should also be NDs! cs are also NDs lying below the largest detection limit! | an.<br>6<br>6 |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and           | Suggested U<br>0.231<br>0 UCL are pro-<br>data distribution<br>forld data set<br>6<br>0<br>0<br>0<br>(NDs), there<br>other statisti              | Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects  | an.<br>6<br>6 |
| Data do no<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>soil   pcbs (total)   1336-36-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site | Suggested U<br>0.231<br>0 UCL are pro-<br>data distribu<br>orld data set<br>6<br>0<br>0<br>0<br>(NDs), there<br>other statisti<br>a specific val | scernible Distribution JCL to Use ovided to help the user to select the most appropriate 95% UCL ution, and skewness using results from simulation studies. is; for additional insight the user may want to consult a statisticia Statistics Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects fore all statistics and estimates should also be NDs! cs are also NDs lying below the largest detection limit! | an.<br>6<br>6 |

| oil   p-cymene   99-87-6)         |               |  |         |
|-----------------------------------|---------------|--|---------|
|                                   | General       | Statistics   |         |
| Total Number of Observations      | 11            | Number of Distinct Observations                                      | 8       |
| Number of Detects                 | 2             | Number of Non-Detects  | 9       |
| Number of Distinct Detects        | 2             | Number of Distinct Non-Detects                                       | 6       |
| Minimum Detect                    | 0.057         | Minimum Non-Detect   | 4.5667E |
| Maximum Detect                    | 0.3           | Maximum Non-Detect   | 0.001   |
| Variance Detects                  | 0.0295        | Percent Non-Detects  | 81.82   |
| Mean Detects                      | 0.179         | SD Detects   | 0.17    |
| Median Detects                    | 0.179         | CV Detects   | 0.96    |
| Skewness Detects                  | N/A           | Kurtosis Detects   | N/A     |
| Mean of Logged Detects            | -2.034        | SD of Logged Detects   | 1.17    |
|                                   |               | only 2 Detected Values.<br>ful or reliable statistics and estimates. |         |
|                                   |               | t on Detects Only<br>Perform GOF Test                                |         |
| Kaplan-Meier (KM) Statistics usin | a Normal Cr   | itical Values and other Nonparametric UCLs                           |         |
| KM Mean                           | 0.0328        | KM Standard Error of Mean  | 0.03    |
| 90KM SD                           | 0.086         | 95% KM (BCA) UCL   | N/A     |
| 95% KM (t) UCL                    | 0.0993        | 95% KM (Percentile Bootstrap) UCL                                    | N/A     |
| 95% KM (z) UCL                    | 0.0932        | 95% KM Bootstrap t UCL   | N/A     |
| 90% KM Chebyshev UCL              | 0.143         | 95% KM Chebyshev UCL   | 0.19    |
| 97.5% KM Chebyshev UCL            | 0.262         | 99% KM Chebyshev UCL   | 0.3     |
|                                   |               | etected Observations Only<br>Perform GOF Test                        |         |
| Gamma                             | Statistics on | Detected Data Only   |         |
| k hat (MLE)                       | 1.755         | k star (bias corrected MLE)  | N/A     |
| Theta hat (MLE)                   | 0.102         | Theta star (bias corrected MLE)                                      | N/A     |
| nu hat (MLE)                      | 7.02          | nu star (bias corrected)   | N/A     |
| Mean (detects)                    | 0.179         |  |         |
| Estimates of Ga                   | amma Parar    | neters using KM Estimates  |         |
| Mean (KM)                         | 0.0328        | SD (KM)  | 0.08    |
| Variance (KM)                     | 0.0074        | SE of Mean (KM)  | 0.03    |
| k hat (KM)                        | 0.146         | k star (KM)  | 0.10    |
| nu hat (KM)                       | 3.204         | nu star (KM)   | 3.66    |
| theta hat (KM)                    | 0.225         | theta star (KM)  | 0.19    |
| 80% gamma percentile (KM)         | 0.0387        | 90% gamma percentile (KM)  | 0.09    |
| 95% gamma percentile (KM)         | 0.177         | 99% gamma percentile (KM)  | 0.3     |
| Gamm                              | a Kaplan-M    | eier (KM) Statistics   |         |
|                                   |               | Adjusted Level of Significance (β)                                   | 0.02    |
|                                   |               |  |         |

| Approximate Chi Square Value (3.66, $\alpha$ )  | 0.593  | Adjusted Chi Square Value (3.66, $\beta$ )   | 0.428          |
|---|--|--|----------------|
| 95% KM Approximate Gamma UCL  | 0.203  | 95% KM Adjusted Gamma UCL  | 0.28           |
|   | E Toot on D  | etected Observations Only  |                |
|   |  | Perform GOF Test   |                |
|   |  |  |                |
| Lognormal ROS   | S Statistics L   | Jsing Imputed Non-Detects  |                |
| Mean in Original Scale  | 0.0327   | Mean in Log Scale  | -7.748         |
| SD in Original Scale  | 0.0903   | SD in Log Scale  | 3.13           |
| 95% t UCL (assumes normality of ROS data)   | 0.082  | 95% Percentile Bootstrap UCL   | 0.082          |
| 95% BCA Bootstrap UCL   | 0.114  | 95% Bootstrap t UCL  | 8.24           |
| 95% H-UCL (Log ROS)   | 129.5  |  |                |
| Statistics using KM estimates of  | on Logged D  | ata and Assuming Lognormal Distribution  |                |
| KM Mean (logged)  |  | KM Geo Mean  | 0.001          |
| KM SD (logged)  |  | 95% Critical H Value (KM-Log)  | 5.63           |
| KM Standard Error of Mean (logged)  |  | 95% H-UCL (KM -Log)  | 0.75           |
| KM SD (logged)  |  | 95% Critical H Value (KM-Log)  | 5.63           |
| KM Standard Error of Mean (logged)  |  |  |                |
|   |  | tatistics  |                |
| DL/2 Normal   | 0020   | DL/2 Log-Transformed   |                |
| Mean in Original Scale  | 0.0331   | Mean in Log Scale  | -6.248         |
| SD in Original Scale  |  | SD in Log Scale  | 2.15           |
| 95% t UCL (Assumes normality)   |  | 95% H-Stat UCL   | 0.84           |
| DL/2 is not a recommended me  | ethod, provid  | ed for comparisons and historical reasons  |                |
|   |  |  |                |
| Nonparame   | tric Distribut   | ion Free LICL Statistics   |                |
| •   |  | ion Free UCL Statistics iscernible Distribution  |                |
| •   | ot follow a D  | iscernible Distribution  |                |
| Data do n   | ot follow a D<br>Suggested   |  |                |
| •   | ot follow a D<br>Suggested   | iscernible Distribution  |                |
| Data do n<br>95% KM (t) UCL   | ot follow a D<br>Suggested<br>0.0993   | iscernible Distribution  |                |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr   | iscernible Distribution UCL to Use   |                |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr   | iscernible Distribution UCL to Use rovided to help the user to select the most appropriate 95% UCL.  |                |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr   | iscernible Distribution UCL to Use rovided to help the user to select the most appropriate 95% UCL. ution, and skewness using results from simulation studies.   |                |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr<br>data distrib<br>Vorld data se                  | iscernible Distribution<br>UCL to Use<br>rovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia   |                |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>pentachloronitrobenzene   82-68-8)   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr<br>data distrib<br>Vorld data se<br>General       | iscernible Distribution UCL to Use Fovided to help the user to select the most appropriate 95% UCL. Ution, and skewness using results from simulation studies. Its; for additional insight the user may want to consult a statisticia Statistics   | n.             |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>pentachloronitrobenzene   82-68-8)<br>Total Number of Observations   | ot follow a D<br>Suggested<br>0.0993<br>6 UCL are pr<br>data distrib<br>Vorld data se<br>General<br>20 | iscernible Distribution UCL to Use rovided to help the user to select the most appropriate 95% UCL. ution, and skewness using results from simulation studies. ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations                        | n.<br>15       |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>pentachloronitrobenzene   82-68-8)<br>Total Number of Observations<br>Number of Detects  | ot follow a D Suggested 0.0993 6 UCL are pr d, data distrib Vorld data se General 20 0                 | iscernible Distribution UCL to Use Fovided to help the user to select the most appropriate 95% UCL. Ution, and skewness using results from simulation studies. Its; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations Number of Non-Detects | n.<br>15<br>20 |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  pentachloronitrobenzene   82-68-8)<br>Total Number of Observations   | ot follow a D Suggested 0.0993 6 UCL are pr d, data distrib Vorld data se General 20 0                 | iscernible Distribution UCL to Use rovided to help the user to select the most appropriate 95% UCL. ution, and skewness using results from simulation studies. ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations                        | n.<br>15       |
| Data do n<br>95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>  pentachloronitrobenzene   82-68-8)<br>  Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects | ot follow a D Suggested 0.0993 6 UCL are pr , data distrib Vorld data se 20 0 0 0 c (NDs), there       | iscernible Distribution UCL to Use Fovided to help the user to select the most appropriate 95% UCL. Ution, and skewness using results from simulation studies. Its; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations Number of Non-Detects | n.<br>15<br>20 |

| (soil   pentachlorophenol   87-86-5)                |                 |  |                      |
|---|-----------------|--|----------------------|
|   | General S       | statistics   |                      |
| Total Number of Observations                        | 20              | Number of Distinct Observations                            | 15                   |
| Number of Detects                                   | 0               | Number of Non-Detects                                      | 20                   |
| Number of Distinct Detects                          | 0               | Number of Distinct Non-Detects                             | 15                   |
|   |                 | 1  |                      |
| -   |                 | fore all statistics and estimates should also be NDs!      |                      |
| · · · · · · · · ·                                   |                 | cs are also NDs lying below the largest detection limit!   |                      |
| The Project Team may decide to use alternative site | e specific valu | ues to estimate environmental parameters (e.g., EPC, BTV). |                      |
| The data set for variable C (so                     | oil   pentachlo | rophenol   87-86-5) was not processed!                     |                      |
|   |                 |  |                      |
| (soil   phenanthrene   85-01-8)                     |                 |  |                      |
| (   |                 |  |                      |
|   | General S       | itatistics   |                      |
| Total Number of Observations                        | 20              | Number of Distinct Observations                            | 20                   |
| Number of Detects                                   | 14              | Number of Non-Detects                                      | 6                    |
| Number of Distinct Detects                          | 14              | Number of Distinct Non-Detects                             | 6                    |
| Minimum Detect                                      | 0.067           | Minimum Non-Detect   | 0.19                 |
| Maximum Detect                                      | 7               | Maximum Non-Detect   | 0.22                 |
| Variance Detects                                    | 4.828           | Percent Non-Detects  | 30%                  |
| Mean Detects  | 1.319           | SD Detects   | 2.19                 |
| Median Detects                                      | 0.202           | CV Detects   | 1.66                 |
| Skewness Detects                                    | 1.917           | Kurtosis Detects   | 2.84                 |
| Mean of Logged Detects                              | -1.071          | SD of Logged Detects                                       | 1.69                 |
| Norm  | al GOF Test     | on Detects Only  |                      |
| Shapiro Wilk Test Statistic                         | 0.648           | Shapiro Wilk GOF Test                                      |                      |
| 1% Shapiro Wilk Critical Value                      | 0.825           | Detected Data Not Normal at 1% Significance Level          |                      |
| Lilliefors Test Statistic                           | 0.348           | Lilliefors GOF Test  |                      |
| 1% Lilliefors Critical Value                        | 0.263           | Detected Data Not Normal at 1% Significance Level          |                      |
| Detected Data                                       | Not Normal      | at 1% Significance Level                                   |                      |
|   |                 |  |                      |
|   | -               | ical Values and other Nonparametric UCLs                   |                      |
| KM Mean   | 0.951           | KM Standard Error of Mean                                  | 0.4                  |
| 90KM SD   | 1.859           | 95% KM (BCA) UCL   | 1.7                  |
| 95% KM (t) UCL                                      | 1.697           | 95% KM (Percentile Bootstrap) UCL                          | 1.6                  |
| 95% KM (z) UCL                                      | 1.66            | 95% KM Bootstrap t UCL                                     | 2.7                  |
| 90% KM Chebyshev UCL                                | 2.245           | 95% KM Chebyshev UCL                                       | 2.8                  |
| 97.5% KM Chebyshev UCL                              | 3.644           | 99% KM Chebyshev UCL                                       | 5.2                  |
| Gamma GOF   | Tests on Det    | ected Observations Only                                    |                      |
| A-D Test Statistic                                  | 1.238           | Anderson-Darling GOF Test                                  |                      |
|   | 0.798           | Detected Data Not Gamma Distributed at 5% Significance     | <u>0</u> \/ <u>0</u> |
| 5% A-D Critical Value                               |                 |  |                      |

| 5% K-S Critical Value  | 0.242         | Detected Data Not Gamma Distributed at 5% Significance                        |                |
|--|---------------|---|----------------|
|  |               | ibuted at 5% Significance Level   |                |
|  |               |   |                |
| Gamma  | Statistics on | Detected Data Only  |                |
|  | 0.475         | k star (bias corrected MLE)   | 0.421          |
| k hat (MLE)  |               |   | 3.133          |
| Theta hat (MLE)  | 2.776         | Theta star (bias corrected MLE)   |                |
| nu hat (MLE)   | 13.3          | nu star (bias corrected)  | 11.79          |
| Mean (detects)   | 1.319         |   |                |
| Commo DOD  | Otatiatian    | ing Jernuted New Detecto  |                |
|  |               | sing Imputed Non-Detects<br>6 NDs with many tied observations at multiple DLs |                |
|  |               | is <1.0, especially when the sample size is small (e.g., <15-20)              |                |
|  |               | yield incorrect values of UCLs and BTVs                                       |                |
|  |               | -   |                |
|  |               | en the sample size is small.  |                |
|  | 0.01          | ay be computed using gamma distribution on KM estimates                       | 0.000          |
| Minimum  |               | Mean  | 0.926          |
| Maximum  | 7             | Median  | 0.091          |
| SD   | 1.919         | CV  | 2.072<br>0.314 |
| k hat (MLE)  | 0.33          | k star (bias corrected MLE)   |                |
| Theta hat (MLE)  | 2.803         | Theta star (bias corrected MLE)   | 2.948          |
| nu hat (MLE)   | 13.22         | nu star (bias corrected)  | 12.57          |
| Adjusted Level of Significance (β)                             | 0.038         |   | - 000          |
| Approximate Chi Square Value (12.57, α)                        | 5.602         | Adjusted Chi Square Value (12.57, β)  | 5.238          |
| 95% Gamma Approximate UCL                                      | 2.077         | 95% Gamma Adjusted UCL  | 2.222          |
|  | -             |   |                |
|  |               | neters using KM Estimates   | 4 050          |
| Mean (KM)  | 0.951         | SD (KM)   | 1.859          |
| Variance (KM)  | 3.454         | SE of Mean (KM)   | 0.431          |
| k hat (KM)   | 0.262         | k star (KM)   | 0.256          |
| nu hat (KM)  | 10.47         | nu star (KM)  | 10.23          |
| theta hat (KM)   | 3.634         | theta star (KM)   | 3.718          |
| 80% gamma percentile (KM)                                      | 1.392         | 90% gamma percentile (KM)   | 2.849          |
| 95% gamma percentile (KM)                                      | 4.571         | 99% gamma percentile (KM)   | 9.14           |
| 0  | - 16 14       |   |                |
|  | -             | eier (KM) Statistics  | 0 700          |
| Approximate Chi Square Value (10.23, α)                        | 4.086         | Adjusted Chi Square Value (10.23, β)  | 3.783          |
| 95% KM Approximate Gamma UCL                                   | 2.38          | 95% KM Adjusted Gamma UCL   | 2.571          |
| Lognormal OO   | E Test on D   | etected Observations Only   |                |
|  |               |   |                |
| Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value | 0.85          | Shapiro Wilk GOF Test Detected Data Not Lognormal at 10% Significance Lev     |                |
| Lilliefors Test Statistic                                      | 0.895         | Lilliefors GOF Test   | vei            |
| 10% Lilliefors Critical Value                                  | 0.195         | Detected Data appear Lognormal at 10% Significance L                          | ovol           |
|  |               |   | evel           |
|  | proximate L   | ognormal at 10% Significance Level  |                |
|  | Ctotiotics !  | Ising Imputed Non Detecto   |                |
|  |               | Jsing Imputed Non-Detects   | 1 405          |
| Mean in Original Scale   | 0.955         | Mean in Log Scale   | -1.425         |
| SD in Original Scale   | 1.905         | SD in Log Scale   | 1.505          |
| 95% t UCL (assumes normality of ROS data)                      | 1.691         | 95% Percentile Bootstrap UCL  | 1.692          |

|   | •                                     | Sootstrap t UCL 2     |  |  |
|---|---------------------------------------|-----------------------|--|--|
| DS) 2.447   | H-UCL (Log ROS) 2.44                  |                       |  |  |
|   |                                       |                       |  |  |
| es on Logged Data and Assuming Lognormal Distribution                                   |                                       |                       |  |  |
|   | ( 88 )                                |                       |  |  |
|   | ( 88 )                                | · •                   |  |  |
|   |                                       |                       |  |  |
|   |                                       | /alue (KM-Log) 3      |  |  |
| ed) 0.353   | or of Mean (logged) 0.353             |                       |  |  |
| DL/2 Statistics   | DL/                                   |                       |  |  |
| DL/2 Log-Transformed  | al                                    | d                     |  |  |
| ale 0.954 Mean in Log Scale -1  | an in Original Scale 0.954            | an in Log Scale -1.   |  |  |
| ale 1.905 SD in Log Scale 1   | D in Original Scale 1.90              | D in Log Scale 1      |  |  |
| ity) 1.691 95% H-Stat UCL 2   | Assumes normality) 1.69               | 5% H-Stat UCL 2       |  |  |
| method, provided for comparisons and historical reasons                                 | a recommended method, pro             | I                     |  |  |
|   |                                       |                       |  |  |
| ametric Distribution Free UCL Statistics  | •                                     |                       |  |  |
| oximate Lognormal Distributed at 10% Significance Level                                 | ata appear Approximate Log            |                       |  |  |
|   |                                       |                       |  |  |
| Suggested UCL to Use  |                                       |                       |  |  |
| CL 1.697  | KM (t) UCL 1.69                       |                       |  |  |
|   |                                       |                       |  |  |
| nptions that the data were collected in a random and unbiased manner.                   | · · · · · · · · · · · · · · · · · · · | nanner.               |  |  |
| e data were collected from random locations.  | -                                     |                       |  |  |
| ted using judgmental or other non-random methods,                                       |                                       |                       |  |  |
| t a statistician to correctly calculate UCLs.   | then contact a statisticia            |                       |  |  |
|   |                                       |                       |  |  |
| 95% UCL are provided to help the user to select the most appropriate 95% UCL.           |                                       |                       |  |  |
| size, data distribution, and skewness using results from simulation studies.            |                                       |                       |  |  |
| al World data sets; for additional insight the user may want to consult a statistician. | not cover all Real World data         | nsult a statistician. |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
| General Statistics  | Gene                                  |                       |  |  |
| Ons         20         Number of Distinct Observations         1                        | per of Observations 20                | t Observations 1      |  |  |
| cts 0 Number of Non-Detects 2   | Number of Detects 0                   | of Non-Detects 20     |  |  |
| cts 0 Number of Distinct Non-Detects 1  | of Distinct Detects 0                 | ct Non-Detects 1      |  |  |
| ote (NDe), therefore all statistics and astimates should also be NDel                   | no oro Non Dotocto (NDc) -t           | NDel                  |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       | , EFC, BTV).          |  |  |
| ble C (soil I phenol I 108-05-2) was not processed                                      | data sat for variable C (asi)         |                       |  |  |
| שופיט (Sour   huerior   אפג ווסג hocessed:  | uata set for variable C (SOII         |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |
|   |                                       |                       |  |  |

| Total Number of Observations                  | 20            | Number of Distinct Observations                                  | 16       |
|---|---------------|--|----------|
|   | 20<br>9       | Number of Distinct Observations<br>Number of Non-Detects         | 16<br>11 |
| Number of Detects                             | 9<br>8        |  | 8        |
| Number of Distinct Detects                    |               | Number of Distinct Non-Detects                                   | -        |
| Minimum Detect                                | 0.0885        | Minimum Non-Detect   | 0.192    |
| Maximum Detect                                | 2.9           | Maximum Non-Detect   | 0.22     |
| Variance Detects                              | 1.389         | Percent Non-Detects  | 55%      |
| Mean Detects                                  | 0.999         | SD Detects   | 1.179    |
| Median Detects                                | 0.19          | CV Detects   | 1.18     |
| Skewness Detects                              | 1.041         | Kurtosis Detects   | -0.556   |
| Mean of Logged Detects                        | -0.837        | SD of Logged Detects   | 1.45     |
| Norm  |               | t on Detects Only  |          |
| Shapiro Wilk Test Statistic                   | 0.756         | Shapiro Wilk GOF Test  |          |
| 1% Shapiro Wilk Critical Value                | 0.764         | Detected Data Not Normal at 1% Significance Level                |          |
| Lilliefors Test Statistic                     | 0.309         | Lilliefors GOF Test  |          |
| 1% Lilliefors Critical Value                  | 0.309         | Detected Data appear Normal at 1% Significance Leve              |          |
|   |               | e Normal at 1% Significance Level                                |          |
|   |               | liable for small sample sizes                                    |          |
| Note GOF lesis i                              | nay be unre   |  |          |
| Kanlan-Meier (KM) Statistics usin             | n Normal Cr   | itical Values and other Nonparametric UCLs                       |          |
| KM Mean                                       | 0.525         | KM Standard Error of Mean  | 0.204    |
| 90KM SD                                       | 0.323         | 95% KM (BCA) UCL   | 0.204    |
| 95% KM (t) UCL                                | 0.878         | 95% KM (Percentile Bootstrap) UCL                                | 0.873    |
| 95% KM (t) UCL                                | 0.878         | 95% KM (Percentile Bootstrap) OCL<br>95% KM Bootstrap t UCL      | 1.224    |
| 90% KM Chebyshev UCL                          | 1.138         | 95% KM Boolstrap i OCL<br>95% KM Chebyshev UCL                   | 1.224    |
| 97.5% KM Chebyshev UCL                        | 1.801         | 99% KM Chebyshev UCL   | 2.558    |
|   | 1.001         |  | 2.000    |
| Gamma GOF                                     | Tests on De   | tected Observations Only   |          |
| A-D Test Statistic                            | 0.774         | Anderson-Darling GOF Test  |          |
| 5% A-D Critical Value                         | 0.754         | Detected Data Not Gamma Distributed at 5% Significance           | Level    |
| K-S Test Statistic                            | 0.308         | Kolmogorov-Smirnov GOF   |          |
| 5% K-S Critical Value                         | 0.29          | Detected Data Not Gamma Distributed at 5% Significance           | Level    |
| Detected Data Not C                           | amma Distr    | ibuted at 5% Significance Level                                  |          |
|   |               |  |          |
| Gamma   | Statistics on | Detected Data Only   |          |
| k hat (MLE)                                   | 0.721         | k star (bias corrected MLE)                                      | 0.554    |
| Theta hat (MLE)                               | 1.386         | Theta star (bias corrected MLE)                                  | 1.801    |
| nu hat (MLE)                                  | 12.97         | nu star (bias corrected)   | 9.979    |
| Mean (detects)                                | 0.999         |  |          |
|   |               |  |          |
| Gamma ROS                                     | Statistics us | sing Imputed Non-Detects   |          |
| GROS may not be used when data s              | et has > 50%  | % NDs with many tied observations at multiple DLs                |          |
| GROS may not be used when kstar of detects is | small such a  | is <1.0, especially when the sample size is small (e.g., <15-20) |          |
| For such situations, GROS                     | method may    | yield incorrect values of UCLs and BTVs                          |          |
| This is especi                                | ally true whe | en the sample size is small.                                     |          |
| For gamma distributed detected data, BTVs a   | nd UCLs ma    | ay be computed using gamma distribution on KM estimates          |          |
| Minimum                                       | 0.01          | Mean   | 0.516    |
| Maximum                                       | 2.9           | Median   | 0.125    |
| SD  | 0.891         | CV   | 1.725    |
| 50  | 5.001         |  | 1.72     |

| ) 0.516<br>) 1.001<br>) 20.64 | k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected)  | 1.094  |
|-------------------------------|---|--|
| ) 20.64                       |   |  |
|                               |   | 18.88  |
| ) 0.038                       |   |  |
| ) 10.03                       | Adjusted Chi Square Value (18.88, β)  | 9.52   |
| 0.972                         | 95% Gamma Adjusted UCL  | 1.024  |
|                               |   |  |
| amma Parar                    | neters using KM Estimates   |  |
| ) 0.525                       | SD (KM)   | 0.86   |
| ) 0.74                        | SE of Mean (KM)   | 0.204  |
| ) 0.373                       | k star (KM)   | 0.35   |
| ) 14.91                       | nu star (KM)  | 14.01  |
| ) 1.409                       | theta star (KM)   | 1.5  |
| ) 0.832                       | 90% gamma percentile (KM)   | 1.516  |
| ) 2.283                       | 99% gamma percentile (KM)   | 4.24   |
|                               |   |  |
| -                             |   |  |
|                               | Adjusted Chi Square Value (14.01, $\beta$ )   | 6.176  |
| _ 1.119                       | 95% KM Adjusted Gamma UCL   | 1.191  |
|                               |   |  |
|                               | -   |  |
|                               |   |  |
|                               |   | /el  |
|                               |   |  |
|                               |   | /el  |
| Not Lognorm                   | al at 10% Significance Level  |  |
| S Statistics I                | Ising Imputed Non Detects   |  |
|                               |   | -1.372   |
|                               |   | 1.1  |
|                               |   | 0.882  |
| ·                             | · · · · ·   | 1.257  |
|                               |   | 1.207  |
| ) 0.000                       |   |  |
| on Logged D                   | ata and Assuming Lognormal Distribution   |  |
|                               |   | 0.226  |
| ,                             |   | 2.794  |
|                               |   | 0.85   |
|                               |   | 2.794  |
|                               |   |  |
| <u>' </u>                     |   |  |
| DL/2 S                        | tatistics   |  |
|                               | DL/2 Log-Transformed  |  |
| e 0.505                       | Mean in Log Scale   | -1.637   |
| e 0.892                       | SD in Log Scale   | 1.199  |
|                               | 95% H-Stat UCL  | 0.895  |
| ,                             |   |  |
|                               | •   |  |
| etric Distribut               | tion Free UCL Statistics  |  |
|                               | Gamma Parai         0       0.525         0       0.74         0       0.373         1       0.373         1       14.91         1       14.91         1       1.409         1       1.409         1       2.283         ma Kaplan-M         1       6.576         1       1.119         OF Test on D         c       0.838         e       0.859         c       0.271         e       0.252         Not Lognorm         OS Statistics I         e       0.874         a)       0.884         L       0.957         b)       0.1487         a)       0.276         b)       -1.487         a)       0.276         b)       1.108         a)       0.276         b)       0.10276         c)       0.892         c)       0.892         c)       0.85 | Comma Parameters using KM Estimates           0         0.525         SD (KM)           0         0.74         SE of Mean (KM)           0         0.373         k star (KM)           0         14.91         nu star (KM)           0         14.91         nu star (KM)           0         1.409         theta star (KM)           0         0.832         90% gamma percentile (KM)           0         2.283         99% gamma percentile (KM)           0         2.283         99% gamma percentile (KM)           1.119         95% KM Adjusted Gamma UCL           OF Test on Detected Observations Only           c         0.838         Shapiro Wilk GOF Test           e         0.859         Detected Data Not Lognormal at 10% Significance Level           Not Lognormal at 10% Significance Level           Not Lognormal at 10% Significance Level           OS Statistics Using Imputed Non-Detects           e         0.546         Mean in Log Scale           a)         0.884         95% Percentile Bootstrap UCL           b)         0.938         0           Con Logged Data and Assuming Lognormal Distribution           b)         1.108 <td< td=""></td<> |

| Detected Data appear Approx  |  |   |  |
|--|--|---|--|
|  | Suggested UCL to Us  | e   |  |
| 95% KM (t) UCL   | 0.878  |   |  |
|  |  |   |  |
| The calculated UCLs are based on assumption  |  |   |  |
| If the data were collected   | ata were collected from  |   |  |
|  | statistician to correctly  |   |  |
|  |  |   |  |
|  |  | assing only one of the GOF tests,   |  |
| it is suggested to use a UCL bas   | ed upon a distribution   | passing both GOF tests in ProUCL  |  |
| Note: Suggestions regarding the selection of a 95%   | UCL are provided to I  | nelp the user to select the most appropriate 95% UCL  |  |
| Recommendations are based upon data size,  | data distribution, and   | skewness using results from simulation studies.   |  |
| However, simulations results will not cover all Real W   | orld data sets; for addi   | tional insight the user may want to consult a statisticia   | an.  |
| (soil   pyridine   110-86-1)   |  |   |  |
|  | General Statistics   |   |  |
| Total Number of Observations   | 20   | Number of Distinct Observations   | 15   |
| Number of Detects  | 0  | Number of Non-Detects   | 20   |
| Number of Distinct Detects   |  | Number of Distinct Non-Detects  | 15   |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | other statistics are also  | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!  |  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti   | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).   |  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti   | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).   |  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable of   | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti   | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).   |  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable of   | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti<br>C (soil   pyridine   110-  | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).   | 8  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)  | (NDs), therefore all sta<br>other statistics are also<br>a specific values to esti<br>C (soil   pyridine   110-  | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!   |  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | (NDs), therefore all statistics are also other statistics are also a specific values to esting the specific values to esting t | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 8 9 6  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | (NDs), therefore all states<br>other statistics are also<br>a specific values to esting<br>C (soil   pyridine   110-<br>General Statistics<br>11<br>2<br>2<br>0.041  | atistics and estimates should also be NDs!<br>o NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect S   | 8<br>9<br>6<br>2.6333E-  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | (NDs), therefore all statistics are also other statistics are also a specific values to esting the specific values to esting t | atistics and estimates should also be NDs!<br>p NDs lying below the largest detection limit!<br>imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect S<br>Maximum Non-Detect  | 8<br>9<br>6<br>9.6333E-<br>0.0019                                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti<br>C (soil   pyridine   110-<br>General Statistics<br>11<br>2<br>2<br>0.041<br>0.19<br>0.0111   | atistics and estimates should also be NDs!<br>b NDs lying below the largest detection limit!<br>imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect S<br>Maximum Non-Detect<br>Percent Non-Detects   | 8<br>9<br>6<br>9.6333E-<br>0.0019<br>81.829                          |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Variance Detects  | (NDs), therefore all statistics are also other statistics are also especific values to esting the specific values to esting th | atistics and estimates should also be NDs!<br>p NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects  | 8<br>9<br>6<br>0.6333E-<br>0.0019<br>81.829<br>0.105                 |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | (NDs), therefore all sta<br>other statistics are also<br>e specific values to esti<br>C (soil   pyridine   110-<br>General Statistics<br>11<br>2<br>2<br>0.041<br>0.19<br>0.0111   | atistics and estimates should also be NDs!<br>b NDs lying below the largest detection limit!<br>imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect S<br>Maximum Non-Detect<br>Percent Non-Detects   | 8<br>9<br>6<br>0.6333E<br>0.0019<br>81.829<br>0.105                  |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable of<br>(soil   sec-butylbenzene   135-98-8)<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects  | (NDs), therefore all statistics are also other statistics are also as specific values to esting the specific values to esting  | atistics and estimates should also be NDs!<br>D NDs lying below the largest detection limit!<br>mate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) was not processed!<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detects<br>Maximum Non-Detects<br>SD Detects<br>CV Detects   | 8<br>9<br>6<br>0.6333E-<br>0.0019<br>81.829<br>0.105<br>0.912<br>N/A |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | (NDs), therefore all statistics are also other statistics are also especific values to esting the specific values to estinget to esting the specific values  | Atistics and estimates should also be NDs!<br>D NDs lying below the largest detection limit!<br>Imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) | 8<br>9<br>6<br>9.6333E-4<br>0.0019<br>81.829<br>0.105<br>0.912       |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable (<br>(soil   sec-butylbenzene   135-98-8)<br>(soil   sec-butylbenzene   135-98-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects | (NDs), therefore all statistics are also other statistics are also especific values to esting the specific values to estinget to esting the specific values  | atistics and estimates should also be NDs!<br>D NDs lying below the largest detection limit!<br>imate environmental parameters (e.g., EPC, BTV).<br>86-1) was not processed!<br>86-1) | 8<br>9<br>6<br>0.6333E-<br>0.0019<br>81.829<br>0.105<br>0.912<br>N/A |

| Norma                                     | al GOF Tes       | t on Detects Only                          |         |
|---|------------------|--|---------|
| Not Eno                                   | ugh Data to      | Perform GOF Test                           |         |
|   |                  |  |         |
| Kaplan-Meier (KM) Statistics using        | Normal Cr        | itical Values and other Nonparametric UCLs |         |
| KM Mean                                   | 0.0218           | KM Standard Error of Mean                  | 0.0232  |
| 90KM SD                                   | 0.0544           | 95% KM (BCA) UCL                           | N/A     |
| 95% KM (t) UCL                            | 0.0638           | 95% KM (Percentile Bootstrap) UCL          | N/A     |
| 95% KM (z) UCL                            | 0.06             | 95% KM Bootstrap t UCL                     | N/A     |
| 90% KM Chebyshev UCL                      | 0.0914           | 95% KM Chebyshev UCL                       | 0.123   |
| 97.5% KM Chebyshev UCL                    | 0.167            | 99% KM Chebyshev UCL                       | 0.253   |
| Gamma GOF                                 | Tests on De      | tected Observations Only                   |         |
|   |                  | Perform GOF Test                           |         |
|   |                  |  |         |
| Gamma S                                   | Statistics on    | Detected Data Only                         |         |
| k hat (MLE)                               | 2.01             | k star (bias corrected MLE)                | N/A     |
| Theta hat (MLE)                           | 0.0575           | Theta star (bias corrected MLE)            | N/A     |
| nu hat (MLE)                              | 8.039            | nu star (bias corrected)                   | N/A     |
| Mean (detects)                            | 0.116            |  |         |
| Estimates of Ga                           | mma Parar        | neters using KM Estimates                  |         |
| Mean (KM)                                 | 0.0218           | SD (KM)                                    | 0.0544  |
| Variance (KM)                             | 0.00296          | SE of Mean (KM)                            | 0.0232  |
| k hat (KM)                                | 0.16             | k star (KM)                                | 0.177   |
| nu hat (KM)                               | 3.528            | nu star (KM)                               | 3.899   |
| theta hat (KM)                            | 0.136            | theta star (KM)                            | 0.123   |
| 80% gamma percentile (KM)                 | 0.0268           | 90% gamma percentile (KM)                  | 0.0657  |
| 95% gamma percentile (KM)                 | 0.116            | 99% gamma percentile (KM)                  | 0.256   |
|   |                  |  |         |
| Gamma                                     | a Kaplan-Me      | eier (KM) Statistics                       |         |
|   |                  | Adjusted Level of Significance (β)         | 0.0278  |
| Approximate Chi Square Value (3.90, α)    | 0.682            | Adjusted Chi Square Value (3.90, β)        | 0.498   |
| 95% KM Approximate Gamma UCL              | 0.125            | 95% KM Adjusted Gamma UCL                  | 0.171   |
| Lognormal GOF                             | Test on De       | etected Observations Only                  |         |
| Not Eno                                   | ugh Data to      | Perform GOF Test                           |         |
|   | <b>•</b> • • • • |  |         |
| _   |                  | Jsing Imputed Non-Detects                  | 7 700   |
| Mean in Original Scale                    | 0.0212           | Mean in Log Scale                          | -7.703  |
| SD in Original Scale                      | 0.0573           | SD in Log Scale                            | 2.89    |
| 95% t UCL (assumes normality of ROS data) | 0.0525           | 95% Percentile Bootstrap UCL               | 0.0522  |
| 95% BCA Bootstrap UCL                     | 0.073            | 95% Bootstrap t UCL                        | 3.545   |
| 95% H-UCL (Log ROS)                       | 21.71            |  |         |
| Statistics using KM estimates o           | n Logged D       | ata and Assuming Lognormal Distribution    |         |
| KM Mean (logged)                          | -6.124           | KM Geo Mean                                | 0.00219 |
| KM SD (logged)                            | 1.773            | 95% Critical H Value (KM-Log)              | 4.638   |
| KM Standard Error of Mean (logged)        | 0.756            | 95% H-UCL (KM -Log)                        | 0.142   |
| KM SD (logged)                            | 1.773            | 95% Critical H Value (KM-Log)              | 4.638   |

| KM Standard Error of Mean (logged)                     | 0.756          |   |        |
|--|----------------|---|--------|
|  |                |   |        |
|  | DL/2 S         |   |        |
| DL/2 Normal  | 0.0017         | DL/2 Log-Transformed  | 0.050  |
| Mean in Original Scale                                 | 0.0217         | Mean in Log Scale   | -6.252 |
| SD in Original Scale                                   | 0.0571         | SD in Log Scale   | 1.931  |
| 95% t UCL (Assumes normality)                          | 0.0529         | 95% H-Stat UCL  | 0.262  |
| DL/2 is not a recommended men                          | inoa, provia   | ed for comparisons and historical reasons                             |        |
| Nonparamet   | tric Distribut | ion Free UCL Statistics   |        |
|  |                | iscernible Distribution   |        |
|  |                |   |        |
|  | Suggested      | UCL to Use  |        |
| 95% KM (t) UCL   | 0.0638         |   |        |
|  |                |   |        |
| Note: Suggestions regarding the selection of a 95%     | UCL are p      | rovided to help the user to select the most appropriate 95% UCL       |        |
| Recommendations are based upon data size,              | data distrib   | ution, and skewness using results from simulation studies.            |        |
| However, simulations results will not cover all Real W | orld data se   | ts; for additional insight the user may want to consult a statisticia | an.    |
|  |                |   |        |
| C (soil   selenium   7782-49-2)                        |                |   |        |
|  |                |   |        |
|  |                | Statistics  |        |
| Total Number of Observations                           | 20             | Number of Distinct Observations                                       | 14     |
| Number of Detects                                      | 0              | Number of Non-Detects   | 20     |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects  | 14     |
|  |                |   |        |
|  |                | efore all statistics and estimates should also be NDs!                |        |
|  |                | ics are also NDs lying below the largest detection limit!             |        |
| The Project Team may decide to use alternative site    | specific va    | lues to estimate environmental parameters (e.g., EPC, BTV).           |        |
| The data and forwardship O                             | (              |   |        |
| I ne data set for variable C                           | (soli   seler  | ium   7782-49-2) was not processed!                                   |        |
|  |                |   |        |
| C (soil   silver   7440-22-4)                          |                |   |        |
|  |                |   |        |
|  | General        | Statistics  |        |
| Total Number of Observations                           | 20             | Number of Distinct Observations                                       | 14     |
| Number of Detects                                      | 0              | Number of Non-Detects   | 20     |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects  | 14     |
|  |                |   |        |
| Warning: All observations are Non-Detects              | (NDs), there   | efore all statistics and estimates should also be NDs!                |        |
| Specifically, sample mean, UCLs, UPLs, and             | other statist  | ics are also NDs lying below the largest detection limit!             |        |
| The Project Team may decide to use alternative site    | specific va    | lues to estimate environmental parameters (e.g., EPC, BTV).           |        |
|  |                |   |        |
| The data set for variable                              | C (soil   silv | er   7440-22-4) was not processed!                                    |        |
|  |                |   |        |
|  |                |   |        |
| C (soil   styrene   100-42-5)                          |                |   |        |

|   | General        | Statistics   |    |
|---|----------------|--|----|
| Total Number of Observations                        | 11             | Number of Distinct Observations                              | 8  |
| Number of Detects                                   | 0              | Number of Non-Detects  | 11 |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                               | 8  |
|   | (1.10)         |  |    |
|   | <u> </u>       | efore all statistics and estimates should also be NDs!       |    |
|   |                | tics are also NDs lying below the largest detection limit    |    |
|   | e specific va  | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable                           | C (soil   sty  | rene   100-42-5) was not processed!                          |    |
| C (soil   t-amyl methyl ether   994-05-8)           |                |  |    |
|   | General        | Statistics   |    |
| Total Number of Observations                        | 11             | Number of Distinct Observations                              | 10 |
| Number of Detects                                   | 0              | Number of Non-Detects  | 11 |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                               | 10 |
|   |                |  |    |
| -   |                | efore all statistics and estimates should also be NDs!       |    |
| Specifically, sample mean, UCLs, UPLs, and          | other statis   | tics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site | e specific va  | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (so                     | il tamul me    | ethyl ether   994-05-8) was not processed!                   |    |
|   | in preamy me   |  |    |
|   |                |  |    |
| C (soil   tert-butyl alcohol   75-65-0)             |                |  |    |
|   |                |  |    |
|   | General        | Statistics   |    |
| Total Number of Observations                        | 11             | Number of Distinct Observations                              | 10 |
| Number of Detects                                   | 0              | Number of Non-Detects  | 11 |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                               | 10 |
|   |                |  |    |
| -   | 1              | refore all statistics and estimates should also be NDs!      |    |
|   |                | tics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative site | e specific va  | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (e                      | oil I tert-but | yl alcohol   75-65-0) was not processed!                     |    |
|   |                |  |    |
|   |                |  |    |
| C (soil   tert-butylbenzene   98-06-6)              |                |  |    |
|   | General        | Statistics   |    |
| Total Number of Observations                        | 11             | Number of Distinct Observations                              | 11 |
| Number of Detects                                   | 0              | Number of Non-Detects  | 11 |
| Number of Distinct Detects                          | 0              | Number of Distinct Non-Detects                               | 11 |
|   |                |  |    |
| Warning: All observations are Non-Detects           | (NDs), ther    | efore all statistics and estimates should also be NDs!       |    |
| Specifically, sample mean, UCLs, UPLs, and          | other statis   | tics are also NDs lying below the largest detection limit!   |    |

| The Project Team may decide to use alternative sit | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |        |
|--|-----------------|---|--------|
| The data set for variable C (s                     | oil   tert-buty | vlbenzene   98-06-6) was not processed!                     |        |
|  |                 |   |        |
| C (soil   tetrachloroethene   127-18-4)            |                 |   |        |
|  | General         | Statistics  |        |
| Total Number of Observations                       | 11              | Number of Distinct Observations                             | 8      |
| Number of Detects                                  | 0               | Number of Non-Detects                                       | 11     |
| Number of Distinct Detects                         | 0               | Number of Distinct Non-Detects                              | 8      |
| Warning: All observations are Non-Detects          | (NDs) then      | efore all statistics and estimates should also be NDs!      |        |
|  |                 | tics are also NDs lying below the largest detection limit!  |        |
|  |                 | lues to estimate environmental parameters (e.g., EPC, BTV). |        |
|  | e specific va   |   |        |
| The data set for variable C (so                    | oil   tetrachlo | roethene   127-18-4) was not processed!                     |        |
| ``````````````````````````````````````             | •               |   |        |
|  |                 |   |        |
| C (soil   tetrahydrofuran   109-99-9)              |                 |   |        |
|  |                 |   |        |
|  | General         | Statistics  |        |
| Total Number of Observations                       | 11              | Number of Distinct Observations                             | 10     |
| Number of Detects                                  | 0               | Number of Non-Detects                                       | 11     |
| Number of Distinct Detects                         | 0               | Number of Distinct Non-Detects                              | 10     |
|  |                 |   |        |
| _  |                 | efore all statistics and estimates should also be NDs!      |        |
|  |                 | tics are also NDs lying below the largest detection limit!  |        |
| The Project Team may decide to use alternative sit | e specific va   | lues to estimate environmental parameters (e.g., EPC, BTV). |        |
|  |                 | drofuran   109-99-9) was not processed!                     |        |
|  |                 | aroturan   109-99-9) was not processed!                     |        |
|  |                 |   |        |
| C (soil   thallium   7440-28-0)                    |                 |   |        |
|  |                 |   |        |
|  | General         | Statistics  |        |
| Total Number of Observations                       | 20              | Number of Distinct Observations                             | 17     |
| Number of Detects                                  | 3               | Number of Non-Detects                                       | 17     |
| Number of Distinct Detects                         | 3               | Number of Distinct Non-Detects                              | 14     |
| Minimum Detect                                     | 1.35            | Minimum Non-Detect  | 0.877  |
| Maximum Detect                                     | 1.45            | Maximum Non-Detect  | 2.5    |
| Variance Detects                                   | 0.0025          | Percent Non-Detects   | 85%    |
| Mean Detects                                       | 1.4             | SD Detects  | 0.05   |
| Median Detects                                     |                 | CV Detects  | 0.0357 |
| Skewness Detects                                   |                 | Kurtosis Detects  | N/A    |
| Mean of Logged Detects                             | 0.336           | SD of Logged Detects  | 0.0357 |
| Marian D   | ata est has     | only 3 Detected Values.                                     |        |
| _  |                 | ful or reliable statistics and estimates.                   |        |
| i his is not enough to comp                        | ure meaning     | Jui or reliable statistics and estimates.                   |        |

| Norm  | al GOF Test    | on Detects Only  |          |
|---|----------------|--|----------|
| Shapiro Wilk Test Statistic                     | 1              | Shapiro Wilk GOF Test  |          |
| 1% Shapiro Wilk Critical Value                  | 0.753          | Detected Data appear Normal at 1% Significance Levent          | /el      |
| Lilliefors Test Statistic                       | 0.175          | Lilliefors GOF Test  |          |
| 1% Lilliefors Critical Value                    | 0.429          | Detected Data appear Normal at 1% Significance Levent          | vel      |
| Detected Data a                                 | ppear Norma    | al at 1% Significance Level                                    |          |
| Note GOF tests n                                | nay be unreli  | able for small sample sizes                                    |          |
| Kaplan-Meier (KM) Statistics using              | normal Crit    | ical Values and other Nonparametric UCLs                       |          |
| KM Mean   | 1.051          | KM Standard Error of Mean                                      | 0.101    |
| 90KM SD   | 0.248          | 95% KM (BCA) UCL   | N/A      |
| 95% KM (t) UCL                                  | 1.226          | 95% KM (Percentile Bootstrap) UCL                              | N/A      |
| 95% KM (z) UCL                                  | 1.218          | 95% KM Bootstrap t UCL   | N/A      |
| 90% KM Chebyshev UCL                            | 1.355          | 95% KM Chebyshev UCL   | 1.492    |
| 97.5% KM Chebyshev UCL                          | 1.683          | 99% KM Chebyshev UCL   | 2.058    |
|   | 1.000          |  | 2.000    |
| Gamma GOF                                       | Tests on Det   | ected Observations Only  |          |
| A-D Test Statistic                              | 0.246          | Anderson-Darling GOF Test                                      |          |
| 5% A-D Critical Value                           | 0.635          | Detected data appear Gamma Distributed at 5% Significan        | ce Level |
| K-S Test Statistic                              | 0.224          | Kolmogorov-Smirnov GOF   |          |
| 5% K-S Critical Value                           | 0.431          | Detected data appear Gamma Distributed at 5% Significan        | ce Level |
| Detected Data Not G                             | amma Distril   | outed at 5% Significance Level                                 |          |
|   |                |  |          |
| Gamma   | Statistics on  | Detected Data Only   |          |
| k hat (MLE)                                     | 1175           | k star (bias corrected MLE)                                    | N/A      |
| Theta hat (MLE)                                 | 0.00119        | Theta star (bias corrected MLE)                                | N/A      |
| nu hat (MLE)                                    | 7052           | nu star (bias corrected)                                       | N/A      |
| Mean (detects)                                  | 1.4            |  |          |
|   |                |  |          |
| Gamma ROS                                       | Statistics usi | ng Imputed Non-Detects   |          |
| GROS may not be used when data se               | et has > 50%   | NDs with many tied observations at multiple DLs                |          |
| GROS may not be used when kstar of detects is a | small such as  | s<1.0, especially when the sample size is small (e.g., <15-20) |          |
| For such situations, GROS r                     | method may     | vield incorrect values of UCLs and BTVs                        |          |
| This is especia                                 | ally true wher | n the sample size is small.                                    |          |
| For gamma distributed detected data, BTVs a     | nd UCLs may    | y be computed using gamma distribution on KM estimates         |          |
| Minimum   | 1.169          | Mean   | 1.264    |
| Maximum   | 1.45           | Median   | 1.26     |
| SD  | 0.0754         | CV   | 0.0596   |
| k hat (MLE)                                     | 306.6          | k star (bias corrected MLE)                                    | 260.6    |
| Theta hat (MLE)                                 | 0.00412        | Theta star (bias corrected MLE)                                | 0.00485  |
| nu hat (MLE)                                    |                | nu star (bias corrected)                                       | 10426    |
| Adjusted Level of Significance (β)              | 0.038          |  |          |
| Approximate Chi Square Value (N/A, α)           |                | Adjusted Chi Square Value (N/A, β)                             | 10171    |
| 95% Gamma Approximate UCL                       | 1.293          | 95% Gamma Adjusted UCL   | N/A      |
|   |                |  |          |
| Estimates of Ga                                 | amma Param     | eters using KM Estimates                                       |          |
|   |                |  |          |

| Variance (KM)                                      | 0.0614       | SE of Mean (KM)  | 0.101  |
|--|--------------|--|--------|
| k hat (KM)   | 17.99        | k star (KM)  | 15.32  |
| nu hat (KM)  | 719.6        | nu star (KM)   | 613    |
| theta hat (KM)                                     | 0.0584       | theta star (KM)  | 0.0686 |
| 80% gamma percentile (KM)                          | 1.268        | 90% gamma percentile (KM)                                      | 1.407  |
| 95% gamma percentile (KM)                          | 1.528        | 99% gamma percentile (KM)                                      | 1.774  |
| Gamm   | a Kaplan-Me  | ier (KM) Statistics  |        |
| Approximate Chi Square Value (612.96, $\alpha$ )   | 556.5        | Adjusted Chi Square Value (612.96, $\beta$ )                   | 552.3  |
| 95% KM Approximate Gamma UCL                       | 1.158        | 95% KM Adjusted Gamma UCL                                      | 1.167  |
| Lognormal GO                                       | F Test on De | tected Observations Only                                       |        |
| Shapiro Wilk Test Statistic                        | 1            | Shapiro Wilk GOF Test  |        |
| 10% Shapiro Wilk Critical Value                    | 0.789        | Detected Data appear Lognormal at 10% Significance L           | evel   |
| Lilliefors Test Statistic                          | 0.176        | Lilliefors GOF Test  |        |
| 10% Lilliefors Critical Value                      | 0.389        | Detected Data appear Lognormal at 10% Significance L           | evel   |
| Detected Data app                                  | ear Lognorm  | nal at 10% Significance Level                                  |        |
|  | _            | able for small sample sizes                                    |        |
|  | Statiation L | sing Imputed Non-Detects                                       |        |
| Mean in Original Scale                             | 1.27         | Mean in Log Scale  | 0.238  |
| SD in Original Scale                               | 0.0712       | SD in Log Scale  | 0.0546 |
| 95% t UCL (assumes normality of ROS data)          | 1.298        | 95% Percentile Bootstrap UCL                                   | 1.296  |
| 95% BCA Bootstrap UCL                              | 1.299        | 95% Bootstrap t UCL  | 1.304  |
| 95% H-UCL (Log ROS)                                | N/A          |  |        |
| Statistics using KM estimates of                   | n Logged Da  | ata and Assuming Lognormal Distribution                        |        |
| KM Mean (logged)                                   | 0.0243       | KM Geo Mean  | 1.025  |
| KM SD (logged)                                     | 0.221        | 95% Critical H Value (KM-Log)                                  | 1.799  |
| KM Standard Error of Mean (logged)                 | 0.0903       | 95% H-UCL (KM -Log)  | 1.15   |
| KM SD (logged)                                     | 0.221        | 95% Critical H Value (KM-Log)                                  | 1.799  |
| KM Standard Error of Mean (logged)                 | 0.0903       |  |        |
|  | DL/2 Sta     | atietice   |        |
| DL/2 Normal  |              | DL/2 Log-Transformed   |        |
| Mean in Original Scale                             | 0.88         | Mean in Log Scale  | -0.205 |
| SD in Original Scale                               | 0.331        | SD in Log Scale  | 0.418  |
| 95% t UCL (Assumes normality)                      | 1.008        | 95% H-Stat UCL   | 1.072  |
|  |              | ed for comparisons and historical reasons                      |        |
|  |              |  |        |
| _  |              | on Free UCL Statistics   |        |
| Detected Data appear                               | Normal Dist  | ributed at 1% Significance Level                               |        |
|  | Suggested L  | JCL to Use   |        |
| 95% KM (t) UCL                                     | 1.226        |  |        |
| Note: Suggestions regarding the selection of a 95% | UCL are pro  | ovided to help the user to select the most appropriate 95% UCL |        |
|  |              | ution, and skewness using results from simulation studies.     | •      |
|  | ,            |  |        |

|                                    | General S     | Statistics  |        |
|------------------------------------|---------------|---|--------|
| Total Number of Observations       | 21            | Number of Distinct Observations                                     | 17     |
| Number of Detects                  | 3             | Number of Non-Detects   | 18     |
| Number of Distinct Detects         | 3             | Number of Distinct Non-Detects                                      | 14     |
| Minimum Detect                     | 4.8000E-4     | Minimum Non-Detect 5.   | .5667E |
| Maximum Detect                     | 13            | Maximum Non-Detect  | 0.44   |
| Variance Detects                   | 45.88         | Percent Non-Detects   | 85.7   |
| Mean Detects                       | 5.4           | SD Detects  | 6.77   |
| Median Detects                     | 3.2           | CV Detects  | 1.25   |
| Skewness Detects                   | 1.307         | Kurtosis Detects  | N/A    |
| Mean of Logged Detects             | -1.305        | SD of Logged Detects  | 5.53   |
|                                    |               | nly 3 Detected Values.<br>ful or reliable statistics and estimates. |        |
| Norm                               | al GOF Test   | on Detects Only   |        |
| Shapiro Wilk Test Statistic        | 0.921         | Shapiro Wilk GOF Test   |        |
| 1% Shapiro Wilk Critical Value     | 0.753         | Detected Data appear Normal at 1% Significance Leve                 | el     |
| Lilliefors Test Statistic          | 0.294         | Lilliefors GOF Test   |        |
| 1% Lilliefors Critical Value       | 0.429         | Detected Data appear Normal at 1% Significance Leve                 | el     |
|                                    | appear Norma  | al at 1% Significance Level   |        |
| Note GOF tests r                   | may be unrel  | iable for small sample sizes  |        |
|                                    | -             |   |        |
| Kaplan-Meier (KM) Statistics using | g Normal Cri  | tical Values and other Nonparametric UCLs                           |        |
| KM Mean                            | 0.772         | KM Standard Error of Mean   | 0.75   |
| 90KM SD                            | 2.818         | 95% KM (BCA) UCL  | N/A    |
| 95% KM (t) UCL                     | 2.071         | 95% KM (Percentile Bootstrap) UCL                                   | N/A    |
| 95% KM (z) UCL                     | 2.011         | 95% KM Bootstrap t UCL  | N/A    |
| 90% KM Chebyshev UCL               | 3.031         | 95% KM Chebyshev UCL  | 4.05   |
| 97.5% KM Chebyshev UCL             | 5.475         | 99% KM Chebyshev UCL  | 8.2    |
| Gamma GOF                          | Tests on Det  | ected Observations Only   |        |
| A-D Test Statistic                 | 0.397         | Anderson-Darling GOF Test   |        |
| 5% A-D Critical Value              | 0.681         | Detected data appear Gamma Distributed at 5% Significance           | e Leve |
| K-S Test Statistic                 | 0.338         | Kolmogorov-Smirnov GOF  |        |
| 5% K-S Critical Value              | 0.46          | Detected data appear Gamma Distributed at 5% Significance           | e Leve |
|                                    |               | buted at 5% Significance Level                                      |        |
| Gamma                              | Statistics on | Detected Data Only  |        |
| k hat (MLE)                        | 0.239         | k star (bias corrected MLE)   | N/A    |
|                                    | 22.58         | Theta star (bias corrected MLE)                                     | N/A    |
| Theta hat (MLE)                    |               |   | N/A    |
| Theta hat (MLE)<br>nu hat (MLE)    | 1.435         | nu star (bias corrected)  | IN/A   |
|                                    | 1.435<br>5.4  | nu star (bias corrected)  |        |

| GROS may not be used when data s   | et has > 50%   | 6 NDs with many tied observations at multiple DLs                |         |  |  |  |
|--|----------------|--|---------|--|--|--|
| GROS may not be used when kstar of detects is                                    | small such a   | is <1.0, especially when the sample size is small (e.g., <15-20) |         |  |  |  |
| For such situations, GROS  | method may     | yield incorrect values of UCLs and BTVs                          |         |  |  |  |
| This is especi   | ally true whe  | en the sample size is small.                                     |         |  |  |  |
| For gamma distributed detected data, BTVs a                                      | and UCLs ma    | ay be computed using gamma distribution on KM estimates          |         |  |  |  |
| Minimum  | 4.8000E-4      | Mean   | 0.78    |  |  |  |
| Maximum  | 13             | Median   | 0.01    |  |  |  |
| SD   | 2.885          | CV   | 3.699   |  |  |  |
| k hat (MLE)  | 0.191          | k star (bias corrected MLE)                                      | 0.195   |  |  |  |
| Theta hat (MLE)  | 4.088          | Theta star (bias corrected MLE)                                  | 3.994   |  |  |  |
| nu hat (MLE)   | 8.014          | nu star (bias corrected)   | 8.202   |  |  |  |
| Adjusted Level of Significance (β)   | 0.0383         |  |         |  |  |  |
| Approximate Chi Square Value (8.20, α)   | 2.853          | Adjusted Chi Square Value (8.20, β)                              | 2.615   |  |  |  |
| 95% Gamma Approximate UCL  | 2.243          | 95% Gamma Adjusted UCL   | N/A     |  |  |  |
| Estimates of G   | amma Parar     | neters using KM Estimates  |         |  |  |  |
| Mean (KM)  | 0.772          | SD (KM)  | 2.818   |  |  |  |
| Variance (KM)  | 7.939          | SE of Mean (KM)  | 0.753   |  |  |  |
| k hat (KM)   | 0.075          | k star (KM)  | 0.0961  |  |  |  |
| nu hat (KM)  | 3.152          | nu star (KM)   | 4.035   |  |  |  |
| theta hat (KM)   | 10.29          | theta star (KM)  | 8.035   |  |  |  |
| 80% gamma percentile (KM)  | 0.504          | 90% gamma percentile (KM)  | 2.019   |  |  |  |
| 95% gamma percentile (KM)  | 4.489          | 99% gamma percentile (KM)  | 12.51   |  |  |  |
| Gamm   | a Kaplan-Me    | eier (KM) Statistics   |         |  |  |  |
| Approximate Chi Square Value (4.03, α)   | 0.735          | Adjusted Chi Square Value (4.03, β)                              | 0.638   |  |  |  |
| 95% KM Approximate Gamma UCL   | 4.234          | 95% KM Adjusted Gamma UCL  | 4.881   |  |  |  |
| 95% KM Adjusted G  | iamma UCL      | (use when k<=1 and 15 < n < 50)                                  |         |  |  |  |
| Lognormal GO   | F Test on De   | etected Observations Only  |         |  |  |  |
| Shapiro Wilk Test Statistic  | 0.851          | Shapiro Wilk GOF Test  |         |  |  |  |
| 10% Shapiro Wilk Critical Value  | 0.789          | Detected Data appear Lognormal at 10% Significance               | Level   |  |  |  |
| Lilliefors Test Statistic  | 0.339          | Lilliefors GOF Test  |         |  |  |  |
| 10% Lilliefors Critical Value  | 0.389          | Detected Data appear Lognormal at 10% Significance               | Level   |  |  |  |
| Detected Data ap   | pear Lognorr   | nal at 10% Significance Level                                    |         |  |  |  |
| Note GOF tests   | may be unre    | liable for small sample sizes                                    |         |  |  |  |
| Lognormal ROS  | S Statistics L | Jsing Imputed Non-Detects  |         |  |  |  |
| Mean in Original Scale   | 0.772          | Mean in Log Scale  | -6.73   |  |  |  |
| SD in Original Scale   | 2.887          | SD in Log Scale  | 3.143   |  |  |  |
| 95% t UCL (assumes normality of ROS data)  | 1.859          | 95% Percentile Bootstrap UCL                                     | 2.01    |  |  |  |
| 95% BCA Bootstrap UCL  | 2.781          | 95% Bootstrap t UCL  | 1684    |  |  |  |
| 95% H-UCL (Log ROS)  | 12.73          | · · ·  |         |  |  |  |
| Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution |                |  |         |  |  |  |
| KM Mean (logged)   | -6.736         | KM Geo Mean  | 0.00119 |  |  |  |
| KM SD (logged)   | 2.799          | 95% Critical H Value (KM-Log)                                    | 5.544   |  |  |  |
| KM Standard Error of Mean (logged)   |                | 95% H-UCL (KM -Log)  | 1.915   |  |  |  |
| KM SD (logged)   | 2.799          | 95% Critical H Value (KM-Log)                                    | 5.544   |  |  |  |
|  | 2.100          |  | 0.044   |  |  |  |

| KM Standard Error of Mean (logged)                                   | 0.748          |   |        |
|--|----------------|---|--------|
|  |                |   |        |
|  | DL/2 S         | tatistics   |        |
| DL/2 Normal  |                | DL/2 Log-Transformed  |        |
| Mean in Original Scale   | 0.822          | Mean in Log Scale   | -4.289 |
| SD in Original Scale   | 2.874          | SD in Log Scale   | 3.18   |
| 95% t UCL (Assumes normality)  | 1.904          | 95% H-Stat UCL  | 181.4  |
| DL/2 is not a recommended met  | hod, provid    | ed for comparisons and historical reasons   |        |
| Nonparamet   | ric Distribut  | ion Free UCL Statistics   |        |
| · · · · · · · · · · · · · · · · · · ·                                |                | tributed at 1% Significance Level   |        |
|  |                |   |        |
|  | Suggested      | UCL to Use  |        |
| 95% KM (t) UCL   | 2.071          |   |        |
|  |                |   |        |
|  |                | data were collected in a random and unbiased manner.  |        |
| -  |                | lected from random locations.   |        |
|  |                | nental or other non-random methods,   |        |
| then contact a s   | tatistician to | o correctly calculate UCLs.   |        |
| Note: Our postions repeating the colorities of $\sigma O \Gamma^{0}$ |                |   |        |
|  |                | rovided to help the user to select the most appropriate 95% UCL.<br>nution, and skewness using results from simulation studies. |        |
|  |                | ets; for additional insight the user may want to consult a statisticia  |        |
|  |                |   |        |
| C (soil   trans-1,2-dichloroethene   156-60-5)                       |                |   |        |
|  | General        | Statistics  |        |
| Total Number of Observations   | 11             | Number of Distinct Observations   | 8      |
| Number of Detects  | 0              | Number of Non-Detects   | 11     |
| Number of Distinct Detects   | 0              | Number of Distinct Non-Detects  | 8      |
|  |                |   |        |
| Warning: All observations are Non-Detects                            | (NDs), there   | efore all statistics and estimates should also be NDs!  |        |
| Specifically, sample mean, UCLs, UPLs, and o                         | other statist  | ics are also NDs lying below the largest detection limit!   |        |
| The Project Team may decide to use alternative site                  | specific va    | lues to estimate environmental parameters (e.g., EPC, BTV).   |        |
|  |                |   |        |
| The data set for variable C (soil   tr                               | ans-1,2-dic    | chloroethene   156-60-5) was not processed!   |        |
|  |                |   |        |
| C (soil   trans-1,4-dichloro-2-butene   110-57-6)                    |                |   |        |
|  |                |   |        |
|  | General        | Statistics  |        |
| Total Number of Observations   | 11             | Number of Distinct Observations   | 11     |
| Number of Detects  | 0              | Number of Non-Detects   | 11     |
| Number of Distinct Detects   | 0              | Number of Distinct Non-Detects  | 11     |
|  |                | 1   |        |
| Warning: All observations are Non-Detects                            | (NDs), ther    | efore all statistics and estimates should also be NDs!  |        |
| Specifically, sample mean, UCLs, UPLs, and o                         | other statist  | ics are also NDs lying below the largest detection limit!   |        |
| The Project Team may decide to use alternative site                  | specific va    | lues to estimate environmental parameters (e.g., EPC, BTV).   |        |
|  |                |   |        |

## The data set for variable C (soil | trans-1,4-dichloro-2-butene | 110-57-6) was not processed! C (soil | trichloroethene | 79-01-6) **General Statistics** Total Number of Observations 11 Number of Distinct Observations 8 Number of Detects 0 Number of Non-Detects 11 Number of Distinct Detects 0 Number of Distinct Non-Detects 8 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soil | trichloroethene | 79-01-6) was not processed! C (soil | trichlorofluoromethane | 75-69-4) **General Statistics** Number of Distinct Observations **Total Number of Observations** 11 10 Number of Detects 0 Number of Non-Detects 11 Number of Distinct Detects 0 Number of Distinct Non-Detects 10 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (soil | trichlorofluoromethane | 75-69-4) was not processed! C (soil | vanadium | 7440-62-2) **General Statistics** Total Number of Observations 20 Number of Distinct Observations 20 Number of Missing Observations 0 Minimum 15 Mean 32.42 Maximum 110 Median 27.08 SD 20.53 Std. Error of Mean 4.59 Coefficient of Variation 0.633 Skewness 3.187 Normal GOF Test Shapiro Wilk Test Statistic 0.593 Shapiro Wilk GOF Test 1% Shapiro Wilk Critical Value 0.868 Data Not Normal at 1% Significance Level Lilliefors Test Statistic 0.365 Lilliefors GOF Test Data Not Normal at 1% Significance Level 1% Lilliefors Critical Value 0.223 Data Not Normal at 1% Significance Level

| OEO/ Nama at tiot   | suming Normal I   |   |                                      |
|---|---|---|--------------------------------------|
| 95% Normal UCL  |   | 95% UCLs (Adjusted for Skewness)  | 10.10                                |
| 95% Student's-t UCL   | 40.36   | 95% Adjusted-CLT UCL (Chen-1995)<br>95% Modified-t UCL (Johnson-1978)   | 43.46                                |
|   |   | 35 % Middilled-LOCE (Johnson-1978)  | 40.9                                 |
|   | Gamma GOF   | Test  |                                      |
| A-D Test Statistic  | 1.884   | Anderson-Darling Gamma GOF Test   |                                      |
| 5% A-D Critical Value   | 0.745   | Data Not Gamma Distributed at 5% Significance Leve  | el                                   |
| K-S Test Statistic  | 0.309   | Kolmogorov-Smirnov Gamma GOF Test   |                                      |
| 5% K-S Critical Value   | 0.195   | Data Not Gamma Distributed at 5% Significance Leve  | el                                   |
| Data Not Gamm   | a Distributed at  | 5% Significance Level   |                                      |
|   | Gamma Stat  | istics  |                                      |
| k hat (MLE)   | 4.724   | k star (bias corrected MLE)   | 4.04                                 |
| Theta hat (MLE)   | 6.863   | Theta star (bias corrected MLE)   | 8.00                                 |
| nu hat (MLE)  | 188.9   | nu star (bias corrected)  | 161.9                                |
| MLE Mean (bias corrected)   | 32.42   | MLE Sd (bias corrected)   | 16.1                                 |
|   |   | Approximate Chi Square Value (0.05)   | 133.5                                |
| Adjusted Level of Significance  | 0.038   | Adjusted Chi Square Value   | 131.5                                |
|   |   |   |                                      |
|   | uming Gamma   |   |                                      |
| 95% Approximate Gamma UCL   | 39.32   | 95% Adjusted Gamma UCL  | 39.9                                 |
|   | Lognormal GC  | F Test  |                                      |
| Shapiro Wilk Test Statistic   | 0.825   | Shapiro Wilk Lognormal GOF Test   |                                      |
| 10% Shapiro Wilk Critical Value   | 0.92  | Data Not Lognormal at 10% Significance Level  |                                      |
| Lilliefors Test Statistic   | 0.27  | Lilliefors Lognormal GOF Test   |                                      |
| 10% Lilliefors Critical Value   | 0.176   | Data Not Lognormal at 10% Significance Level  |                                      |
| Data Not Lo   | gnormal at 10%  | Significance Level  |                                      |
|   | Lognormal Sta   | itistics  |                                      |
| Minimum of Logged Data  | 2.708   | Mean of logged Data   | 3.36                                 |
|   |   |   |                                      |
| Maximum of Logged Data  | 4.7   | SD of logged Data   | 0.42                                 |
|   | 4.7   | SD of logged Data   | 0.42                                 |
| Maximum of Logged Data  | ming Lognorma   | I Distribution  |                                      |
| Maximum of Logged Data<br>Assu<br>95% H-UCL   | ming Lognorma   | I Distribution<br>90% Chebyshev (MVUE) UCL  | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL<br>95% Chebyshev (MVUE) UCL   | ming Lognorma<br>38.51<br>45.18   | I Distribution  | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL   | ming Lognorma   | I Distribution<br>90% Chebyshev (MVUE) UCL  | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet   | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution   | I Distribution<br>90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL  | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet   | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution   | I Distribution<br>90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL  | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data do no                                 | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution   | I Distribution<br>90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution   | 40.9                                 |
| Maximum of Logged Data<br>Assu<br>95% H-UCL<br>95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data do no                                 | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution<br>ot follow a Disce  | I Distribution<br>90% Chebyshev (MVUE) UCL<br>97.5% Chebyshev (MVUE) UCL<br>Free UCL Statistics<br>mible Distribution   | 40.9                                 |
| Maximum of Logged Data Assur 95% H-UCL 95% Chebyshev (MVUE) UCL 99% Chebyshev (MVUE) UCL Nonparamet Data do no Nonpara  | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution<br>ot follow a Disce  | I Distribution 90% Chebyshev (MVUE) UCL 97.5% Chebyshev (MVUE) UCL Free UCL Statistics mible Distribution tion Free UCLs  | 0.42<br>40.9<br>51.0<br>44.3<br>50.3 |
| Maximum of Logged Data Assu 95% H-UCL 95% Chebyshev (MVUE) UCL 99% Chebyshev (MVUE) UCL Nonparamet Data do no Nonpara 95% CLT UCL                               | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution<br>ot follow a Disce<br>ametric Distribu<br>39.97                   | I Distribution 90% Chebyshev (MVUE) UCL 97.5% Chebyshev (MVUE) UCL Free UCL Statistics mible Distribution tion Free UCLs 95% BCA Bootstrap UCL                      | 40.9<br>51.0<br>44.3                 |
| Maximum of Logged Data Assu 95% H-UCL 95% Chebyshev (MVUE) UCL 99% Chebyshev (MVUE) UCL Nonparamet Data do no Nonparamet 95% CLT UCL 95% Standard Bootstrap UCL | ming Lognorma<br>38.51<br>45.18<br>62.52<br>tric Distribution<br>ot follow a Discention<br>ametric Distribution<br>39.97<br>39.73 | I Distribution 90% Chebyshev (MVUE) UCL 97.5% Chebyshev (MVUE) UCL Free UCL Statistics rnible Distribution tion Free UCLs 95% BCA Bootstrap UCL 95% Bootstrap-t UCL | 40.9<br>51.0<br>44.3<br>50.3         |

|  | Suggested       | UCL to Use   |                |
|--|-----------------|--|----------------|
| 95% Student's-t UCL                                    | 40.36           |  |                |
|  |                 | · · · · · ·  |                |
|  |                 | rovided to help the user to select the most appropriate 95% UCL      |                |
|  |                 | ution, and skewness using results from simulation studies.           |                |
| However, simulations results will not cover all Real W | orld data se    | ts; for additional insight the user may want to consult a statistici | an.            |
| C (soil   vinyl chloride   75-01-4)                    |                 |  |                |
|  |                 |  |                |
|  | General         | Statistics   |                |
| Total Number of Observations                           | 11              | Number of Distinct Observations                                      | 10             |
| Number of Detects                                      | 0               | Number of Non-Detects  | 11             |
| Number of Distinct Detects                             | 0               | Number of Distinct Non-Detects                                       | 10             |
|  |                 |  |                |
| Warning: All observations are Non-Detects              | (NDs), there    | efore all statistics and estimates should also be NDs!               |                |
| Specifically, sample mean, UCLs, UPLs, and             | other statist   | ics are also NDs lying below the largest detection limit!            |                |
| The Project Team may decide to use alternative site    | specific va     | lues to estimate environmental parameters (e.g., EPC, BTV).          |                |
|  |                 |  |                |
| The data set for variable C (                          | (soil   vinyl d | chloride   75-01-4) was not processed!                               |                |
|  |                 |  |                |
|  |                 |  |                |
| C (soil   xylenes (total)   1330-20-7)                 |                 |  |                |
|  |                 |  |                |
| <b>T</b> . W . I . (0)                                 |                 | Statistics   |                |
| Total Number of Observations                           | 21              | Number of Distinct Observations                                      | 21             |
| Number of Detects                                      | 10              | Number of Non-Detects<br>Number of Distinct Non-Detects              | 11             |
| Number of Distinct Detects<br>Minimum Detect           | 10<br>0.003     | Number of Distinct Non-Detects<br>Minimum Non-Detect                 | 11             |
| Maximum Detect   | 19.5            | Maximum Non-Detect   | 0.34           |
| Variance Detects                                       | 36.01           | Percent Non-Detects  | 52.38%         |
| Mean Detects   | 2.82            | SD Detects   | 6.001          |
| Median Detects   | 0.715           | CV Detects   | 2.128          |
| Skewness Detects                                       | 2.917           | Kurtosis Detects   | 8.737          |
| Mean of Logged Detects                                 | -0.843          | SD of Logged Detects   | 2.499          |
|  |                 |  |                |
| Norma  | al GOF Tes      | t on Detects Only  |                |
| Shapiro Wilk Test Statistic                            | 0.518           | Shapiro Wilk GOF Test  |                |
| 1% Shapiro Wilk Critical Value                         | 0.781           | Detected Data Not Normal at 1% Significance Leve                     | l              |
| Lilliefors Test Statistic                              | 0.394           | Lilliefors GOF Test  |                |
| 1% Lilliefors Critical Value                           | 0.304           | Detected Data Not Normal at 1% Significance Leve                     | I              |
| Detected Data  | Not Norma       | at 1% Significance Level   |                |
|  |                 |  |                |
|  |                 | itical Values and other Nonparametric UCLs                           | 0.00           |
| KM Mean  | 1.345           | KM Standard Error of Mean  | 0.96           |
| 90KM SD  | 4.173           | 95% KM (BCA) UCL   | 3.185          |
| 95% KM (t) UCL   | 3               | 95% KM (Percentile Bootstrap) UCL                                    | 3.128<br>14.23 |
| 95% KM (z) UCL   | 2.924<br>4.224  | 95% KM Bootstrap t UCL   | 5.528          |
| 90% KM Chebyshev UCL                                   |                 | 95% KM Chebyshev UCL   | 10.89          |
| 97.5% KM Chebyshev UCL                                 | 7.339           | 99% KM Chebyshev UCL   | 10.89          |

| Gamma GOF                                      | Tests on Det   | ected Observations Only  |          |
|--|----------------|--|----------|
| A-D Test Statistic                             | 0.41           | Anderson-Darling GOF Test  |          |
| 5% A-D Critical Value                          | 0.803          | Detected data appear Gamma Distributed at 5% Significance        | e l evel |
| K-S Test Statistic                             | 0.221          | Kolmogorov-Smirnov GOF   |          |
| 5% K-S Critical Value                          | 0.286          | Detected data appear Gamma Distributed at 5% Significance L      |          |
|  |                | Distributed at 5% Significance Level                             |          |
|  |                |  |          |
| Gamma  | Statistics on  | Detected Data Only   |          |
| k hat (MLE)                                    | 0.357          | k star (bias corrected MLE)                                      | 0.316    |
| Theta hat (MLE)                                | 7.909          | Theta star (bias corrected MLE)                                  | 8.917    |
| nu hat (MLE)                                   | 7.132          | nu star (bias corrected)   | 6.326    |
| Mean (detects)                                 | 2.82           |  | 0.520    |
| Wear (delects)                                 | 2.02           |  |          |
| Commo POS                                      | Statistics usi | ng Imputed Non-Detects   |          |
|  |                | NDs with many tied observations at multiple DLs                  |          |
|  |                | s < 1.0, especially when the sample size is small (e.g., <15-20) |          |
|  |                | yield incorrect values of UCLs and BTVs                          |          |
|  |                |  |          |
|  |                | n the sample size is small.                                      |          |
| -  |                | y be computed using gamma distribution on KM estimates           |          |
| Minimum  | 0.003          | Mean   | 1.348    |
| Maximum  | 19.5           | Median   | 0.01     |
| SD   | 4.275          | CV   | 3.17     |
| k hat (MLE)                                    | 0.231          | k star (bias corrected MLE)                                      | 0.23     |
| Theta hat (MLE)                                | 5.834          | Theta star (bias corrected MLE)                                  | 5.866    |
| nu hat (MLE)                                   | 9.706          | nu star (bias corrected)   | 9.653    |
| Adjusted Level of Significance (β)             | 0.0383         |  |          |
| Approximate Chi Square Value (9.65, $\alpha$ ) | 3.726          | Adjusted Chi Square Value (9.65, $\beta$ )                       | 3.447    |
| 95% Gamma Approximate UCL                      | 3.493          | 95% Gamma Adjusted UCL   | 3.775    |
|  |                |  |          |
|  |                | eters using KM Estimates   |          |
| Mean (KM)                                      | 1.345          | SD (KM)  | 4.173    |
| Variance (KM)                                  | 17.41          | SE of Mean (KM)  | 0.96     |
| k hat (KM)                                     | 0.104          | k star (KM)  | 0.121    |
| nu hat (KM)                                    | 4.363          | nu star (KM)   | 5.073    |
| theta hat (KM)                                 | 12.95          | theta star (KM)  | 11.13    |
| 80% gamma percentile (KM)                      | 1.188          | 90% gamma percentile (KM)  | 3.817    |
| 95% gamma percentile (KM)                      | 7.668          | 99% gamma percentile (KM)  | 19.4     |
|  |                |  |          |
| Gamma  | a Kaplan-Me    | ier (KM) Statistics  |          |
| Approximate Chi Square Value (5.07, $\alpha$ ) | 1.186          | Adjusted Chi Square Value (5.07, $\beta$ )                       | 1.05     |
| 95% KM Approximate Gamma UCL                   | 5.752          | 95% KM Adjusted Gamma UCL  | 6.496    |
|  |                |  |          |
| Lognormal GOI                                  | - Test on De   | tected Observations Only   |          |
| Shapiro Wilk Test Statistic                    | 0.955          | Shapiro Wilk GOF Test  |          |
| 10% Shapiro Wilk Critical Value                | 0.869          | Detected Data appear Lognormal at 10% Significance L             | evel     |
| Lilliefors Test Statistic                      | 0.221          | Lilliefors GOF Test  |          |
|  |                |  | aval     |
| 10% Lilliefors Critical Value                  | 0.241          | Detected Data appear Lognormal at 10% Significance L             | evei     |

| Leanermal DOC   | Ctatistics Lising Inc   | uted New Detecto  |                                  |
|---|---|---|----------------------------------|
| Mean in Original Scale  | Statistics Using Imp  | Mean in Log Scale   | -3.865                           |
| SD in Original Scale  | 4.276   | SD in Log Scale   | 3.434                            |
| 95% t UCL (assumes normality of ROS data)   | 2.953   | 95% Percentile Bootstrap UCL  | 3.084                            |
| 95% BCA Bootstrap UCL   | 4.23  | 95% Bootstrap t UCL   | 14.13                            |
| 95% H-UCL (Log ROS)   | 1298  |   | 14.15                            |
|   |   |   |                                  |
| Statistics using KM estimates o   | n Logged Data and /   | Assuming Lognormal Distribution   |                                  |
| KM Mean (logged)  | -3.782  | KM Geo Mean   | 0.022                            |
| KM SD (logged)  | 3.313   | 95% Critical H Value (KM-Log)   | 6.474                            |
| KM Standard Error of Mean (logged)  | 0.812   | 95% H-UCL (KM -Log)   | 667.2                            |
| KM SD (logged)  | 3.313   | 95% Critical H Value (KM-Log)   | 6.474                            |
| KM Standard Error of Mean (logged)  | 0.812   |   |                                  |
|   | DL/2 Statistics   |   |                                  |
| DL/2 Normal   |   | DL/2 Log-Transformed  |                                  |
| Mean in Original Scale  | 1.357   | Mean in Log Scale   | -3.383                           |
| SD in Original Scale  | 4.272   | SD in Log Scale   | 3.282                            |
| 95% t UCL (Assumes normality)   | 2.965   | 95% H-Stat UCL  | 822.7                            |
| DL/2 is not a recommended me  | thod, provided for co   | mparisons and historical reasons  |                                  |
|   | Gamma Distributed   | at 5% Significance Level  |                                  |
| 95% KM Adjusted Gamma UCL   | Suggested UCL to L<br>6.496   | lse   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption  | Suggested UCL to L<br>6.496   |   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data  | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro   | Ise<br>e collected in a random and unbiased manner.   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected  | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro   | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,  |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s  | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correct   | lse<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a second | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correct   | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correctl<br>0 UCL are provided to<br>data distribution, an  | lse<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.   |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correctl<br>0 UCL are provided to<br>data distribution, an  | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>D help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.  |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected in<br>then contact a signal of the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correctl<br>0 UCL are provided to<br>data distribution, an  | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>D help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.  |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested UCL to U<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correctl<br>0 UCL are provided to<br>data distribution, an  | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>D help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.  |                                  |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)  | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected from<br>using judgmental or of<br>statistician to correctl<br>0 UCL are provided to<br>data distribution, an<br>orld data sets; for ad<br>General Statistics  | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>b help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.<br>ditional insight the user may want to consult a statisticia   | an.                              |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected in<br>then contact a signal of the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected fro<br>using judgmental or<br>statistician to correcti<br>0 UCL are provided to<br>data distribution, an<br>forld data sets; for ad   | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>b help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.<br>ditional insight the user may want to consult a statisticia<br>ditional insight the user may want to consult a statisticia<br>Number of Distinct Observations   | an.<br>20                        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected of<br>then contact a second of the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)<br>Total Number of Observations  | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected from<br>using judgmental or a<br>statistician to correctle<br>0 UCL are provided to<br>data distribution, an<br>forld data sets; for ad<br>General Statistics<br>20   | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>b help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.<br>ditional insight the user may want to consult a statistician<br>ditional insight the user may want to consult a statistician<br>Number of Distinct Observations<br>Number of Missing Observations         | an.<br>20<br>0                   |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the dat<br>If the data were collected of<br>then contact a so<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)<br>Total Number of Observations<br>Minimum  | Suggested UCL to L         6.496         ons that the data were ata were collected from the connected from the connect of the connecon of the connect of the connect of the connec | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>b help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.<br>ditional insight the user may want to consult a statistician<br>ditional insight the user may want to consult a statistician<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean | an.<br>20<br>0<br>44.02          |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected of<br>then contact a second of the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)<br>Total Number of Observations  | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected from<br>using judgmental or a<br>statistician to correction<br>o UCL are provided to<br>data distribution, an<br>forld data sets; for ad<br>General Statistics<br>20<br>25<br>84.5  | Ise e collected in a random and unbiased manner. om random locations. other non-random methods, y calculate UCLs. b help the user to select the most appropriate 95% UCL d skewness using results from simulation studies. ditional insight the user may want to consult a statisticia is Number of Distinct Observations Number of Missing Observations Mean Median  | an.<br>20<br>0<br>44.02<br>41.67 |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the dat<br>If the data were collected of<br>then contact a so<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)<br>Total Number of Observations<br>Minimum  | Suggested UCL to L         6.496         ons that the data were collected from the data were collected from the data were collected from the data distribution, and the data distribution, and the data distribution, and the data sets; for add the data sets; for a | Ise<br>e collected in a random and unbiased manner.<br>om random locations.<br>other non-random methods,<br>y calculate UCLs.<br>b help the user to select the most appropriate 95% UCL<br>d skewness using results from simulation studies.<br>ditional insight the user may want to consult a statistician<br>ditional insight the user may want to consult a statistician<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean | an.<br>20<br>0                   |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumption<br>Please verify the data<br>If the data were collected of<br>then contact a second of the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>(soil   zinc   7440-66-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | Suggested UCL to L<br>6.496<br>ons that the data were<br>ata were collected from<br>using judgmental or a<br>statistician to correction<br>o UCL are provided to<br>data distribution, an<br>forld data sets; for ad<br>General Statistics<br>20<br>25<br>84.5  | Ise e collected in a random and unbiased manner. om random locations. other non-random methods, y calculate UCLs. b help the user to select the most appropriate 95% UCL d skewness using results from simulation studies. ditional insight the user may want to consult a statisticia is Number of Distinct Observations Number of Missing Observations Mean Median  | an.<br>20<br>0<br>44.02<br>41.67 |

| Minimum of Logged Data<br>Maximum of Logged Data<br>Assu | Lognormal<br>3.219<br>4.437<br>ming Lognor  | Statistics<br>Mean of logged Data<br>SD of logged Data<br>rmal Distribution  | 3.739<br>0.304  |
|--|---|--|---|
|  | 3.219   | Mean of logged Data  |   |
|  | 3.219   | Mean of logged Data  |   |
|  |   |  |   |
|  |   |  |   |
|  |   |  |   |
| Data appear L  | .ognormal a   | t 10% Significance Level   |   |
| 10% Lilliefors Critical Value                            | 0.176   | Data appear Lognormal at 10% Significance Level  |   |
| Lilliefors Test Statistic                                | 0.105   |  |   |
|  |   |  |   |
| Shaniro Wilk Test Statistic                              | •   |  |   |
|  | lognormal   | GOF Test   |   |
| 95% Approximate Gamma UCL                                | 49.85   | 95% Adjusted Gamma UCL   | 50.34   |
|  | -   |  |   |
| Adjusted Level of Significance                           | 0.038   | Adjusted Chi Square Value  | 328.3   |
| 1  |   | Approximate Chi Square Value (0.05)  | 331.5   |
| MLE Mean (bias corrected)                                | 44.02   | MLE Sd (bias corrected)  | 14.37   |
| nu hat (MLE)   | 440.1   | nu star (bias corrected)   | 375.4   |
| Theta hat (MLE)  | 4.001   | Theta star (bias corrected MLE)  | 4.69  |
| k hat (MLE)  | Gamma :   | k star (bias corrected MLE)  | 9.386   |
|  |   | Statistics   |   |
| Detected data appear                                     | Gamma Dis   | tributed at 5% Significance Level  |   |
| 5% K-S Critical Value                                    | 0.194   | Detected data appear Gamma Distributed at 5% Significant   | ce Level  |
| K-S Test Statistic                                       | 0.125   | Kolmogorov-Smirnov Gamma GOF Test  |   |
| 5% A-D Critical Value                                    | 0.742   | -  | ce Level  |
| A-D Test Statistic                                       |   |  |   |
|  |   |  |   |
|  |   |  | 49.83   |
|  | 49.66   |  | 50.42   |
|  | suming Norm   |  |   |
| A  |   | nal Distribution   |   |
| Data appea   | r Normal at   | 1% Significance Level  |   |
| 1% Lilliefors Critical Value                             | 0.223   | Data appear Normal at 1% Significance Level  |   |
| Lilliefors Test Statistic                                | 0.164   | Lilliefors GOF Test  |   |
| 1% Shapiro Wilk Critical Value                           | 0.868   | Data appear Normal at 1% Significance Level  |   |
| Shapiro Wilk Test Statistic                              | 0.898   | Shapiro Wilk GOF Test  |   |
|  | 1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Data appea<br>Ass<br>95% Normal UCL<br>95% Student's-t UCL<br>95% Student's-t UCL<br>5% A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appear<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>MLE Mean (bias corrected)<br>Adjusted Level of Significance<br>Ass<br>95% Approximate Gamma UCL<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | 1% Shapiro Wilk Critical Value       0.868         Lilliefors Test Statistic       0.164         1% Lilliefors Critical Value       0.223         Data appear Normal at         Assuming Norm         95% Normal UCL       49.66         95% Normal UCL       49.66         95% Normal UCL       49.66         95% Normal UCL       49.66         0.338       5% A-D Test Statistic         0.125       5% K-S Critical Value       0.742         K-S Test Statistic       0.125         5% K-S Critical Value       0.194         Detected data appear Gamma Dis         Camma Dis         K hat (MLE)         11       Theta hat (MLE)       11         Theta hat (MLE)       440.1       440.1         MLE Mean (bias corrected)       44.02       44.02         Adjusted Level of Significance       0.038       0.038         Shapiro Wilk Test Statistic         95% Approximate Gamma UCL       49.85         Lognormal         10% Shapiro Wilk Critical Value       0.92         Lilliefors Test Statistic       0.105         10% Lillileifors Critical Value       0.176 <td>1% Shapiro Wilk Critical Value       0.868       Data appear Normal at 1% Significance Level         1% Lilliefors Test Statistic       0.164       Lilliefors GOF Test         1% Lilliefors Critical Value       0.223       Data appear Normal at 1% Significance Level         Data appear Normal at 1% Significance Level         Data appear Normal at 1% Significance Level         Assuming Normal Distribution         95% Normal UCL       95% Adjusted for Skewness)         95% Student's-t UCL       49.66       95% Adjusted-CLT UCL (Johnson-1978)         95% Student's-t UCL       49.66       95% Adjusted-CLT UCL (Johnson-1978)         Optical Colspan="2"&gt;Optical Colspan="2"&gt;Colspan="2"</td> | 1% Shapiro Wilk Critical Value       0.868       Data appear Normal at 1% Significance Level         1% Lilliefors Test Statistic       0.164       Lilliefors GOF Test         1% Lilliefors Critical Value       0.223       Data appear Normal at 1% Significance Level         Data appear Normal at 1% Significance Level         Data appear Normal at 1% Significance Level         Assuming Normal Distribution         95% Normal UCL       95% Adjusted for Skewness)         95% Student's-t UCL       49.66       95% Adjusted-CLT UCL (Johnson-1978)         95% Student's-t UCL       49.66       95% Adjusted-CLT UCL (Johnson-1978)         Optical Colspan="2">Optical Colspan="2">Colspan="2" |

| 95% CLT UCL  | 49.39          | 95% BCA Bootstrap UCL  | 50.44 |
|--|----------------|--|-------|
| 95% Standard Bootstrap UCL                             | 49.28          | 95% Bootstrap-t UCL  | 51.4  |
| 95% Hall's Bootstrap UCL                               | 52.11          | 95% Percentile Bootstrap UCL   | 49.47 |
| 90% Chebyshev(Mean, Sd) UCL                            | 53.81          | 95% Chebyshev(Mean, Sd) UCL  | 58.25 |
| 97.5% Chebyshev(Mean, Sd) UCL                          | 64.41          | 99% Chebyshev(Mean, Sd) UCL  | 76.5  |
|  | Suggested      | UCL to Use   |       |
|  |                |  |       |
| 95% Student's-t UCL                                    | 49.66          |  |       |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are p    | rovided to help the user to select the most appropriate 95% UCL      |       |
| Recommendations are based upon data size               | , data distrib | ution, and skewness using results from simulation studies.           |       |
| However, simulations results will not cover all Real W | /orld data se  | ts; for additional insight the user may want to consult a statistici | an.   |
|  |                |  |       |

ATTACHMENT 2-2 GROUNDWATER PROUCL RESULTS

|                                      | UCL Statist                  | ics for Dat  | ta Sets with Non-Detects  |    |
|--------------------------------------|------------------------------|--------------|---|----|
| User Selected Options                | 1                            |              |   |    |
| Date/Time of Computation             | ProUCL 5.2 10/11/2023 1      | 0.05.27 DI   | NA  |    |
| From File                            | ProUCL_Export_GW_AV          |              |   |    |
| Full Precision                       | OFF                          | G_202310     | 11.415  |    |
| Confidence Coefficient               | 95%                          |              |   |    |
| Number of Bootstrap Operations       | 10000                        |              |   |    |
|                                      |                              |              |   |    |
| C (groundwater   1,1,1,2-tetrachloro | ethane   630-20-6)           |              |   |    |
|                                      |                              |              | I Statistica  |    |
| Total                                | Number of Observations       | 13           | I Statistics Number of Distinct Observations  | 3  |
| - I Oldi                             | Number of Detects            | 0            | Number of Non-Detects   | 13 |
| N                                    | umber of Distinct Detects    | 0            | Number of Distinct Non-Detects  | 3  |
|                                      |                              | 0            |   | 5  |
| Warning: All obs                     | ervations are Non-Detects    | s (NDs), th  | erefore all statistics and estimates should also be NDs!  |    |
| -                                    |                              | · · · · ·    | tistics are also NDs lying below the largest detection limit!   |    |
| The Project Team may de              | ecide to use alternative sit | le specific  | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|                                      |                              |              |   |    |
| The data set                         | for variable C (groundwat    | ter   1,1,1, | 2-tetrachloroethane   630-20-6) was not processed!  |    |
|                                      |                              |              |   |    |
|                                      |                              |              |   |    |
| C (groundwater   1,1,1-trichloroetha | ne   71-55-6)                |              |   |    |
|                                      |                              |              |   |    |
|                                      |                              |              | I Statistics  |    |
| Total                                | Number of Observations       | 36           | Number of Distinct Observations   | 4  |
|                                      | Number of Detects            | 0            | Number of Non-Detects   | 36 |
| N                                    | umber of Distinct Detects    | 0            | Number of Distinct Non-Detects  | 4  |
| Maming Allaha                        | anyatiana ana Nan Dataata    |              | confirm all statistics and estimates should also be ND-I  |    |
|                                      |                              |              | erefore all statistics and estimates should also be NDs!<br>tistics are also NDs lying below the largest detection limit! |    |
|                                      |                              |              | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|                                      |                              | e specific   |   |    |
| The data                             | set for variable C (ground)  | water   1.1  | ,1-trichloroethane   71-55-6) was not processed!  |    |
|                                      |                              |              |   |    |
|                                      |                              |              |   |    |
| C (groundwater   1,1,2,2-tetrachloro | ethane   79-34-5)            |              |   |    |
|                                      |                              |              |   |    |
|                                      |                              | Genera       | I Statistics  |    |
| Total                                | Number of Observations       | 36           | Number of Distinct Observations   | 4  |
|                                      | Number of Detects            | 0            | Number of Non-Detects   | 36 |
| Ν                                    | umber of Distinct Detects    | 0            | Number of Distinct Non-Detects  | 4  |
| Morring: All cho                     | entiene ere Nen Detecte      |              | confere all statistics and estimates should also be NDal  |    |
| -                                    |                              |              | erefore all statistics and estimates should also be NDs!  |    |
|                                      |                              |              | tistics are also NDs lying below the largest detection limit!   |    |
|                                      | scide to use alternative sit | le specific  | values to estimate environmental parameters (e.g., EPC, BTV).   | •  |

|  | ater   1,1,2,2   | 2-tetrachloroethane   79-34-5) was not processed!  |   |
|--|--|--|---|
|  |  |  |   |
| groundwater   1,1,2-trichloro-1,2,2-trifluoroethane   76-13-   | 1)   |  |   |
|  | General  | Statistics   |   |
| Total Number of Observations   | 36   | Number of Distinct Observations  | 4   |
| Number of Detects  | 0  | Number of Non-Detects  | 36  |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects   | 4   |
| Warning: All observations are Non-Detect   | s (NDs), the   | refore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and   | d other statis   | stics are also NDs lying below the largest detection limit!  |   |
| The Project Team may decide to use alternative si  | te specific v  | ralues to estimate environmental parameters (e.g., EPC, BTV)   | ).  |
| The data set for variable C (groundwater   | 1,1,2-trichlo  | pro-1,2,2-trifluoroethane   76-13-1) was not processed!  |   |
| groundwater   1,1,2-trichloroethane   79-00-5)   |  |  |   |
|  |  |  |   |
|  |  | Statistics   |   |
| Total Number of Observations   | 36   | Number of Distinct Observations  | 4   |
| Number of Detects  | 0  | Number of Non-Detects  | 36  |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects   | 4   |
|  |  |  |   |
| Warning: All observations are Non-Detect   | s (NDs), the   | refore all statistics and estimates should also be NDs!  |   |
|  | • •  | refore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and   | d other statis   | refore all statistics and estimates should also be NDs!<br>stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)   | ).  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si  | d other statis   | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)  | ).  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si  | d other statis   | stics are also NDs lying below the largest detection limit!  | ).  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground   | d other statis   | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)  | ).  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground   | d other statis<br>ite specific v<br>water   1,1,2  | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!   | ).  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)  | d other statis<br>ite specific v<br>water   1,1,2<br>General   | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)  |   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations  | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31   | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!<br>Statistics<br>Number of Distinct Observations  | 11  |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31<br>4  | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects   | 11 27   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31<br>4<br>4   | stics are also NDs lying below the largest detection limit!         ralues to estimate environmental parameters (e.g., EPC, BTV)         2-trichloroethane   79-00-5) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects   | 11<br>27<br>7   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | General<br>31<br>4<br>4.6000E-5  | Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects   | 11<br>27<br>7<br>9.9333   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | General           31           4           4.6000E-5           5.0000E-4   | Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect   | 11<br>27<br>7<br>9.9333<br>0.05   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8   | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects  | 11<br>27<br>7<br>9.9333<br>0.09<br>87.1                                     |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4  | Statistics Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Statistics Statistic | 11<br>27<br>7<br>9.9333<br>0.05<br>87.1<br>1.9078                           |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4<br>1.9500E-4                    | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects  | 11<br>27<br>7<br>9.9333<br>0.05<br>87.1<br>1.9078<br>0.8                    |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4<br>1.9500E-4<br>1.157                            | Statistics Statistics Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects Statistics CV Detects CV Detects Kurtosis Detects   | 11<br>27<br>7<br>9.9333<br>0.05<br>87.1<br>1.9078<br>0.8<br>2.2             |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | d other statis<br>ite specific v<br>water   1,1,2<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4<br>1.9500E-4                    | stics are also NDs lying below the largest detection limit!<br>ralues to estimate environmental parameters (e.g., EPC, BTV)<br>2-trichloroethane   79-00-5) was not processed!<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects  | 11<br>27<br>7<br>9.9333<br>0.05<br>87.1<br>1.9078                           |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects | d other statis<br>ite specific v<br>water   1,1,2<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4<br>1.9500E-4<br>1.157<br>-8.668 | Statistics Statistics Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects Statistics CV Detects CV Detects Kurtosis Detects   | 11<br>27<br>7<br>9.9333<br>0.05<br>87. <sup>-</sup><br>1.9078<br>0.8<br>2.2 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (ground<br>groundwater   1,1-biphenyl   92-52-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects | d other statis<br>ite specific v<br>water   1,1,2<br>water   1,1,2<br>General<br>31<br>4<br>4.6000E-5<br>5.0000E-4<br>3.6397E-8<br>2.3400E-4<br>1.9500E-4<br>1.157<br>-8.668 | Statistics Statistics Statistics Number of Distinct Observations Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects Number of Distinct Non-Detects SD Detects CV Detects CV Detects SD of Logged Detects   | 11<br>27<br>7<br>9.9333<br>0.09<br>87.<br>1.9078<br>0.8<br>2.2              |

| Lilliefors Test Statistic                     | 0.321          | Lilliefors GOF Test   |           |
|---|----------------|---|-----------|
| 1% Lilliefors Critical Value                  | 0.413          | Detected Data appear Normal at 1% Significance Le               | vel       |
| Detected Data                                 | appear Norm    | nal at 1% Significance Level                                    | -         |
|   |                | liable for small sample sizes                                   |           |
|   |                | · · · · · · · · · · · · · · · · · · ·                           |           |
| Kaplan-Meier (KM) Statistics usi              | ng Normal C    | ritical Values and other Nonparametric UCLs                     |           |
|   | 1.5343E-4      | KM Standard Error of Mean                                       | 6.7970E-5 |
| 90KM SD                                       | 1.5574E-4      | 95% KM (BCA) UCL  | N/A       |
| 95% KM (t) UCL                                | 2.6879E-4      | 95% KM (Percentile Bootstrap) UCL                               | N/A       |
| 95% KM (z) UCL                                |                | 95% KM Bootstrap t UCL  | N/A       |
| 90% KM Chebyshev UCL                          |                | 95% KM Chebyshev UCL  | 4.4970E-4 |
| 97.5% KM Chebyshev UCL                        |                | 99% KM Chebyshev UCL  | 8.2972E-4 |
|   |                | · · · · · ·   |           |
| Gamma GOF                                     | Tests on De    | etected Observations Only                                       |           |
| A-D Test Statistic                            |                | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                         | 0.661          | Detected data appear Gamma Distributed at 5% Significar         | ice Level |
| K-S Test Statistic                            | 0.246          | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                         | 0.399          | Detected data appear Gamma Distributed at 5% Significar         | ice Level |
| Detected data appea                           | r Gamma Dis    | stributed at 5% Significance Level                              |           |
|   |                | liable for small sample sizes                                   |           |
|   | -              |   |           |
| Gamma   | Statistics on  | Detected Data Only  |           |
| k hat (MLE)                                   | 1.771          | k star (bias corrected MLE)                                     | 0.609     |
| Theta hat (MLE)                               | 1.3214E-4      | Theta star (bias corrected MLE)                                 | 3.8399E-4 |
| nu hat (MLE)                                  | 14.17          | nu star (bias corrected)  | 4.875     |
| Mean (detects)                                | 2.3400E-4      |   |           |
|   |                |   |           |
| Gamma ROS                                     | Statistics us  | sing Imputed Non-Detects  |           |
| GROS may not be used when data s              | et has > 50%   | NDs with many tied observations at multiple DLs                 |           |
| GROS may not be used when kstar of detects is | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
| For such situations, GROS                     | method may     | yield incorrect values of UCLs and BTVs                         |           |
| This is espec                                 | ially true whe | n the sample size is small.                                     |           |
| For gamma distributed detected data, BTVs a   | and UCLs ma    | y be computed using gamma distribution on KM estimates          |           |
| Minimum                                       | 4.6000E-5      | Mean  | 0.00874   |
| Maximum                                       | 0.01           | Median  | 0.01      |
| SD  | 0.00333        | CV  | 0.381     |
| k hat (MLE)                                   | 1.427          | k star (bias corrected MLE)                                     | 1.311     |
| Theta hat (MLE)                               | 0.00612        | Theta star (bias corrected MLE)                                 | 0.00667   |
| nu hat (MLE)                                  | 88.48          | nu star (bias corrected)  | 81.25     |
| Adjusted Level of Significance (β)            | 0.0413         |   |           |
| Approximate Chi Square Value (81.25, α)       | 61.48          | Adjusted Chi Square Value (81.25, β)                            | 60.52     |
| 95% Gamma Approximate UCL                     | 0.0116         | 95% Gamma Adjusted UCL  | N/A       |
|   | ļ              | 1   | <u> </u>  |
| Estimates of G                                | amma Parai     | meters using KM Estimates                                       |           |
| Mean (KM)                                     |                |   | 1.5574E-4 |
| Variance (KM)                                 |                | SE of Mean (KM)   |           |
| k hat (KM)                                    |                | k star (KM)   | 0.898     |
| nu hat (KM)                                   |                | nu star (KM)  | 55.68     |
| - ( )   |                | - ( )   | İ.        |

| theta hat (KM)     1.5808E-4     theta star (KM)       80% gamma percentile (KM)     24894E-4     90% gamma percentile (KM)       95% gamma percentile (KM)     95% gamma percentile (KM)     99% gamma percentile (KM)       0.95% gamma percentile (KM)     39.53     Adjusted Chi Square Value (55.68, β)       95% KM Approximate Chi Square Value (55.68, β)     95% KM Adjusted Gamma UCL     2.1610E-4       0.95% KM Approximate Gamma UCL     0.933     Shapiro Wilk Core Statistic     0.933       0.95% KM Approximate Gamma UCL     0.933     Shapiro Wilk GOF Test       10% Shapiro Wilk Critical Value     0.792     Detected Data appear Lognormal at 10% Significance L       10% Shapiro Wilk Critical Value     0.792     Detected Data appear Lognormal at 10% Significance L       10% Shapiro Wilk Critical Value     0.792     Detected Data appear Lognormal at 10% Significance L       10% Lillefors Critical Value     0.346     Detected Data appear Lognormal at 10% Significance L       10% Lillefors Core Statistic     0.29     Lillefors Core Statistic       10% Lillefors Core Statistics Using Imputed Non-Detects     Mean in Log Scale       10% Significance Level     Note CoF tests may be unreliable for small sample sizes       10% Significance Level     Sb in Log Scale       95% HUCL (assumes normality of ROS data)     2.023E-4     95% Bootstrap UCL       95% HUCL (assumes normality of ROS data) |  |
|--|--|
| 95% gamma percentile (KM)     4.7751E-4     99% gamma percentile (KM)       Gamma Kaplan-Meler (KM) Statistics       Approximate Chi Square Value (55.68, o)     95.3     Adjusted Chi Square Value (55.68, f)       95% KM Approximate Camma UCL     2.1610E-4     95% KM Adjusted Gamma UCL       Usgnormal GOF Test on Detected Observations Only     Shapiro Wilk Critical Value     0.933     Shapiro Wilk GOF Test       10% Shapiro Wilk Critical Value     0.792     Detected Data appear Lognormal at 10% Significance L     Lilliefors GOF Test       10% Lillefors Critical Value     0.346     Detected Data appear Lognormal at 10% Significance L     Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal at 10% Significance L       Detected Data appear Lognormal to Significance L       Detected Data appear Lognormal to Significance L  |  |

|  | <u> </u>   |  |        |
|--|--|--|--------|
|  | General Stat   |  |        |
| Total Number of Observations   | 36   | Number of Distinct Observations  | 2      |
| Number of Detects  | 0  | Number of Non-Detects  | 3      |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects   | 2      |
| Warning: All observations are Non-Detect   | s (NDs) therefo  | ore all statistics and estimates should also be NDs!   |        |
|  | · ·  | s are also NDs lying below the largest detection limit!  |        |
|  |  | es to estimate environmental parameters (e.g., EPC, BTV).  |        |
| The data set for variable C (ground  | dwater   1,1-dic   | hloroethane   75-34-3) was not processed!  |        |
| Indwater   1,1-dichloroethene   75-35-4)   |  |  |        |
|  | General Stat   | tistics  |        |
| Total Number of Observations   | 36   | Number of Distinct Observations  | Ę      |
| Number of Detects  | 1  | Number of Non-Detects  | 3      |
| Number of Distinct Detects   | 1  | Number of Distinct Non-Detects   | 4      |
|  | nined by the Pro   | any other software) should not be used on such a data set!<br>oject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!   | C,     |
|  | nined by the Pro   | oject Team to estimate environmental parameters (e.g., EP  | C,     |
| The data set for variable C (ground  | nined by the Pro   | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!   | C,     |
| The data set for variable C (ground<br>indwater   1,1-dichloropropene   563-58-6)  | dwater   1,1-dic   | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!   |        |
| The data set for variable C (ground<br>undwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations  | dwater   1,1-dic<br>General Stat   | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations   |        |
| The data set for variable C (ground<br>indwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0  | hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects   | ;      |
| The data set for variable C (ground<br>undwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations  | dwater   1,1-dic<br>General Stat   | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations   | ;      |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0   | hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects   | ;      |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects  | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor   | tistics Number of Distinct Non-Detects Number of Distinct Non-Detects  | ;      |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics                                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects  | ;      |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics                                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!  | ;      |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!  |        |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).   | ;<br>; |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).   |        |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site   | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).   |        |
| The data set for variable C (ground<br>indwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (grounds)  | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                     | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).<br>loropropene   563-58-6) was not processed! |        |
| The data set for variable C (ground<br>indwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (grounds)  | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>5 (NDs), therefor<br>d other statistics<br>te specific value<br>water   1,1-dich | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).<br>loropropene   563-58-6) was not processed! |        |
| The data set for variable C (ground<br>andwater   1,1-dichloropropene   563-58-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (grounds)<br>The data set for variable C (grounds)<br>andwater   1,2,3-trichlorobenzene   87-61-6) | dwater   1,1-dic<br>dwater   1,1-dic<br>General Stat<br>13<br>0<br>0<br>5 (NDs), therefor<br>d other statistics<br>te specific value<br>water   1,1-dich | bject Team to estimate environmental parameters (e.g., EP<br>hloroethene   75-35-4) was not processed!<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>sare all statistics and estimates should also be NDs!<br>as are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).  |        |

| Warning: All observations are Non-Detect             | ts (NDs), the | erefore all statistics and estimates should also be NDs!      |    |
|--|---------------|---|----|
| -  |               | istics are also NDs lying below the largest detection limit!  |    |
|  |               | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |               |   |    |
| The data set for variable C (ground                  | water   1,2,3 | 3-trichlorobenzene   87-61-6) was not processed!              |    |
|  |               |   |    |
|  |               |   |    |
| (groundwater   1,2,3-trichloropropane   96-18-4)     |               |   |    |
|  | General       | Statistics  |    |
| Total Number of Observations                         | 13            | Number of Distinct Observations                               | 3  |
| Number of Detects                                    | 0             | Number of Non-Detects   | 13 |
| Number of Distinct Detects                           | 0             | Number of Distinct Non-Detects                                | 3  |
|  |               |   |    |
| -  |               | erefore all statistics and estimates should also be NDs!      |    |
|  |               | istics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative s     | ite specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The date act for variable C (around                  | water I 1 0 f | 3-trichloropropane   96-18-4) was not processed!              |    |
|  | water   1,2,4 | s-inchioropropane ( 90-10-4) was not processed!               |    |
|  |               |   |    |
| (groundwater   1,2,4,5-tetrachlorobenzene   95-94-3) |               |   |    |
|  |               |   |    |
|  | General       | Statistics  |    |
| Total Number of Observations                         | 13            | Number of Distinct Observations                               | 6  |
| Number of Detects                                    | 0             | Number of Non-Detects   | 13 |
| Number of Distinct Detects                           | 0             | Number of Distinct Non-Detects                                | 6  |
| Warring: All chaptrations are Non Detection          | in (NDn), th  | erefore all statistics and estimates should also be NDs!      |    |
| -  | · · · · · ·   | istics are also NDs lying below the largest detection limit!  |    |
|  |               | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  | ne specific   | values to estimate environmental parameters (e.g., EFC, BTV). |    |
| The data set for variable C (groundwa                | ter   1.2.4.5 | -tetrachlorobenzene   95-94-3) was not processed!             |    |
|  |               |   |    |
|  |               |   |    |
| (groundwater   1,2,4-trichlorobenzene   120-82-1)    |               |   |    |
|  |               |   |    |
|  | General       | Statistics  |    |
| Total Number of Observations                         | 36            | Number of Distinct Observations                               | 5  |
| Number of Detects                                    | 0             | Number of Non-Detects   | 36 |
| Number of Distinct Detects                           | 0             | Number of Distinct Non-Detects                                | 5  |
|  |               |   |    |
| _  |               | erefore all statistics and estimates should also be NDs!      |    |
|  |               | istics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative s     | Ite specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The date ant forwardship O forwardship               | votor 1.1.0.4 | triphlarahanyana   120,92,1) waa nat processed!               |    |
| i ne data set for variable C (groundv                | vater   1,2,4 | -trichlorobenzene   120-82-1) was not processed!              |    |

| C (groundwater   1,2,4-trimethylbenzene   95-63-6)      |                |  |              |
|---|----------------|--|--------------|
|   |                |  |              |
|   |                | Statistics   | -            |
| Total Number of Observations                            | 13             | Number of Distinct Observations                                | 2            |
| Number of Detects                                       | 0              | Number of Non-Detects  | 13           |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects                                 | 2            |
| Warning: All observations are Non-Detect                | s (NDs), the   | refore all statistics and estimates should also be NDs!        |              |
|   |                | stics are also NDs lying below the largest detection limit!    |              |
|   |                | values to estimate environmental parameters (e.g., EPC, BTV).  |              |
|   |                |  |              |
| The data set for variable C (groundw                    | vater   1,2,4  | -trimethylbenzene   95-63-6) was not processed!                |              |
|   |                |  |              |
|   |                |  |              |
| C (groundwater   1,2-dibromo-3-chloropropane   96-12-8) |                |  |              |
|   |                |  |              |
|   | General        | Statistics   |              |
| Total Number of Observations                            | 36             | Number of Distinct Observations                                | 4            |
| Number of Detects                                       | 0              | Number of Non-Detects  | 36           |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects                                 | 4            |
|   |                |  |              |
|   |                | refore all statistics and estimates should also be NDs!        |              |
|   |                | stics are also NDs lying below the largest detection limit!    |              |
| The Project Team may decide to use alternative si       | te specific v  | values to estimate environmental parameters (e.g., EPC, BTV).  |              |
|   |                |  |              |
| The data set for variable C (groundwate                 | er   1,2-dibro | omo-3-chloropropane   96-12-8) was not processed!              |              |
|   |                |  |              |
|   |                |  |              |
| C (groundwater   1,2-dibromoethane   106-93-4)          |                |  |              |
|   | 0              | 0-4-4  |              |
|   |                | Statistics   |              |
| Total Number of Observations                            | 43             | Number of Distinct Observations Number of Non-Detects          | 9<br>42      |
| Number of Detects Number of Distinct Detects            | 1              |  | 42<br>8      |
| Number of Distinct Detects                              | I              | Number of Distinct Non-Detects                                 | ð            |
| Warning: Only one distinct data value was detected      |                | (or any other software) should not be used on such a data set! |              |
|   |                | Project Team to estimate environmental parameters (e.g., EP    |              |
|   |                |  | 5, 61 • ).   |
| The data set for variable C (ground                     | water   1 2-   | dibromoethane   106-93-4) was not processed!                   |              |
|   |                |  |              |
|   |                |  |              |
| C (groundwater   1,2-dichlorobenzene   95-50-1)         |                |  |              |
|   |                |  |              |
|   |                |  |              |
|   | General        | Statistics   |              |
| Total Number of Observations                            | General<br>36  | Statistics Number of Distinct Observations                     | 5            |
| Total Number of Observations<br>Number of Detects       |                |  |              |
|   | 36             | Number of Distinct Observations                                | 5<br>36<br>5 |

| Warning: All observations are Non Detect           |   | therefore all statistics and estimates should also be NDs!   |    |
|--|---|--|----|
| -  |   | atistics are also NDs lying below the largest detection limit!   |    |
|  |   | c values to estimate environmental parameters (e.g., EPC, BTV).  |    |
|  |   |  |    |
| The data set for variable C (ground                | water   1                               | 2-dichlorobenzene   95-50-1) was not processed!  |    |
|  |   |  |    |
|  |   |  |    |
| C (groundwater   1,2-dichloroethane   107-06-2)    |   |  |    |
|  | Ganar                                   | al Statistics  |    |
| Total Number of Observations                       | 43                                      | Number of Distinct Observations  | 9  |
| Number of Detects                                  | 43                                      | Number of Non-Detects  | 43 |
| Number of Distinct Detects                         | 0                                       | Number of Distinct Non-Detects   | 9  |
|  |   |  | 5  |
| Warning: All observations are Non-Detect           | s (NDs), 1                              | therefore all statistics and estimates should also be NDs!   |    |
| -  | 1 A A A A A A A A A A A A A A A A A A A | atistics are also NDs lying below the largest detection limit!   |    |
|  |   | c values to estimate environmental parameters (e.g., EPC, BTV).  |    |
|  |   |  |    |
| The data set for variable C (ground                | lwater   1                              | ,2-dichloroethane   107-06-2) was not processed!   |    |
| C (groundwater   1,2-dichloropropane   78-87-5)    |   | al Statistics  |    |
| Total Number of Observations                       | 36                                      | Number of Distinct Observations  | 4  |
| Number of Detects                                  | 0                                       | Number of Non-Detects  | 36 |
| Number of Distinct Detects                         | 0                                       | Number of Distinct Non-Detects   | 4  |
| Warring All short stiens are New Detect            |   | therefore all statistics and estimates should also be ND-1   |    |
| -  |   | therefore all statistics and estimates should also be NDs!<br>atistics are also NDs lying below the largest detection limit! |    |
|  |   | c values to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C (ground                | water   1                               | ,2-dichloropropane   78-87-5) was not processed!   |    |
|  |   |  |    |
|  |   |  |    |
| C (groundwater   1,2-diphenylhydrazine   122-66-7) |   |  |    |
|  |   |  |    |
|  |   | al Statistics  |    |
| Total Number of Observations                       | 13                                      | Number of Distinct Observations  | 6  |
| Number of Detects                                  | 0                                       | Number of Non-Detects  | 13 |
| Number of Distinct Detects                         | 0                                       | Number of Distinct Non-Detects   | 6  |
| Warning: All observations are Non Detect           |   | therefore all statistics and estimates should also be NDs!   |    |
|  |   | atistics are also NDs lying below the largest detection limit!   |    |
|  |   | c values to estimate environmental parameters (e.g., EPC, BTV).  |    |
|  |   |  | ·  |
| The data set for variable C (oroundw               | ater   1.2                              | -diphenylhydrazine   122-66-7) was not processed!  |    |

| groundwater   1,3,5-trichlorobenzene   108-70-3)   |               |  |    |
|--|---------------|--|----|
| - · · ·  |               |  |    |
|  | General       | Statistics   |    |
| Total Number of Observations                       | 13            | Number of Distinct Observations  | 2  |
| Number of Detects                                  | 0             | Number of Non-Detects  | 13 |
| Number of Distinct Detects                         | 0             | Number of Distinct Non-Detects   | 2  |
| Warning: All observations are Non-Detects          | s (NDs), the  | erefore all statistics and estimates should also be NDsI   |    |
|  | · ·           | stics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative sit | te specific v | values to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C (groundw               | ater   1,3,5  | -trichlorobenzene   108-70-3) was not processed!   |    |
| groundwater   1,3,5-trimethylbenzene   108-67-8)   |               |  |    |
|  | General       | Statistics   |    |
| Total Number of Observations                       | 13            | Number of Distinct Observations  | 2  |
| Number of Detects                                  | 0             | Number of Non-Detects  | 13 |
| Number of Distinct Detects                         | 0             | Number of Distinct Non-Detects   | 2  |
| Marrier All sharestiens are blen Datast            |               | sectors all statistics and estimates should also be ND-1   |    |
| -  |               | erefore all statistics and estimates should also be NDs!   |    |
|  |               | stics are also NDs lying below the largest detection limit!  |    |
| The Project ream may decide to use alternative sit |               | values to estimate environmental parameters (e.g., EPC, BTV).  |    |
| The data set for variable C (groundwa              | ater   1,3,5- | trimethylbenzene   108-67-8) was not processed!  |    |
|  |               |  |    |
| groundwater   1,3-dichlorobenzene   541-73-1)      |               |  |    |
|  |               |  |    |
|  | General       | Statistics   |    |
| Total Number of Observations                       | 36            | Number of Distinct Observations  | 5  |
| Number of Detects                                  | 0             | Number of Non-Detects  | 36 |
| Number of Distinct Detects                         | 0             | Number of Distinct Non-Detects   |    |
| -  |               |  | 5  |
|  |               | erefore all statistics and estimates should also be NDs!   | 5  |
| The Droject Team may decide to use alternative air | l other stati | stics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative si  | l other stati |  |    |
|  | te specific v | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |    |
| · · ·  | te specific v | stics are also NDs lying below the largest detection limit!  |    |
|  | te specific v | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  | te specific v | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (groundv               | te specific v | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (groundv               | to ther stati | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV). |    |

| Number of Detects  | 0                                       | Number of Non-Detects   | 13 |
|--|---|---|----|
| Number of Distinct Detects                               | 0                                       | Number of Distinct Non-Detects                                | 3  |
|  |   |   |    |
| Warning: All observations are Non-Detects                | s (NDs), the                            | erefore all statistics and estimates should also be NDs!      |    |
| _  |   | istics are also NDs lying below the largest detection limit!  |    |
|  |   | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |   |   |    |
| The data set for variable C (groundv                     | water   1,3-                            | dichloropropane   142-28-9) was not processed!                |    |
|  | • •                                     |   |    |
|  |   |   |    |
| C (groundwater   1,3-dichloropropene (total)   542-75-6) |   |   |    |
|  |   |   |    |
|  | General                                 | Statistics  |    |
| Total Number of Observations                             | 36                                      | Number of Distinct Observations                               | 4  |
| Number of Detects  | 0                                       | Number of Non-Detects   | 36 |
| Number of Distinct Detects                               | 0                                       | Number of Distinct Non-Detects                                | 4  |
|  | -                                       |   |    |
| Warning: All observations are Non-Detects                | s (NDs), the                            | erefore all statistics and estimates should also be NDs!      |    |
| _  |   | istics are also NDs lying below the largest detection limit!  |    |
|  |   | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| ······································                   |   | · · · · · · · · · · · · · · · · · · ·                         |    |
| The data set for variable C (groundwate                  | er   1.3-dic                            | hloropropene (total)   542-75-6) was not processed!           |    |
|  |   |   |    |
|  |   |   |    |
| C (groundwater   1,4-dichlorobenzene   106-46-7)         |   |   |    |
|  |   |   |    |
|  | General                                 | Statistics  |    |
| Total Number of Observations                             | 36                                      | Number of Distinct Observations                               | 5  |
| Number of Detects  | 0                                       | Number of Non-Detects   | 36 |
| Number of Distinct Detects                               | 0                                       | Number of Distinct Non-Detects                                | 5  |
|  | •                                       |   | •  |
| Warning: All observations are Non-Detects                | (NDs) th                                | erefore all statistics and estimates should also be NDs!      |    |
| _  | 1 A A A A A A A A A A A A A A A A A A A | istics are also NDs lying below the largest detection limit!  |    |
|  |   | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |   |   |    |
| The data set for variable C (grounde                     | vator   1 /-                            | dichlorobenzene   106-46-7) was not processed!                |    |
|  |   |   |    |
|  |   |   |    |
| C (groundwater   1,4-dioxane   123-91-1)                 |   |   |    |
|  |   |   |    |
|  | Gonoral                                 | Statistics  |    |
| Total Number of Observations                             | 13                                      | Number of Distinct Observations                               | 2  |
| Number of Detects  | 0                                       | Number of Non-Detects   | 13 |
| Number of Detects  | 0                                       | Number of Non-Detects Number of Distinct Non-Detects          | 2  |
|  | 0                                       |   | 2  |
| Worning: All choon stiens are Non Detector               |   | profers all statistics and estimates should also be NDal      |    |
|  | <u> </u>                                | erefore all statistics and estimates should also be NDs!      |    |
|  |   | istics are also NDs lying below the largest detection limit!  |    |
| The Project Team may decide to use alternative sit       | te specific                             | values to estimate environmental parameters (e.g., EPC, BTV). |    |

## The data set for variable C (groundwater | 1,4-dioxane | 123-91-1) was not processed!

C (groundwater | 1-methylnaphthalene | 90-12-0)

|  | General   | Statistics   |   |
|--|---|--|---|
| Total Number of Observations   | 20  | Number of Distinct Observations  | 14  |
| Number of Detects  | 5   | Number of Non-Detects  | 15  |
| Number of Distinct Detects   | 5   | Number of Distinct Non-Detects   | 9   |
| Minimum Detect   | 2.5000E-5   | Minimum Non-Detect   | 9.2167E                                       |
| Maximum Detect   | 0.002   | Maximum Non-Detect   | 0.005   |
| Variance Detects   | 6.8810E-7   | Percent Non-Detects  | 75%   |
| Mean Detects   | 5.9550E-4   | SD Detects   | 8.2952E                                       |
| Median Detects   | 2.2500E-4   | CV Detects   | 1.39  |
| Skewness Detects   | 1.725   | Kurtosis Detects   | 2.85  |
| Mean of Logged Detects   | -8.524  | SD of Logged Detects   | 1.85  |
| Norn   | nal GOF Tes   | t on Detects Only  |   |
| Shapiro Wilk Test Statistic  | 0.784   | Shapiro Wilk GOF Test  |   |
| 1% Shapiro Wilk Critical Value   | 0.686   | Detected Data appear Normal at 1% Significance Lev   | rel   |
| Lilliefors Test Statistic  | 0.272   | Lilliefors GOF Test  |   |
| 1% Lilliefors Critical Value   | 0.396   | Detected Data appear Normal at 1% Significance Lev   | vel   |
| Detected Data  | appear Norn   | nal at 1% Significance Level   |   |
| KM Mean  | 4.3464E-4   | KM Standard Error of Mean  | 0.0500  |
|  | 4.3404E-4   | KIVI Staliualu Eliul ul Medil  |   |
|  |   | 95% KM (BCA) UCL   |   |
| 90KM SD  | 6.7669E-4   | 95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | 9.9464E                                       |
| 90KM SD<br>95% KM (t) UCL  | 6.7669E-4<br>9.2911E-4  | 95% KM (Percentile Bootstrap) UCL  | 9.9464E<br>9.4722E                            |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | 9.9464E<br>9.4722E<br>0.002                   |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL  | 6.7669E-4<br>9.2911E-4  | 95% KM (Percentile Bootstrap) UCL  | 9.9464E<br>9.4722E<br>0.002<br>0.001          |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL  | 9.9464E<br>9.4722E<br>0.002<br>0.001          |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low   | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>with this da   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended  | 9.9464E                                       |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low   | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>v with this da   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended  | 9.9464E<br>9.4722E<br>0.002<br>0.001          |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>with this da   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>with this da<br><b>Tests on De</b><br>0.276<br>0.708   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value   | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>with this da<br><b>Tests on De</b><br>0.276<br>0.708<br>0.226  | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significance   | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>v with this da<br>Tests on De<br>0.276<br>0.708<br>0.226<br>0.37   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significant<br>Kolmogorov-Smirnov GOF  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appear  | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>v with this da<br><b>Tests on De</b><br>0.276<br>0.708<br>0.226<br>0.37<br>r Gamma Dia                                   | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significant<br>Kolmogorov-Smirnov GOF<br>Detected data appear Gamma Distributed at 5% Significant  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appea<br>Note GOF tests                         | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>/ with this da<br>7 Tests on De<br>0.276<br>0.708<br>0.226<br>0.37<br>r Gamma Dia<br>may be unre                         | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Bootstrap t UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significanc<br>Kolmogorov-Smirnov GOF<br>Detected data appear Gamma Distributed at 5% Significanc<br>stributed at 5% Significance Level  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appear<br>Note GOF tests                        | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>r with this da<br>0.276<br>0.276<br>0.276<br>0.226<br>0.37<br>r Gamma Dia<br>may be unree<br>Statistics or               | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>taset. Other substitution method recommended<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significance<br>Kolmogorov-Smirnov GOF<br>Detected data appear Gamma Distributed at 5% Significance<br>stributed at 5% Significance Level<br>eliable for small sample sizes | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appea<br>Note GOF tests<br>Gamma<br>k hat (MLE) | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>v with this da<br>Tests on De<br>0.276<br>0.708<br>0.226<br>0.37<br>r Gamma Dia<br>may be unre<br>Statistics or<br>0.567 | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Bootstrap t UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significant<br>Kolmogorov-Smirnov GOF<br>Detected data appear Gamma Distributed at 5% Significant<br>stributed at 5% Significance Level<br>eliable for small sample sizes  | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |
| 90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Note: KM UCLs may be biased low<br>Gamma GOF<br>A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected data appear<br>Note GOF tests                        | 6.7669E-4<br>9.2911E-4<br>9.0501E-4<br>0.00129<br>0.00222<br>v with this da<br>Tests on De<br>0.276<br>0.708<br>0.226<br>0.37<br>r Gamma Dia<br>may be unre<br>Statistics or<br>0.567 | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>taset. Other substitution method recommended<br>taset. Other substitution method recommended<br>Anderson-Darling GOF Test<br>Detected data appear Gamma Distributed at 5% Significance<br>Kolmogorov-Smirnov GOF<br>Detected data appear Gamma Distributed at 5% Significance<br>stributed at 5% Significance Level<br>eliable for small sample sizes | 9.9464E<br>9.4722E<br>0.002<br>0.001<br>0.003 |

|   |                | sing Imputed Non-Detects  |           |
|---|----------------|---|-----------|
|   |                | 6 NDs with many tied observations at multiple DLs               |           |
|   |                | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|   | -              | yield incorrect values of UCLs and BTVs                         |           |
|   |                | en the sample size is small.                                    |           |
|   |                | y be computed using gamma distribution on KM estimates          |           |
|   | 2.5000E-5      | Mean  | 0.00765   |
| Maximum                                   |                | Median  | 0.01      |
| SD  |                | CV  | 0.548     |
| k hat (MLE)                               | 0.83           | k star (bias corrected MLE)                                     | 0.739     |
| Theta hat (MLE)                           | 0.00922        | Theta star (bias corrected MLE)                                 | 0.0104    |
| nu hat (MLE)                              | 33.2           | nu star (bias corrected)  | 29.55     |
| Adjusted Level of Significance (β)        |                |   |           |
| Approximate Chi Square Value (29.55, α)   |                | Adjusted Chi Square Value (29.55, β)                            | 17.43     |
| 95% Gamma Approximate UCL                 | 0.0125         | 95% Gamma Adjusted UCL  | 0.013     |
|   |                |   |           |
|   |                | meters using KM Estimates                                       |           |
|   | 4.3464E-4      |   | 6.7669E-4 |
| Variance (KM)                             | 4.5790E-7      | SE of Mean (KM)   | 2.8596E-4 |
| k hat (KM)                                | 0.413          | k star (KM)   | 0.384     |
| nu hat (KM)                               | 16.5           | nu star (KM)  | 15.36     |
| theta hat (KM)                            | 0.00105        | theta star (KM)   | 0.00113   |
| 80% gamma percentile (KM)                 | 6.9793E-4      | 90% gamma percentile (KM)                                       | 0.00124   |
| 95% gamma percentile (KM)                 | 0.00183        | 99% gamma percentile (KM)                                       | 0.00333   |
|   |                |   |           |
| Gamn                                      | na Kaplan-M    | eier (KM) Statistics  |           |
| Approximate Chi Square Value (15.36, α)   | 7.513          | Adjusted Chi Square Value (15.36, β)                            | 7.082     |
| 95% KM Approximate Gamma UCL              | 8.8864E-4      | 95% KM Adjusted Gamma UCL                                       | 9.4278E-4 |
| Note: KM UCLs may be biased low           | v with this da | taset. Other substitution method recommended                    |           |
|   |                |   |           |
| Lognormal GC                              | OF Test on D   | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic               | 0.942          | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value           | 0.806          | Detected Data appear Lognormal at 10% Significance              | Level     |
| Lilliefors Test Statistic                 | 0.206          | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value             | 0.319          | Detected Data appear Lognormal at 10% Significance              | Level     |
| Detected Data ap                          | pear Lognor    | mal at 10% Significance Level                                   |           |
| Note GOF tests                            | may be unre    | bliable for small sample sizes                                  |           |
|   |                |   |           |
| Lognormal RO                              | S Statistics   | Using Imputed Non-Detects                                       |           |
| Mean in Original Scale                    | 2.7043E-4      | Mean in Log Scale   | -9.069    |
| SD in Original Scale                      | 4.5626E-4      | SD in Log Scale   | 1.283     |
| 95% t UCL (assumes normality of ROS data) | 4.4684E-4      | 95% Percentile Bootstrap UCL                                    | 4.5635E-4 |
| 95% BCA Bootstrap UCL                     | 5.5078E-4      | 95% Bootstrap t UCL   | 6.9185E-4 |
| 95% H-UCL (Log ROS)                       | 6.4711E-4      |   |           |
|   |                | 1   |           |
| Statistics using KM estimates             | on Logged I    | Data and Assuming Lognormal Distribution                        |           |
| KM Mean (logged)                          | -9.049         | KM Geo Mean   | 1.1751E-4 |
|   | 1              |   |           |

| KM SD (logged)  | 1.634  | 95% Critical H Value (KM-Log)  | 3.656        |
|---|--|--|--------------|
| KM Standard Error of Mean (logged)  | 0.695  | 95% H-UCL (KM -Log)  | 0.00176      |
| KM SD (logged)  | 1.634  | 95% Critical H Value (KM-Log)  | 3.656        |
| KM Standard Error of Mean (logged)  | 0.695  |  |              |
| Note: KM UCLs may be biased low   | with this datase   | et. Other substitution method recommended  |              |
|   |  |  |              |
|   | DL/2 Statis  |  |              |
| DL/2 Normal   |  | DL/2 Log-Transformed   |              |
| Mean in Original Scale  | 0.00181  | Mean in Log Scale  | -7.004       |
| SD in Original Scale  | 0.00112  | SD in Log Scale  | 1.719        |
| 95% t UCL (Assumes normality)   | 0.00224  | 95% H-Stat UCL   | 0.0178       |
| DL/2 is not a recommended me  | thod, provided   | for comparisons and historical reasons   |              |
| N   |  |  |              |
| · · · ·   |  | Free UCL Statistics  |              |
|   | Normal Distrib   | outed at 1% Significance Level   |              |
|   | Suggested UC   |  |              |
|   | Suggested UC   | L to Use   |              |
| 95% KM (t) UCL 9  | 9.2911E-4  |  |              |
| The calculated LICLs are based on assumpti  | one that the da  | ta were collected in a random and unbiased manner.   |              |
|   |  | ted from random locations.   |              |
|   | ala were conec   |  |              |
| -   |  |  |              |
| If the data were collected  | using judgmen  | tal or other non-random methods,   |              |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%  | using judgmen<br>statistician to co<br>UCL are provid  | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.   |              |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution   | tal or other non-random methods,<br>orrectly calculate UCLs.   | n.           |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician  | n.           |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics   |              |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations  | 3            |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0  | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects   | 3<br>13      |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations  | 3            |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>c (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 3<br>13      |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Warning: All observations are Non-Detects   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0  | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects   | 3<br>13      |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>I other statistics   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>s are also NDs lying below the largest detection limit!  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>I other statistics   | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects   | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                    | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>as are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                    | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>s are also NDs lying below the largest detection limit!  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                    | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>as are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundy  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefor<br>d other statistics<br>te specific value                    | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>as are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundy  | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>5 (NDs), therefo<br>I other statistics<br>te specific value<br>water   2,2-dich      | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>is are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).<br>loropropane   594-20-7) was not processed!  | 3<br>13<br>3 |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundw<br>C (groundwater   2,2'-oxybis(1-chloropropane)   108-60-1)   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefo<br>I other statistics<br>te specific value<br>water   2,2-dich | tistics tistic | 3 13 3       |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundw<br>C (groundwater   2,2'-oxybis(1-chloropropane)   108-60-1)<br>Total Number of Observations | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>5 (NDs), therefo<br>I other statistics<br>te specific value<br>water   2,2-dich      | tal or other non-random methods,<br>prrectly calculate UCLs.<br>led to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.<br>or additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>ore all statistics and estimates should also be NDs!<br>as are also NDs lying below the largest detection limit!<br>es to estimate environmental parameters (e.g., EPC, BTV).<br>loropropane   594-20-7) was not processed!<br>tistics<br>Number of Distinct Observations  | 3 13 3       |
| If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real Wo<br>C (groundwater   2,2-dichloropropane   594-20-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundw<br>C (groundwater   2,2'-oxybis(1-chloropropane)   108-60-1)   | using judgmen<br>statistician to co<br>UCL are provid<br>data distribution<br>orld data sets; fo<br>General Stat<br>13<br>0<br>0<br>0<br>s (NDs), therefo<br>I other statistics<br>te specific value<br>water   2,2-dich | tistics tistic | 3 13 3       |

| Warning: All observations are Non-Detect          | : (NDs) t   | herefore all statistics and estimates should also be NDs!   |          |
|---|-------------|---|----------|
|   |             | atistics are also NDs lying below the largest detection limit!  |          |
|   |             | values to estimate environmental parameters (e.g., EPC, BTV).   |          |
|   |             |   |          |
| The data set for variable C (groundwate           | r   2,2'-ox | ybis(1-chloropropane)   108-60-1) was not processed!  |          |
|   |             |   |          |
| C (groundwater   2,4,5-trichlorophenol   95-95-4) |             |   |          |
|   |             |   |          |
|   | Genera      | al Statistics   |          |
| Total Number of Observations                      | 42          | Number of Distinct Observations   | 9        |
| Number of Detects                                 | 0           | Number of Non-Detects   | 42       |
| Number of Distinct Detects                        | 0           | Number of Distinct Non-Detects  | 9        |
|   |             | home all statistics and estimates should also be NDal   |          |
|   |             | herefore all statistics and estimates should also be NDs!<br>atistics are also NDs lying below the largest detection limit!       |          |
|   |             | c values to estimate environmental parameters (e.g., EPC, BTV).   |          |
|   | le specific |   | •        |
| The data set for variable C (ground               | water   2.  | 4,5-trichlorophenol   95-95-4) was not processed!   |          |
|   |             |   |          |
|   |             |   |          |
| C (groundwater   2,4,6-trichlorophenol   88-06-2) |             |   |          |
|   |             |   |          |
|   | Genera      | al Statistics   |          |
| Total Number of Observations                      | 42          | Number of Distinct Observations   | 9        |
| Number of Detects                                 | 0           | Number of Non-Detects   | 42       |
| Number of Distinct Detects                        | 0           | Number of Distinct Non-Detects  | 9        |
| Warning: All observations are Non-Detect          | NDe) t      | herefore all statistics and estimates should also be NDs!   |          |
|   | · · · ·     | atistics are also NDs lying below the largest detection limit!  |          |
|   |             | c values to estimate environmental parameters (e.g., EPC, BTV).   |          |
|   |             |   | <u> </u> |
| The data set for variable C (ground               | water   2,  | 4,6-trichlorophenol   88-06-2) was not processed!   |          |
|   |             |   |          |
|   |             |   |          |
| C (groundwater   2,4-dichlorophenol   120-83-2)   |             |   |          |
|   |             |   |          |
|   | Genera      | al Statistics   |          |
| Total Number of Observations                      | 42          | Number of Distinct Observations   | 9        |
| Number of Detects                                 | 0           | Number of Non-Detects   | 42       |
| Number of Distinct Detects                        | 0           | Number of Distinct Non-Detects  | 9        |
| Manufactor All 1 all All The second               |             |   |          |
| -   | <u> </u>    | herefore all statistics and estimates should also be NDs!   |          |
|   |             | atistics are also NDs lying below the largest detection limit!<br>c values to estimate environmental parameters (e.g., EPC, BTV). |          |
|   | re shecili  | values to estimate environmental parameters (e.g., EPC, BTV).   | •        |
| The data set for variable C (ground               | water   2.  | 4-dichlorophenol   120-83-2) was not processed!   |          |

| O (groundwater I 0.4 directively barel I 405.07.0)             |                |   |           |
|--|----------------|---|-----------|
| C (groundwater   2,4-dimethylphenol   105-67-9)                |                |   |           |
|  | General        | Statistics  |           |
| Total Number of Observations                                   | 42             | Number of Distinct Observations                               | 10        |
| Number of Detects  | 1              | Number of Non-Detects   | 41        |
| Number of Distinct Detects                                     | 1              | Number of Distinct Non-Detects                                | 9         |
|  |                | 1   |           |
| Warning: Only one distinct data value was detected             | ed! ProUCL     | (or any other software) should not be used on such a data set | l         |
| It is suggested to use alternative site specific values detern | mined by the   | Project Team to estimate environmental parameters (e.g., EF   | PC, BTV). |
|  |                |   |           |
| The data set for variable C (ground                            | dwater   2,4-  | dimethylphenol   105-67-9) was not processed!                 |           |
|  |                |   |           |
| O (groundwater I O.4. distractional I Ed. OD. E)               |                |   |           |
| C (groundwater   2,4-dinitrophenol   51-28-5)                  |                |   |           |
|  | General        | Statistics  |           |
| Total Number of Observations                                   | 42             | Number of Distinct Observations                               | 12        |
| Number of Detects  | 0              | Number of Non-Detects   | 42        |
| Number of Distinct Detects                                     | 0              | Number of Distinct Non-Detects                                | 12        |
|  |                |   |           |
| Warning: All observations are Non-Detect                       | ts (NDs), the  | refore all statistics and estimates should also be NDs!       |           |
| Specifically, sample mean, UCLs, UPLs, an                      | d other stati  | stics are also NDs lying below the largest detection limit!   |           |
| The Project Team may decide to use alternative s               | ite specific \ | values to estimate environmental parameters (e.g., EPC, BTV)  | -         |
|  |                |   |           |
| The data set for variable C (grou                              | ndwater   2,   | 4-dinitrophenol   51-28-5) was not processed!                 |           |
|  |                |   |           |
| C (groundwater   2,4-dinitrotoluene   121-14-2)                |                |   |           |
|  |                |   |           |
|  | General        | Statistics  |           |
| Total Number of Observations                                   |                | Number of Distinct Observations                               | 9         |
| Number of Detects  | 0              | Number of Non-Detects   | 42        |
| Number of Distinct Detects                                     | 0              | Number of Distinct Non-Detects                                | 9         |
|  |                |   |           |
| Warning: All observations are Non-Detect                       | ts (NDs), the  | refore all statistics and estimates should also be NDs!       |           |
| Specifically, sample mean, UCLs, UPLs, an                      | d other stati  | stics are also NDs lying below the largest detection limit!   |           |
| The Project Team may decide to use alternative s               | ite specific v | values to estimate environmental parameters (e.g., EPC, BTV)  | •         |
|  |                |   |           |
| The data set for variable C (groun                             | dwater   2,4   | -dinitrotoluene   121-14-2) was not processed!                |           |
|  |                |   |           |
|  |                |   |           |
| C (groundwater   2,6-dinitrotoluene   606-20-2)                |                |   |           |
|  | 0'             | Otatiatian  |           |
| Total Number of Observations                                   |                | Statistics Number of Distinct Observations                    | 9         |
| I otal Number of Observations<br>Number of Detects             | 42             | Number of Distinct Observations Number of Non-Detects         | 9<br>42   |
| inumber of Detects   | U              |   | 42        |

| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 9                                |
|---|---|---|----------------------------------|
|   |   |   |                                  |
| -   |   | refore all statistics and estimates should also be NDs!   |                                  |
|   |   | stics are also NDs lying below the largest detection limit!   |                                  |
| The Project Team may decide to use alternative si   |   | alues to estimate environmental parameters (e.g., EPC, BTV).  | •                                |
| The data set for variable C (groun  | dwater   2,6-   | -dinitrotoluene   606-20-2) was not processed!  |                                  |
|   |   |   |                                  |
|   |   |   |                                  |
| C (groundwater   2-butanone   78-93-3)  |   |   |                                  |
|   |   |   |                                  |
| Total Number of Observations  | General S   |   | 6                                |
| Number of Detects   | 36<br>3   | Number of Distinct Observations   | 6                                |
|   | 3   | Number of Non-Detects   | 33<br>5                          |
| Number of Distinct Detects<br>Minimum Detect  | 2   | Number of Distinct Non-Detects<br>Minimum Non-Detect  | 0.01                             |
| Maximum Detect  | 0.001   | Maximum Non-Detect  | 0.01                             |
| Variance Detects  |   | Percent Non-Detects   | 91.67%                           |
| Mean Detects  | 0.00467   | SD Detects  | 0.00635                          |
| Median Detects  | 0.00407   | CV Detects  | 1.361                            |
| Skewness Detects  | 1.732   | Kurtosis Detects  | N/A                              |
| Mean of Logged Detects  | -6.079  | SD of Logged Detects  | 1.435                            |
|   |   |   |                                  |
|   | 0.75  | t on Detects Only   |                                  |
| Shapiro Wilk Test Statistic   |   | Shapiro Wilk GOF Test   |                                  |
| 1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic   | 0.753<br>0.385  | Detected Data Not Normal at 1% Significance Level   |                                  |
| 1% Lilliefors Critical Value  | 0.385   | Lilliefors GOF Test Detected Data appear Normal at 1% Significance Leve   |                                  |
|   |   | e Normal at 1% Significance Level   | CI                               |
|   |   | liable for small sample sizes   |                                  |
|   |   |   |                                  |
| Kaplan-Meier (KM) Statistics usir   |   | ritical Values and other Nerrorentzia LOLs  |                                  |
|   | ng Normal C   | ritical Values and other Nonparametric UCLs   |                                  |
| KM Mean   | ng Normal C<br>0.00152  | KM Standard Error of Mean   | 6.2607E-4                        |
|   | -   | -   | 6.2607E-4<br>N/A                 |
| KM Mean   | 0.00152   | KM Standard Error of Mean   |                                  |
| KM Mean<br>90KM SD  | 0.00152   | KM Standard Error of Mean 6<br>95% KM (BCA) UCL   | N/A                              |
| KM Mean<br>90KM SD<br>95% KM (t) UCL  | 0.00152<br>0.00234<br>0.00258   | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | N/A<br>N/A<br>N/A                |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL  | 0.00152<br>0.00234<br>0.00258<br>0.00255  | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | N/A<br>N/A<br>N/A<br>0.00425     |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | 0.00152<br>0.00234<br>0.00258<br>0.00255<br>0.0034<br>0.00543   | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.00425     |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF   | 0.00152<br>0.00234<br>0.00258<br>0.00255<br>0.0034<br>0.00543<br>Tests on De                          | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>0.00425     |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF<br>A-D Test Statistic                                 | 0.00152<br>0.00234<br>0.00258<br>0.00255<br>0.0034<br>0.00543<br><b>Tests on De</b><br>0.612          | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>0.00425<br>0.00775 |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br><b>Gamma GOF</b><br>A-D Test Statistic<br>5% A-D Critical Value | 0.00152<br>0.00234<br>0.00258<br>0.00255<br>0.0034<br>0.00543<br><b>Tests on De</b><br>0.612<br>0.642 | KM Standard Error of Mean       95% KM (BCA) UCL         95% KM (Percentile Bootstrap) UCL       95% KM Bootstrap t UCL         95% KM Chebyshev UCL       95% KM Chebyshev UCL         99% KM Chebyshev UCL       99% KM Chebyshev UCL         etected Observations Only       95% CONSTRUCT         Detected data appear Gamma Distributed at 5% Significance | N/A<br>N/A<br>0.00425<br>0.00775 |
| KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF<br>A-D Test Statistic                                 | 0.00152<br>0.00234<br>0.00258<br>0.00255<br>0.0034<br>0.00543<br><b>Tests on De</b><br>0.612          | KM Standard Error of Mean 6<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>0.00425<br>0.00775 |

| Detected Data Not C                      | amma Dist     | ributed at 5% Significance Level   |         |
|--|---------------|--|---------|
| Gamma                                    | Statistics or | Detected Data Only   |         |
| k hat (MLE)                              | 0.829         | k star (bias corrected MLE)  | N/A     |
| Theta hat (MLE)                          | 0.00563       | Theta star (bias corrected MLE)  | N/A     |
| nu hat (MLE)                             | 4.977         | nu star (bias corrected)   | N/A     |
| Mean (detects)                           | 0.00467       |  |         |
| GROS may not be used when data se        | et has > 50%  | sing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20) |         |
|  |               | yield incorrect values of UCLs and BTVs  |         |
|  | -             | In the sample size is small.   |         |
|  |               | y be computed using gamma distribution on KM estimates   |         |
| Minimum                                  | 0.001         | Mean   | 0.00956 |
| Maximum                                  | 0.001         | Median   | 0.00956 |
|  | 0.012         | CV   | 0.01    |
| SD                                       |               |  |         |
| k hat (MLE)                              | 6.623         | k star (bias corrected MLE)  | 6.089   |
| Theta hat (MLE)                          | 0.00144       | Theta star (bias corrected MLE)  | 0.00157 |
| nu hat (MLE)                             | 476.8         | nu star (bias corrected)   | 438.4   |
| Adjusted Level of Significance (β)       | 0.0428        |  |         |
| Approximate Chi Square Value (438.43, α) | 390.9         | Adjusted Chi Square Value (438.43, β)  | 388.9   |
| 95% Gamma Approximate UCL                | 0.0107        | 95% Gamma Adjusted UCL   | N/A     |
| Estimates of G                           | amma Para     | meters using KM Estimates  |         |
| Mean (KM)                                | 0.00152       | SD (KM)  | 0.00234 |
| Variance (KM)                            |               | SE of Mean (KM)  |         |
| k hat (KM)                               | 0.423         | k star (KM)  | 0.406   |
| nu hat (KM)                              | 30.47         | nu star (KM)   | 29.26   |
| theta hat (KM)                           | 0.0036        | theta star (KM)  | 0.00375 |
| 80% gamma percentile (KM)                | 0.00246       | 90% gamma percentile (KM)  | 0.00429 |
| 95% gamma percentile (KM)                | 0.00240       | 99% gamma percentile (KM)  | 0.00423 |
|  |               |  |         |
| Gamm                                     | a Kaplan-M    | eier (KM) Statistics   |         |
| Approximate Chi Square Value (29.26, α)  | 17.91         | Adjusted Chi Square Value (29.26, β)   | 17.51   |
| 95% KM Approximate Gamma UCL             | 0.00249       | 95% KM Adjusted Gamma UCL  | 0.00255 |
| Lognormal GO                             | F Test on D   | etected Observations Only  |         |
| Shapiro Wilk Test Statistic              | 0.75          | Shapiro Wilk GOF Test  |         |
| 10% Shapiro Wilk Critical Value          | 0.789         | Detected Data Not Lognormal at 10% Significance Le   | evel    |
| Lilliefors Test Statistic                | 0.385         | Lilliefors GOF Test  |         |
| 10% Lilliefors Critical Value            | 0.389         | Detected Data appear Lognormal at 10% Significance I   | امر     |
|  |               | Lognormal at 10% Significance Level  |         |
|  |               | liable for small sample sizes  |         |
|  |               |  |         |
|  |               | Using Imputed Non-Detects  |         |
| Mean in Original Scale                   | 0.00179       | Mean in Log Scale  | -6.739  |
| SD in Original Scale                     | 0.00213       | SD in Log Scale  | 0.886   |

| 95% t UCL (assumes normality of ROS data)  | 0.00239                                 | 95% Percentile Bootstrap UCL  | 0.0024   |
|--|---|---|----------|
| 95% BCA Bootstrap UCL  | 0.00266                                 | 95% Bootstrap t UCL   | 0.0028   |
| 95% H-UCL (Log ROS)  | 0.00246                                 |   |          |
|  |   |   |          |
|  |   | Data and Assuming Lognormal Distribution  |          |
| KM Mean (logged)   | -6.789                                  | KM Geo Mean   | 0.0011   |
| KM SD (logged)   | 0.529                                   | 95% Critical H Value (KM-Log)   | 1.932    |
| KM Standard Error of Mean (logged)   | 0.141                                   | 95% H-UCL (KM -Log)   | 0.001    |
| KM SD (logged)   | 0.529                                   | 95% Critical H Value (KM-Log)   | 1.93     |
| KM Standard Error of Mean (logged)   | 0.141                                   |   |          |
| Note: KM UCLs may be biased low  | with this da                            | taset. Other substitution method recommended  |          |
|  |   |   |          |
| DI /O Normal   | DL/2 St                                 |   |          |
| DL/2 Normal  | 0.0004                                  | DL/2 Log-Transformed  | 4.00     |
| Mean in Original Scale   | 0.0084                                  | Mean in Log Scale   | -4.98    |
| SD in Original Scale   | 0.00585                                 | SD in Log Scale   | 0.68     |
| 95% t UCL (Assumes normality)  | 0.01                                    | 95% H-Stat UCL  | 0.01     |
| DL/2 is not a recommended me   | ethod, provid                           | ded for comparisons and historical reasons  |          |
| Nonnarame  | tric Distribut                          | tion Free UCL Statistics  |          |
|  |   | mal Distributed at 1% Significance Level  |          |
|  |   |   |          |
|  | Suggosted                               | UCL to Use  |          |
|  |   |   |          |
| 95% KM (t) UCL   | 0.00258                                 |   |          |
| The colouisted UOLs are based on accurate  |   | date ware collected in a readers and which ad more  |          |
|  |   | e data were collected in a random and unbiased manner.<br>Ilected from random locations.  |          |
| -  |   | nental or other non-random methods,   |          |
|  |   | o correctly calculate UCLs.   |          |
|  |   |   |          |
| When a data set follows an app   | roximate dis                            | tribution passing only one of the GOF tests,  |          |
|  |   | istribution passing both GOF tests in ProUCL  |          |
|  |   |   |          |
| Note: Suggestions regarding the selection of a 95%   | UCL are pro                             | ovided to help the user to select the most appropriate 95% UCL.   |          |
|  |   | ution, and skewness using results from simulation studies.  |          |
| Recommendations are based upon data size.  |   |   |          |
| •  |   | <u> </u>  | n        |
| •  |   | ts; for additional insight the user may want to consult a statisticia   | n.       |
| However, simulations results will not cover all Real We  |   | <u> </u>  | n.       |
| •  |   | <u> </u>  | n.       |
| However, simulations results will not cover all Real We  | orld data set                           | ts; for additional insight the user may want to consult a statisticia   | in.      |
| However, simulations results will not cover all Real We<br>undwater   2-chloronaphthalene   91-58-7)   | orld data set                           | ts; for additional insight the user may want to consult a statisticia   |          |
| However, simulations results will not cover all Real Wa<br>undwater   2-chloronaphthalene   91-58-7)<br>Total Number of Observations   | General 42                              | ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations  | 10       |
| However, simulations results will not cover all Real We<br>undwater   2-chloronaphthalene   91-58-7)<br>Total Number of Observations<br>Number of Detects  | General 42<br>0                         | ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations Number of Non-Detects                                | 10<br>42 |
| However, simulations results will not cover all Real Wa<br>undwater   2-chloronaphthalene   91-58-7)<br>Total Number of Observations   | General 42                              | ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations  | 10       |
| However, simulations results will not cover all Real We<br>undwater   2-chloronaphthalene   91-58-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | General 42<br>0<br>0                    | ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects | 10<br>42 |
| However, simulations results will not cover all Real We<br>undwater   2-chloronaphthalene   91-58-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects | General<br>42<br>0<br>0<br>s (NDs), the | ts; for additional insight the user may want to consult a statisticia Statistics Number of Distinct Observations Number of Non-Detects                                | 10<br>42 |

| The data set for variable C (ground                | water   2  | -chloronaphthalene   91-58-7) was not processed!                 |    |
|--|------------|--|----|
|  |            |  |    |
| c (groundwater   2-chlorophenol   95-57-8)         |            |  |    |
|  | Gener      | ral Statistics   |    |
| Total Number of Observations                       | 42         | Number of Distinct Observations                                  | 9  |
| Number of Detects                                  | 0          | Number of Non-Detects  | 42 |
| Number of Distinct Detects                         | 0          | Number of Distinct Non-Detects                                   | 9  |
| Warning: All observations are Non-Detects          | s (NDs), 1 | therefore all statistics and estimates should also be NDs!       |    |
| Specifically, sample mean, UCLs, UPLs, and         | l other st | atistics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative sit | te specifi | ic values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (grou                  | ndwater    | 2-chlorophenol   95-57-8) was not processed!                     |    |
|  |            |  |    |
| (groundwater   2-chlorotoluene   95-49-8)          |            |  |    |
|  | Gener      | ral Statistics   |    |
| Total Number of Observations                       | 13         | Number of Distinct Observations                                  | 3  |
| Number of Detects                                  | 0          | Number of Non-Detects  | 13 |
| Number of Distinct Detects                         | 0          | Number of Distinct Non-Detects                                   | 3  |
| Warning: All observations are Non-Detects          |            | therefore all statistics and estimates should also be NDs!       |    |
| -  | <u> </u>   | atistics are also NDs lying below the largest detection limit!   |    |
|  |            | ic values to estimate environmental parameters (e.g., EPC, BTV). |    |
|  |            |  |    |
| The data set for variable C (grou                  | ndwater    | 2-chlorotoluene   95-49-8) was not processed!                    |    |
|  |            |  |    |
|  |            |  |    |
| (groundwater   2-hexanone   591-78-6)              |            |  |    |
|  |            |  |    |
| 1  |            | ral Statistics   |    |
| Total Number of Observations                       | 36         | Number of Distinct Observations                                  | 4  |
| Number of Detects                                  | 0          | Number of Non-Detects  | 36 |
| Number of Distinct Detects                         | 0          | Number of Distinct Non-Detects                                   | 4  |
| Warning: All observations are Non-Detects          | s (NDs), 1 | therefore all statistics and estimates should also be NDs!       |    |
| Specifically, sample mean, UCLs, UPLs, and         | l other st | atistics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative sit | te specifi | ic values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (are                   | undwata    | r   2-hexanone   591-78-6) was not processed!                    |    |
|  | unuwate    | 2-nexanone   591-76-0) was not processed:                        |    |
| (groundwater   2-methylnaphthalene   91-57-6)      |            |  |    |
| (9,04,0,440) - 2-1104/9114/914/916/06 - 91-07-0)   |            |  |    |
|  | Gener      | ral Statistics   |    |

|                                  |               |   | 00        |
|----------------------------------|---------------|---|-----------|
| Total Number of Observations     |               | Number of Distinct Observations                                 | 20        |
| Number of Detects                |               | Number of Non-Detects   | 38        |
| Number of Distinct Detects       |               | Number of Distinct Non-Detects                                  | 15        |
| Minimum Detect                   |               | Minimum Non-Detect  |           |
| Maximum Detect                   |               | Maximum Non-Detect  | 0.0056    |
| Variance Detects                 | 2.8276E-6     | Percent Non-Detects   | 88.37%    |
| Mean Detects                     | 0.00101       | SD Detects  | 0.00168   |
| Median Detects                   | 2.0000E-4     | CV Detects  | 1.661     |
| Skewness Detects                 | 2.164         | Kurtosis Detects  | 4.718     |
| Mean of Logged Detects           | -7.872        | SD of Logged Detects  | 1.459     |
|                                  |               | · · · · · ·   |           |
| Norm                             | nal GOF Tes   | t on Detects Only   |           |
| Shapiro Wilk Test Statistic      | 0.641         | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value   | 0.686         | Detected Data Not Normal at 1% Significance Leve                | I         |
| Lilliefors Test Statistic        | 0.397         | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value     | 0.396         | Detected Data Not Normal at 1% Significance Leve                | I         |
| Detected Date                    | a Not Norma   | al at 1% Significance Level                                     |           |
|                                  |               |   |           |
| Kaplan-Meier (KM) Statistics usi | ng Normal C   | Critical Values and other Nonparametric UCLs                    |           |
| KM Mean                          | 2.7421E-4     | KM Standard Error of Mean                                       | 1.3844E-4 |
| 90KM SD                          | 6.8642E-4     | 95% KM (BCA) UCL  | 6.1083E-4 |
| 95% KM (t) UCL                   | 5.0707E-4     | 95% KM (Percentile Bootstrap) UCL                               |           |
| 95% KM (z) UCL                   |               | 95% KM Bootstrap t UCL  | 0.00152   |
| 90% KM Chebyshev UCL             |               | 95% KM Chebyshev UCL  |           |
| 97.5% KM Chebyshev UCL           |               | 99% KM Chebyshev UCL  | 0.00165   |
| -                                |               | taset. Other substitution method recommended                    |           |
|                                  |               |   |           |
| Gamma GOF                        | Tests on De   | etected Observations Only                                       |           |
| A-D Test Statistic               |               | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value            |               | Detected data appear Gamma Distributed at 5% Significant        | ce Level  |
| K-S Test Statistic               |               | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value            |               | Detected data appear Gamma Distributed at 5% Significant        | ce l evel |
|                                  |               | stributed at 5% Significance Level                              | 2010      |
|                                  |               | eliable for small sample sizes                                  |           |
|                                  |               |   |           |
| Gamma                            | Statistics or | n Detected Data Only  |           |
| k hat (MLE)                      |               | k star (bias corrected MLE)                                     | 0.385     |
| Theta hat (MLE)                  | 0.029         | Theta star (bias corrected MLE)                                 | 0.385     |
|                                  | 6.285         |   | 3.847     |
| nu hat (MLE)                     |               | nu star (bias corrected)  | 3.047     |
| Mean (detects)                   | 0.00101       |   |           |
| 0                                | Otaticita     | aing language Mars Datasta                                      |           |
|                                  |               | sing Imputed Non-Detects  |           |
|                                  |               | 6 NDs with many tied observations at multiple DLs               |           |
|                                  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|                                  | -             | yield incorrect values of UCLs and BTVs                         |           |
|                                  | -             | en the sample size is small.                                    |           |
|                                  |               | ay be computed using gamma distribution on KM estimates         |           |
| Minimum                          | 1.1200E-4     | Mean  | 0.00895   |

| Maximum                                   | 0.01           | Median   | 0.01      |
|---|----------------|--|-----------|
| SC  |                | CV   | 0.331     |
| k hat (MLE                                |                | k star (bias corrected MLE)                        | 1.882     |
| Theta hat (MLE)                           |                | Theta star (bias corrected MLE)                    | 0.00476   |
| nu hat (MLE)                              |                | nu star (bias corrected)                           | 161.8     |
| Adjusted Level of Significance (β)        |                |  | 101.0     |
| Approximate Chi Square Value (161.83, a)  |                | Adjusted Chi Square Value (161.83, β)              | 132.5     |
| 95% Gamma Approximate UCL                 |                | 95% Gamma Adjusted UCL                             | 0.0109    |
|   | 0.0100         |  | 0.0100    |
|   |                | meters using KM Estimates                          |           |
|   | 2.7421E-4      |  | 6.8642E-4 |
| Variance (KM)                             | 4.7117E-7      | SE of Mean (KM)                                    | 1.3844E-4 |
| k hat (KM)                                | 0.16           | k star (KM)  | 0.164     |
| nu hat (KM)                               | 13.72          | nu star (KM)                                       | 14.1      |
| theta hat (KM)                            | 0.00172        | theta star (KM)                                    | 0.00167   |
| 80% gamma percentile (KM)                 | 3.1962E-4      | 90% gamma percentile (KM)                          | 8.2153E-4 |
| 95% gamma percentile (KM)                 | 0.00148        | 99% gamma percentile (KM)                          | 0.00336   |
|   |                |  |           |
| Gamr                                      | na Kaplan-M    | eier (KM) Statistics                               |           |
| Approximate Chi Square Value (14.10, α    | 6.64           | Adjusted Chi Square Value (14.10, β)               | 6.462     |
| 95% KM Approximate Gamma UCL              | 5.8230E-4      | 95% KM Adjusted Gamma UCL                          | 5.9836E-4 |
| Note: KM UCLs may be biased low           | v with this da | taset. Other substitution method recommended       |           |
|   |                |  |           |
| _   |                | etected Observations Only                          |           |
| Shapiro Wilk Test Statistic               |                | Shapiro Wilk GOF Test                              |           |
| 10% Shapiro Wilk Critical Value           |                | Detected Data appear Lognormal at 10% Significance | Level     |
| Lilliefors Test Statistic                 |                | Lilliefors GOF Test                                |           |
| 10% Lilliefors Critical Value             |                | Detected Data appear Lognormal at 10% Significance | Level     |
|   |                | mal at 10% Significance Level                      |           |
| Note GOF tests                            | may be unre    | eliable for small sample sizes                     |           |
|   |                |  |           |
|   |                | Using Imputed Non-Detects                          |           |
| Mean in Original Scale                    |                | Mean in Log Scale                                  | -9.039    |
| SD in Original Scale                      |                | SD in Log Scale                                    | 0.946     |
| 95% t UCL (assumes normality of ROS data) |                | 95% Percentile Bootstrap UCL                       |           |
| 95% BCA Bootstrap UCL                     |                | 95% Bootstrap t UCL                                | 9.1847E-4 |
| 95% H-UCL (Log ROS)                       | 2.5994E-4      |  |           |
|   |                |  |           |
|   |                | Data and Assuming Lognormal Distribution           |           |
| KM Mean (logged)                          |                | KM Geo Mean  |           |
| KM SD (logged)                            |                | 95% Critical H Value (KM-Log)                      | 2.056     |
| KM Standard Error of Mean (logged         |                | 95% H-UCL (KM -Log)                                |           |
| KM SD (logged)                            |                | 95% Critical H Value (KM-Log)                      | 2.056     |
| KM Standard Error of Mean (logged         |                |  |           |
| Note: KM UCLs may be biased low           | w with this da | taset. Other substitution method recommended       |           |
|   |                |  |           |
|   | =              |  |           |
| DL/2 Normal                               | DL/2 S         | tatistics DL/2 Log-Transformed                     |           |

| Maan in Original Ocale                                 | 0.00102        | Maan in Law Orala   | 7.010     |
|--|----------------|---|-----------|
| Mean in Original Scale                                 |                | Mean in Log Scale   | -7.612    |
| SD in Original Scale                                   |                | SD in Log Scale   | 1.26      |
| 95% t UCL (Assumes normality)                          |                | 95% H-Stat UCL  | 0.00184   |
| DL/2 is not a recommended m                            | ethod, provid  | ded for comparisons and historical reasons                            |           |
|  |                |   |           |
|  |                | tion Free UCL Statistics  |           |
| Detected Data appea                                    | r Gamma Di     | stributed at 5% Significance Level                                    |           |
|  |                |   |           |
|  |                | UCL to Use  |           |
| 95% KM Adjusted Gamma UCL                              | 5.9836E-4      |   |           |
|  |                |   |           |
| The calculated UCLs are based on assump                | tions that the | e data were collected in a random and unbiased manner.                |           |
| Please verify the                                      | data were co   | Ilected from random locations.  |           |
| If the data were collected                             | d using judgr  | nental or other non-random methods,                                   |           |
| then contact a   | statistician t | o correctly calculate UCLs.   |           |
|  |                |   |           |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are pr   | ovided to help the user to select the most appropriate 95% UCL.       |           |
| Recommendations are based upon data size               | , data distrib | ution, and skewness using results from simulation studies.            |           |
| However, simulations results will not cover all Real V | Vorld data set | ts; for additional insight the user may want to consult a statisticia | an.       |
|  |                |   |           |
| C (groundwater   2-methylphenol   95-48-7)             |                |   |           |
|  |                |   |           |
|  | General        | Statistics  |           |
| Total Number of Observations                           |                | Number of Distinct Observations                                       | 13        |
| Number of Detects                                      |                | Number of Non-Detects   | 37        |
| Number of Distinct Detects                             | -              | Number of Distinct Non-Detects  | 9         |
| Minimum Detect   |                | Minimum Non-Detect  | 0.002     |
| Maximum Detect   |                | Maximum Non-Detect  | 0.002     |
| Variance Detects                                       |                | Percent Non-Detects   | 88.1%     |
|  |                |   |           |
| Mean Detects   |                | SD Detects  | 0.00232   |
| Median Detects   |                | CV Detects  | 1.247     |
| Skewness Detects                                       |                | Kurtosis Detects  | 4.92      |
| Mean of Logged Detects                                 | -6.717         | SD of Logged Detects  | 0.915     |
|  |                |   |           |
| Norn   | nal GOF Tes    | t on Detects Only   |           |
| Shapiro Wilk Test Statistic                            | 0.615          | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value                         | 0.686          | Detected Data Not Normal at 1% Significance Level                     | l         |
| Lilliefors Test Statistic                              | 0.445          | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value                           | 0.396          | Detected Data Not Normal at 1% Significance Level                     |           |
| Detected Dat   | a Not Norma    | I at 1% Significance Level  |           |
|  |                |   |           |
| Kaplan-Meier (KM) Statistics usi                       | ng Normal C    | ritical Values and other Nonparametric UCLs                           |           |
| KM Mean  | -              | KM Standard Error of Mean   | 2.1167E-4 |
|  | 9.5538E-4      | 95% KM (BCA) UCL  | 0.0014    |
| 95% KM (t) UCL   | 0.00136        | 95% KM (Percentile Bootstrap) UCL                                     | 0.00139   |
| 95% KM (z) UCL   |                | 95% KM Bootstrap t UCL  | 0.00186   |
| 90% KM Chebyshev UCL                                   | 0.00164        | 95% KM Chebyshev UCL  | 0.00193   |
| 97.5% KM Chebyshev UCL                                 | 0.00104        | 99% KM Chebyshev UCL  | 0.00193   |
| 97.5% KWI Chedysnev UCL                                | 0.00233        | 99% KW Chebysnev UCL  | 0.00311   |

| Note: KM UCLs may be biased low                                | v with this dat | taset. Other substitution method recommended                    |         |
|--|-----------------|---|---------|
| Gamma GOF  | Tests on De     | tected Observations Only  |         |
| A-D Test Statistic   | 0.918           | Anderson-Darling GOF Test                                       |         |
| 5% A-D Critical Value  | 0.688           | Detected Data Not Gamma Distributed at 5% Significance          | e Level |
| K-S Test Statistic   | 0.431           | Kolmogorov-Smirnov GOF  |         |
| 5% K-S Critical Value  | 0.363           | Detected Data Not Gamma Distributed at 5% Significance          | e Level |
| Detected Data Not  | Gamma Distr     | ributed at 5% Significance Level                                |         |
| Gamma  | Statistics on   | Detected Data Only  |         |
| k hat (MLE)  | 1.304           | k star (bias corrected MLE)                                     | 0.655   |
| Theta hat (MLE)  | 0.00143         | Theta star (bias corrected MLE)                                 | 0.0028  |
| nu hat (MLE)   | 13.04           | nu star (bias corrected)  | 6.549   |
| Mean (detects)   | 0.00186         |   |         |
| Gamma ROS  | Statistics us   | sing Imputed Non-Detects  |         |
|  |                 | NDs with many tied observations at multiple DLs                 |         |
| GROS may not be used when kstar of detects is                  | small such as   | s <1.0, especially when the sample size is small (e.g., <15-20) |         |
| For such situations, GROS                                      | method may      | yield incorrect values of UCLs and BTVs                         |         |
| This is espec  | ally true whe   | n the sample size is small.                                     |         |
| For gamma distributed detected data, BTVs a                    | nd UCLs mag     | y be computed using gamma distribution on KM estimates          |         |
| Minimum  | 6.0000E-4       | Mean  | 0.0090  |
| Maximum  | 0.01            | Median  | 0.01    |
| SD   | 0.00276         | CV  | 0.306   |
| k hat (MLE)  | 3.502           | k star (bias corrected MLE)                                     | 3.268   |
| Theta hat (MLE)  | 0.00258         | Theta star (bias corrected MLE)                                 | 0.0027  |
| nu hat (MLE)   | 294.2           | nu star (bias corrected)  | 274.5   |
| Adjusted Level of Significance (β)                             | 0.0443          |   |         |
| Approximate Chi Square Value (274.50, α)                       | 237.1           | Adjusted Chi Square Value (274.50, β)                           | 235.9   |
| 95% Gamma Approximate UCL                                      | 0.0105          | 95% Gamma Adjusted UCL  | 0.010   |
| Estimates of G   | amma Parar      | neters using KM Estimates                                       |         |
| Mean (KM)  | 0.001           | SD (KM)   | 9.5538E |
| Variance (KM)  |                 | SE of Mean (KM)   |         |
| k hat (KM)   | 1.103           | k star (KM)   | 1.04    |
| nu hat (KM)  | 92.67           | nu star (KM)  | 87.38   |
| theta hat (KM)   |                 | theta star (KM)   |         |
| 80% gamma percentile (KM)                                      | 0.00161         | 90% gamma percentile (KM)                                       | 0.0022  |
| 95% gamma percentile (KM)                                      | 0.00296         | 99% gamma percentile (KM)                                       | 0.004   |
|  | No-lo- M        | sion ///AI) Statistics  |         |
| Approximate Chi Square Value (87.38, α)                        | -               | eier (KM) Statistics<br>Adjusted Chi Square Value (87.38, β)    | 66.19   |
| 95% KM Approximate Gamma UCL                                   | 0.00131         | 95% KM Adjusted Gamma UCL                                       | 0.001   |
|  |                 | taset. Other substitution method recommended                    | 0.001   |
|  |                 |   |         |
|  |                 | etected Observations Only                                       |         |
| Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value |                 | Shapiro Wilk GOF Test   |         |
|  | 0.806           | Detected Data Not Lognormal at 10% Significance Le              |         |

| Lilliefors Test Statistic   |   |   |        |
|---|---|---|--------|
|   | 0.382   | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value   | 0.319   | Detected Data Not Lognormal at 10% Significance Lev   | vel    |
| Detected Data N   | lot Lognorma  | al at 10% Significance Level  |        |
|   |   |   |        |
| Lognormal ROS   | S Statistics L  | Jsing Imputed Non-Detects   |        |
| Mean in Original Scale  | 0.00111   | Mean in Log Scale   | -6.999 |
| SD in Original Scale  | 9.3028E-4   | SD in Log Scale   | 0.593  |
| 95% t UCL (assumes normality of ROS data)   | 0.00135   | 95% Percentile Bootstrap UCL  | 0.0013 |
| 95% BCA Bootstrap UCL   | 0.00148   | 95% Bootstrap t UCL   | 0.0015 |
| 95% H-UCL (Log ROS)   | 0.00131   |   |        |
| Statistics using KM astimatos   |   | Data and Assuming Lognormal Distribution  |        |
| -   | -7.049  | KM Geo Mean   |        |
| KM Mean (logged)  |   |   |        |
| KM SD (logged)  | 0.411   | 95% Critical H Value (KM-Log)   | 1.838  |
| KM Standard Error of Mean (logged)  | 0.128   | 95% H-UCL (KM -Log)   | 0.0010 |
| KM SD (logged)  | 0.411   | 95% Critical H Value (KM-Log)   | 1.838  |
| KM Standard Error of Mean (logged)  | 0.128   |   |        |
| Note: KM UCLs may be biased low   | with this dat   | taset. Other substitution method recommended  |        |
|   | DL/2 St   | atistics  |        |
| DL/2 Normal   |   | DL/2 Log-Transformed  |        |
| Mean in Original Scale  | 0.00243   | Mean in Log Scale   | -6.341 |
| SD in Original Scale  | 0.00197   | SD in Log Scale   | 0.795  |
| 95% t UCL (Assumes normality)   | 0.00294   | 95% H-Stat UCL  | 0.0031 |
| DL/2 is not a recommended me  | ethod, provid   | led for comparisons and historical reasons  |        |
|   |   |   |        |
| Nonparame   | tric Distribut  | ion Free UCL Statistics   |        |
| Data do no  | ot follow a D   | iscernible Distribution   |        |
|   |   |   |        |
|   | Suggested   |   |        |
|   | Suggested   | UCL to Use  |        |
| 95% KM (t) UCL  | O.00136   | UCL to Use  |        |
| 95% KM (t) UCL  | 0.00136   |   |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti   | 0.00136   | data were collected in a random and unbiased manner.  |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d  | 0.00136<br>ions that the<br>ata were co   | data were collected in a random and unbiased manner.<br>llected from random locations.  |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected  | 0.00136<br>ions that the<br>ata were co<br>using judgn  | e data were collected in a random and unbiased manner.<br>Ilected from random locations.<br>nental or other non-random methods,   |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected  | 0.00136<br>ions that the<br>ata were co<br>using judgn  | data were collected in a random and unbiased manner.<br>llected from random locations.  |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s  | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to  | e data were collected in a random and unbiased manner.<br>Ilected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.  |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%  | 0.00136<br>ions that the<br>ata were co<br>using judgn<br>statistician to<br>UCL are pro                                    | e data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.  |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu                  | e data were collected in a random and unbiased manner.<br>Ilected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   |        |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu                  | e data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.  | In.    |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu                  | e data were collected in a random and unbiased manner.<br>Ilected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   | in.    |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu                  | e data were collected in a random and unbiased manner.<br>Ilected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   | n.     |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>c (groundwater   2-nitroaniline   88-74-4) | 0.00136<br>ions that the<br>ata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu<br>orld data set  | e data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>to correctly calculate UCLs.<br>povided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics | ın.    |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | 0.00136<br>ions that the<br>lata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu<br>orld data set | e data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>to correctly calculate UCLs.<br>by ided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia               | in.    |
| 95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>C (groundwater   2-nitroaniline   88-74-4) | 0.00136<br>ions that the<br>ata were co<br>using judgn<br>statistician to<br>UCL are pro<br>data distribu<br>orld data set  | e data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>to correctly calculate UCLs.<br>povided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics |        |

| ···· · ··· · · · · · ·   |            |   |           |
|--|------------|---|-----------|
|  |            | therefore all statistics and estimates should also be NDs!        |           |
|  |            | tatistics are also NDs lying below the largest detection limit!   |           |
| The Project Team may decide to use alternative si              | te specif  | ic values to estimate environmental parameters (e.g., EPC, BTV).  | •         |
|  |            |   |           |
| The data set for variable C (gro                               | undwate    | r   2-nitroaniline   88-74-4) was not processed!                  |           |
|  |            |   |           |
|  |            |   |           |
| C (groundwater   2-nitrophenol   88-75-5)                      |            |   |           |
|  |            |   |           |
|  |            | ral Statistics  |           |
| Total Number of Observations                                   | 42         | Number of Distinct Observations                                   | 9         |
| Number of Detects  | 0          | Number of Non-Detects   | 42        |
| Number of Distinct Detects                                     | 0          | Number of Distinct Non-Detects                                    | 9         |
|  |            |   |           |
|  |            | therefore all statistics and estimates should also be NDs!        |           |
|  |            | atistics are also NDs lying below the largest detection limit!    |           |
| The Project Team may decide to use alternative si              | te specif  | ic values to estimate environmental parameters (e.g., EPC, BTV).  | •         |
|  |            |   |           |
| The data set for variable C (gro                               | undwate    | r   2-nitrophenol   88-75-5) was not processed!                   |           |
|  |            |   |           |
|  |            |   |           |
| C (groundwater   3&4-methylphenol   65794-96-9)                |            |   |           |
|  |            |   |           |
|  | Gene       | ral Statistics  |           |
| Total Number of Observations                                   | 13         | Number of Distinct Observations                                   | 6         |
| Number of Detects  | 1          | Number of Non-Detects   | 12        |
| Number of Distinct Detects                                     | 1          | Number of Distinct Non-Detects                                    | 5         |
|  |            |   |           |
| Warning: Only one distinct data value was detecte              | d! ProU    | CL (or any other software) should not be used on such a data set! |           |
| It is suggested to use alternative site specific values detern | nined by   | the Project Team to estimate environmental parameters (e.g., EP   | PC, BTV). |
|  |            |   |           |
| The data set for variable C (groundv                           | vater   38 | &4-methylphenol   65794-96-9) was not processed!                  |           |
|  |            |   |           |
|  |            |   |           |
| C (groundwater   3,3'-dichlorobenzidine   91-94-1)             |            |   |           |
|  |            |   |           |
|  | Gene       | ral Statistics  |           |
| Total Number of Observations                                   | 42         | Number of Distinct Observations                                   | 9         |
| Number of Detects  | 0          | Number of Non-Detects   | 42        |
| Number of Distinct Detects                                     | 0          | Number of Distinct Non-Detects                                    | 9         |
|  | Ū.         |   | C C       |
| Warning: All observations are Non-Detects                      | s (NDs)    | therefore all statistics and estimates should also be NDs!        |           |
|  |            | tatistics are also NDs lying below the largest detection limit!   |           |
|  |            | ic values to estimate environmental parameters (e.g., EPC, BTV).  |           |
|  |            |   | •         |
| The data set for variable C (aroundu                           | vater 1 2  | 3'-dichlorobenzidine   91-94-1) was not processed!                |           |
|  | valei   J, |   |           |
|  |            |   |           |

|   | General  | Statistics  |              |
|---|--|---|--------------|
| Total Number of Observations  | 42   | Number of Distinct Observations   | 11           |
| Number of Detects   | 0  | Number of Non-Detects   | 42           |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects  | 11           |
| Worning: All observations are Non Datest  | n (NDn) th   | erefore all statistics and estimates should also be NDs!  |              |
| -   |  | istics are also NDs lying below the largest detection limit!  |              |
|   |  | values to estimate environmental parameters (e.g., EPC, BTV).   |              |
| The data set for variable C (gro  | undwater   | 3-nitroaniline   99-09-2) was not processed!  |              |
| oundwater   4,6-dinitro-2-methylphenol   534-52-1)  |  |   |              |
|   | General  | Statistics  |              |
| Total Number of Observations  | 42   | Number of Distinct Observations   | 12           |
| Number of Detects   | 0  | Number of Non-Detects   | 42           |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects  | 12           |
| The Project Team may decide to use alternative sit  | te specific  | istics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>itro-2-methylphenol   534-52-1) was not processed!   |              |
| The Project Team may decide to use alternative sit  | te specific  | values to estimate environmental parameters (e.g., EPC, BTV).   |              |
| The Project Team may decide to use alternative sit  | te specific<br>er   4,6-din  | values to estimate environmental parameters (e.g., EPC, BTV).   |              |
| The Project Team may decide to use alternative sit  | te specific<br>er   4,6-din  | values to estimate environmental parameters (e.g., EPC, BTV).<br>itro-2-methylphenol   534-52-1) was not processed!   | 9            |
| The Project Team may decide to use alternative sit  | te specific<br>er   4,6-din<br>General   | values to estimate environmental parameters (e.g., EPC, BTV).<br>itro-2-methylphenol   534-52-1) was not processed!<br>Statistics   |              |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations  | te specific<br>er   4,6-din<br>General<br>42   | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations   | 9            |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0   | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects   | 9            |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects  | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the   | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects  | 9            |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and  | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>0<br>s (NDs), the<br>d other stat                                      | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Parameters (e.g., EPC, BTV).   | 9 42 9       |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit  | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific                            | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Number of Distinct Non-Detects         Statistics and estimates should also be NDs!         istics are also NDs lying below the largest detection limit!   | 9 42 9       |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater)   | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific                            | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Number of Distinct Non-Detects         statistics and estimates should also be NDs!         istics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).   | 9 42 9       |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>oundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater)   | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific                            | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Number of Distinct Non-Detects         statistics and estimates should also be NDs!         istics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).   | 9 42 9       |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>roundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater)  | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific<br>er   4-bromo            | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Number of Distinct Non-Detects         statistics and estimates should also be NDs!         istics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).   | 9 42 9       |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>roundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater   | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific<br>er   4-bromo            | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         Number of Distinct Non-Detects         statistics and estimates should also be NDs!         istics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).         ophenyl-phenyl ether   101-55-3) was not processed! | 9<br>42<br>9 |
| The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>roundwater   4-bromophenyl-phenyl ether   101-55-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater<br>The data set for variable C (groundwater<br>The data set for variable C (groundwater | te specific<br>er   4,6-din<br>General<br>42<br>0<br>0<br>s (NDs), the<br>d other stat<br>te specific<br>er   4-bromo<br>General | values to estimate environmental parameters (e.g., EPC, BTV).         itro-2-methylphenol   534-52-1) was not processed!         Statistics         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         stistics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).         ophenyl-phenyl ether   101-55-3) was not processed!  |              |

| Specifically sample mean LICLs LIPLs and   |                    | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!   |    |
|--|--------------------|---|----|
|  |                    | s to estimate environmental parameters (e.g., EPC, BTV).  |    |
|  |                    |   |    |
| The data set for variable C (groundw   | ater   4-chloro-3- | methylphenol   59-50-7) was not processed!  |    |
|  |                    |   |    |
|  |                    |   |    |
| roundwater   4-chloroaniline   106-47-8)   |                    |   |    |
|  |                    |   |    |
|  | General Statis     |   |    |
| Total Number of Observations   | 42                 | Number of Distinct Observations   | 9  |
| Number of Detects  | 0                  | Number of Non-Detects   | 42 |
| Number of Distinct Detects   | 0                  | Number of Distinct Non-Detects  | 9  |
| Manuface All shares there are New Dates  |                    | - Il statistics and estimates should also be MD-1   |    |
|  |                    | e all statistics and estimates should also be NDs!  |    |
|  |                    | are also NDs lying below the largest detection limit!<br>s to estimate environmental parameters (e.g., EPC, BTV).   |    |
|  | te specific value: |   |    |
| The data set for variable C (arou  | ndwater I.4. chlou | oaniline   106-47-8) was not processed!   | -  |
|  |                    |   |    |
|  |                    |   |    |
| oundwater   4-chlorophenyl-phenyl ether   7005-72-3)                                   |                    |   |    |
|  |                    |   |    |
|  | General Statis     | stics   |    |
| Total Number of Observations   | 42                 | Number of Distinct Observations   | 9  |
| Number of Detects  | 0                  | Number of Non-Detects   | 42 |
| Number of Distinct Detects   | 0                  | Number of Distinct Non-Detects  | 9  |
|  |                    |   |    |
| Warning: All observations are Non-Detect   | s (NDs), therefor  | e all statistics and estimates should also be NDs!  |    |
|  |                    | are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si                                      | te specific value  | s to estimate environmental parameters (e.g., EPC, BTV).  |    |
|  |                    |   |    |
| The data set for variable C (groundwate  | r   4-chloropheny  | I-phenyl ether   7005-72-3) was not processed!  |    |
|  |                    |   |    |
|  |                    |   |    |
| oundwater   4-chlorotoluene   106-43-4)  |                    |   |    |
|  |                    |   |    |
|  | General Statis     | stics   |    |
| Total Number of Observations   | 13                 | Number of Distinct Observations   | 3  |
| Number of Detects  | 0                  | Number of Non-Detects   | 13 |
| Number of Distinct Detects   | 0                  | Number of Distinct Non-Detects  | 3  |
|  |                    |   |    |
|  |                    |   |    |
| Warning: All observations are Non-Detect   | · · · · ·          | e all statistics and estimates should also be NDs!  |    |
| Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and | d other statistics | e all statistics and estimates should also be NDs!<br>are also NDs lying below the largest detection limit!<br>s to estimate environmental parameters (e.g., EPC, BTV). |    |

| C (groundwater   4-methyl-2-pentanone   108-10-1)  |  |  |          |
|--|--|--|----------|
|  |  |  |          |
|  |  |  |          |
|  | General S  |  |          |
| Total Number of Observations   |  | Number of Distinct Observations  | 4        |
| Number of Detects  | -  | Number of Non-Detects  | 36       |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects   | 4        |
| Warning: All observations are Non-Detect   | ts (NDs), there  | efore all statistics and estimates should also be NDs!   |          |
| Specifically, sample mean, UCLs, UPLs, an  | d other statist  | tics are also NDs lying below the largest detection limit!   |          |
| The Project Team may decide to use alternative s   | ite specific va  | lues to estimate environmental parameters (e.g., EPC, BTV)   | •        |
| The data set for variable C (ground  | water   4-meth   | yl-2-pentanone   108-10-1) was not processed!  |          |
| (groundwater   4-methylphenol   106-44-5)  |  |  |          |
|  | General S  |  |          |
| Total Number of Observations   |  | Number of Distinct Observations  | 4        |
| Number of Detects  | 1  | Number of Non-Detects  | 29       |
| Number of Distinct Detects   | 1  | Number of Distinct Non-Detects   | 3        |
|  |  |  |          |
| (groundwater   4-nitroaniline   100-01-6)  |  |  |          |
| (groundwater   4-nitroaniline   100-01-6)  | General S  | tatistics  |          |
|  | General S  |  | 10       |
| (groundwater   4-nitroaniline   100-01-6)<br>Total Number of Observations<br>Number of Detects   | 42   | tatistics<br>Number of Distinct Observations<br>Number of Non-Detects  | 10       |
| Total Number of Observations   | 42<br>0  | Number of Distinct Observations  | 42       |
| Total Number of Observations<br>Number of Detects  | 42<br>0  | Number of Distinct Observations<br>Number of Non-Detects   |          |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | 42<br>0<br>0   | Number of Distinct Observations<br>Number of Non-Detects   | 42       |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect  | 42<br>0<br>0   | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 42       |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, an   | 42<br>0<br>0<br>ts (NDs), there<br>d other statist                                     | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects   | 42<br>10 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detec<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s                                      | 42<br>0<br>0<br>is (NDs), there<br>d other statist<br>ite specific va                  | Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         efore all statistics and estimates should also be NDs!         tics are also NDs lying below the largest detection limit!   | 42<br>10 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detec<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s                                      | 42<br>0<br>0<br>is (NDs), there<br>d other statist<br>ite specific va                  | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV)   | 42<br>10 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s<br>The data set for variable C (gro | 42<br>0<br>0<br>is (NDs), there<br>d other statist<br>ite specific va                  | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV)   | 42<br>10 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s<br>The data set for variable C (gro | 42<br>0<br>0<br>is (NDs), there<br>d other statist<br>ite specific va                  | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV)   | 42<br>10 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s<br>The data set for variable C (gro | 42<br>0<br>0<br>ts (NDs), there<br>d other statist<br>ite specific va<br>undwater   4- | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>Ilues to estimate environmental parameters (e.g., EPC, BTV)<br>nitroaniline   100-01-6) was not processed! | 42       |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detec<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s                                      | 42<br>0<br>0<br>ts (NDs), there<br>d other statist<br>ite specific va<br>undwater   4- | Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>efore all statistics and estimates should also be NDs!<br>tics are also NDs lying below the largest detection limit!<br>Ilues to estimate environmental parameters (e.g., EPC, BTV)<br>nitroaniline   100-01-6) was not processed! | 42       |

| Number of Distinct Detects               | 0            | Number of Distinct Non-Detects                              | 12         |  |
|--|--------------|---|------------|--|
| Warning: All observations are Non-Detect | s (NDs). the | prefore all statistics and estimates should also be NDs!    |            |  |
| -  |              | stics are also NDs lying below the largest detection limit! |            |  |
|  |              | values to estimate environmental parameters (e.g., EPC, BTV | ).         |  |
|  |              |   | <i>,</i> . |  |
| The data set for variable C (grou        | undwater   4 | -nitrophenol   100-02-7) was not processed!                 |            |  |
|  |              |   |            |  |
| C (groundwater   acenaphthene   83-32-9) |              |   |            |  |
|  | General      | Statistics  |            |  |
| Total Number of Observations             | 43           | Number of Distinct Observations                             | 21         |  |
| Number of Detects                        | 10           | Number of Non-Detects                                       | 33         |  |
| Number of Distinct Detects               | 10           | Number of Distinct Non-Detects                              |            |  |
| Minimum Detect                           |              | Minimum Non-Detect  |            |  |
| Maximum Detect                           | 0.002        | Maximum Non-Detect  |            |  |
| Variance Detects                         |              | Percent Non-Detects   | 76.74%     |  |
| Mean Detects                             |              | SD Detects  |            |  |
| Median Detects                           |              | CV Detects  | 0.827      |  |
| Skewness Detects                         | 0.925        | Kurtosis Detects  | 0.15       |  |
| Mean of Logged Detects                   | -7.672       | SD of Logged Detects  | 1.359      |  |
|  | 7.072        |   | 1.000      |  |
| Norm                                     | al GOF Tes   | t on Detects Only   |            |  |
| Shapiro Wilk Test Statistic              | 0.899        | Shapiro Wilk GOF Test                                       |            |  |
| 1% Shapiro Wilk Critical Value           | 0.781        | Detected Data appear Normal at 1% Significance Le           | vel        |  |
| Lilliefors Test Statistic                | 0.204        | Lilliefors GOF Test   |            |  |
| 1% Lilliefors Critical Value             | 0.304        | Detected Data appear Normal at 1% Significance Le           | vel        |  |
| Detected Data a                          | appear Norr  | nal at 1% Significance Level                                |            |  |
|  |              |   |            |  |
| Kaplan-Meier (KM) Statistics usir        | ng Normal C  | critical Values and other Nonparametric UCLs                |            |  |
| KM Mean                                  | 3.4127E-4    | KM Standard Error of Mean                                   | 1.0534E-4  |  |
| 90KM SD                                  | 4.9054E-4    | 95% KM (BCA) UCL  | 5.3426E-4  |  |
| 95% KM (t) UCL                           | 5.1844E-4    | 95% KM (Percentile Bootstrap) UCL                           | 5.2677E-4  |  |
| 95% KM (z) UCL                           | 5.1454E-4    | 95% KM Bootstrap t UCL                                      | 5.8010E-4  |  |
| 90% KM Chebyshev UCL                     | 6.5729E-4    | 95% KM Chebyshev UCL  | 8.0044E-4  |  |
| 97.5% KM Chebyshev UCL                   | 9.9912E-4    | 99% KM Chebyshev UCL  | 0.00139    |  |
| Note: KM UCLs may be biased low          | with this da | taset. Other substitution method recommended                |            |  |
|  |              |   |            |  |
|  |              | etected Observations Only                                   |            |  |
| A-D Test Statistic                       | 0.369        | Anderson-Darling GOF Test                                   |            |  |
| 5% A-D Critical Value                    | 0.747        | Detected data appear Gamma Distributed at 5% Significan     | ice Level  |  |
| K-S Test Statistic                       | 0.187        | Kolmogorov-Smirnov GOF                                      |            |  |
| 5% K-S Critical Value                    | 0.273        | Detected data appear Gamma Distributed at 5% Significan     | ice Level  |  |
| Detected data appear                     | Gamma Di     | stributed at 5% Significance Level                          |            |  |
|  |              |   |            |  |
|  |              | n Detected Data Only  |            |  |
| k hat (MLE)                              | 1.089        | k star (bias corrected MLE)                                 | 0.829      |  |

| Theta star (bias corrected MLE)                         | 9.4983E-4   |
|---|---|
|   | 16.58   |
|   |   |
|   |   |
| Detects   |   |
| ed observations at multiple DLs                         |   |
| when the sample size is small (e.g., <15-20)            |   |
| les of UCLs and BTVs                                    |   |
| s small.  |   |
| ng gamma distribution on KM estimates                   |   |
| Mean  | 0.00786   |
| Median  | 0.01  |
| CV  | 0.503   |
| k star (bias corrected MLE)                             | 1.13  |
| Theta star (bias corrected MLE)                         | 0.00695   |
| nu star (bias corrected)                                | 97.2  |
|   |   |
| Adjusted Chi Square Value (97.20, β)                    | 74.79   |
|   | 0.0102  |
|   |   |
| stimates  |   |
| SD (KM)   | 4.9054E-4   |
|   |   |
|   | 0.466   |
| . ,   | 40.05   |
|   |   |
|   |   |
|   | 0.00235   |
|   |   |
| 3   |   |
| Adjusted Chi Square Value (40.05, β)                    | 26.17   |
|   | 5.2231E-4   |
| •   |   |
|   |   |
| ons Only  |   |
| •   |   |
| •   | /el   |
|   | -   |
|   | /el   |
|   |   |
|   |   |
| 1-Detects   |   |
|   | -8.961  |
| SD in Log Scale   | 1.241   |
| 52 20g 00010  |   |
| 95% Percentile Bootstran UCL                            |   |
| 95% Percentile Bootstrap UCL 3                          |   |
| 95% Percentile Bootstrap UCL 3<br>95% Bootstrap t UCL 4 |   |
|   | d observations at multiple DLs<br>then the sample size is small (e.g., <15-20)<br>es of UCLs and BTVs<br>s small.<br>ng gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>Theta star (bias corrected MLE)<br>nu star (bias corrected MLE)<br>Adjusted Chi Square Value (97.20, β)<br>95% Gamma Adjusted UCL<br>stimates<br>SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>SE of Mean (KM)<br>% star (KM)<br>100% gamma percentile (KM)<br>90% gamma percentile (KM)<br>99% gamma percentile (KM)<br>99% gamma percentile (KM)<br>99% gamma percentile (KM)<br>Sa Adjusted Chi Square Value (40.05, β)<br>95% KM Adjusted Gamma UCL<br>tution method recommended<br>ms Only<br>Shapiro Wilk GOF Test<br>Data Not Lognormal at 10% Significance Leven<br>nce Level<br>-Detects<br>Mean in Log Scale |

| Statistics using KM estimates  | on Loaaed I   | Data and Assuming Lognormal Distribution   |  |
|--|---|--|--|
| KM Mean (logged)   |   | KM Geo Mean  | 1.2790F-4  |
| KM SD (logged)   |   | 95% Critical H Value (KM-Log)  | 2.879  |
| KM Standard Error of Mean (logged)   |   | 95% H-UCL (KM -Log)  |  |
| KM SD (logged)   |   | 95% Critical H Value (KM-Log)  | 2.879  |
| KM Standard Error of Mean (logged)   |   |  | 2.070  |
|  |   | taset. Other substitution method recommended   |  |
|  | with this da  |  |  |
|  | DI /2 S   | tatistics  |  |
| DL/2 Normal  | 0020  | DL/2 Log-Transformed   |  |
| Mean in Original Scale   | 0.00101   | Mean in Log Scale  | -7.533   |
| SD in Original Scale   |   | SD in Log Scale  | 1.26   |
| 95% t UCL (Assumes normality)  |   | 95% H-Stat UCL   | 0.00199  |
|  |   | ded for comparisons and historical reasons   | 0.00133  |
|  | ieulou, provi   |  |  |
| Nonparam   | etric Distribu  | tion Free UCL Statistics   |  |
| -  |   | stributed at 1% Significance Level   |  |
| Delected Data appea  |   |  |  |
|  | Suggested   | UCL to Use   |  |
| 95% KM (t) UCL   |   |  | r  |
| 55 % KWI (I) UCL   | 5.1044⊏-4   |  |  |
| Note: Suggestions reparding the selection of a 05°   | / UCL are pr  | ovided to help the user to select the most appropriate 95% UCL   |  |
|  |   | ution, and skewness using results from simulation studies.   |  |
|  |   | ts; for additional insight the user may want to consult a statistici.  |  |
|  | vonu uala se  | is, for additional insight the user may want to consult a statisticity   |  |
|  |   |  | an   |
| C (groundwater   acenaphthylene   208-96-8)  |   |  |  |
| C (groundwater   acenaphthylene   208-96-8)  |   |  |  |
|  |   | Statistics   |  |
| C (groundwater   acenaphthylene   208-96-8)<br>Total Number of Observations  |   |  | 18   |
|  | 43  | Statistics   |  |
| Total Number of Observations   | 43<br>3   | Statistics Number of Distinct Observations   | 18   |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | 43<br>3<br>6.8667E-5  | Statistics Number of Distinct Observations Number of Non-Detects   | 18<br>40<br>15   |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | 43<br>3<br>6.8667E-5  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | 18<br>40<br>15<br>8.9350E-5  |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | 43<br>3<br>6.8667E-5<br>7.9000E-4   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect   | 18<br>40<br>15<br>8.9350E-5  |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect   | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%                                      |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%                                      |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4                         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328                |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>only 3 Detected Values.   | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>only 3 Detected Values.   | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: I<br>This is not enough to com   | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735<br>Data set has<br>pute meaning   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>only 3 Detected Values.   | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: I<br>This is not enough to com   | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735<br>Data set has<br>pute meaning   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects<br>only 3 Detected Values.<br>gful or reliable statistics and estimates.   | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A         |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: I<br>This is not enough to com                                       | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735<br>Data set has<br>pute meaning<br>mal GOF Tes<br>0.758                   | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           Kurtosis Detects           SD of Logged Detects           only 3 Detected Values.           gful or reliable statistics and estimates.  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A<br>1.38 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: D<br>Warning: D<br>Norr<br>Shapiro Wilk Test Statistic                                   | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735<br>Data set has<br>pute meaning<br>mal GOF Tes<br>0.758<br>0.753          | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Maximum Non-Detects           SD Detects           SD Detects           CV Detects           SD of Logged Detects           only 3 Detected Values.           gful or reliable statistics and estimates.  | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A<br>1.38 |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Warning: I<br>Warning: I<br>Norr<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value | 43<br>3<br>6.8667E-5<br>7.9000E-4<br>1.7154E-7<br>3.1178E-4<br>7.6667E-5<br>1.731<br>-8.735<br>Data set has<br>pute meaning<br>nal GOF Tes<br>0.758<br>0.753<br>0.382 | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           Minimum Non-Detect           Maximum Non-Detect           Percent Non-Detects           SD Detects           CV Detects           SD of Logged Detects           SD of Logged Detects           Statistics and estimates.           St on Detects Only           Shapiro Wilk GOF Test           Detected Data appear Normal at 1% Significance Level | 18<br>40<br>15<br>8.9350E-5<br>0.0056<br>93.02%<br>4.1417E-4<br>1.328<br>N/A<br>1.38 |

|   |  | nal at 1% Significance Level   |  |
|---|--|--|--|
| Note GOF tests  | may be unre  | liable for small sample sizes  |  |
| Kaplan-Meier (KM) Statistics usi  | ing Normal C   | ritical Values and other Nonparametric UCLs                                  |  |
| KM Mean   | 9.8286E-5  | KM Standard Error of Mean  | 3.0992E-5  |
| 90KM SD   | 1.3318E-4  | 95% KM (BCA) UCL   | N/A  |
| 95% KM (t) UCL  | 1.5041E-4  | 95% KM (Percentile Bootstrap) UCL  | N/A  |
| 95% KM (z) UCL  | 1.4926E-4  | 95% KM Bootstrap t UCL   | N/A  |
| 90% KM Chebyshev UCL  | 1.9126E-4  | 95% KM Chebyshev UCL   | 2.3338E-4  |
| 97.5% KM Chebyshev UCL  | 2.9183E-4  | 99% KM Chebyshev UCL   | 4.0665E-4  |
| Gamma GOF   | Tests on De  | tected Observations Only   |  |
| A-D Test Statistic  | 0.576  | Anderson-Darling GOF Test  |  |
| 5% A-D Critical Value   | 0.642  | Detected data appear Gamma Distributed at 5% Significan                      | ce Level   |
| K-S Test Statistic  | 0.421  | Kolmogorov-Smirnov GOF   |  |
| 5% K-S Critical Value   | 0.442  | Detected data appear Gamma Distributed at 5% Significan                      | ce Level   |
| Detected Data Not   | Gamma Dist   | ributed at 5% Significance Level   |  |
| Commo   | Statiation on  | Detected Data Only   |  |
| k hat (MLE)   |  | k star (bias corrected MLE)  | N/A  |
| Theta hat (MLE)   |  | Theta star (bias corrected MLE)  | N/A<br>N/A   |
| nu hat (MLE)  |  | nu star (bias corrected MLE)   | N/A<br>N/A   |
| Mean (detects)  |  |  | N/A  |
|   | 3.1170E-4  |  |  |
| Gamma ROS   | Statistics us  | sing Imputed Non-Detects   |  |
| GROS may not be used when data s  | et has > 50%   | NDs with many tied observations at multiple DLs                              |  |
| GROS may not be used when kstar of detects is                             | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20)              |  |
| For such situations, GROS   | method may   | yield incorrect values of UCLs and BTVs                                      |  |
| This is espec   | ially true whe   | n the sample size is small.  |  |
| For gamma distributed detected data, BTVs a                               | and UCLs ma  | y be computed using gamma distribution on KM estimates                       |  |
| Minimum   | 6.8667E-5  | Mean   | 0.00932  |
| Maximum   | 0.01   | Median   | 0.01   |
| SD  | 0.0025   | CV   | 0.268  |
| k hat (MLE)   | 2.446  | k star (bias corrected MLE)  | 2.291  |
| Theta hat (MLE)   | 0.00381  | Theta star (bias corrected MLE)  | 0.00407  |
| nu hat (MLE)  | 210.3  | nu star (bias corrected)   | 197  |
| Adjusted Level of Significance (β)  | 0.0444   |  |  |
| Approximate Chi Square Value (196.99, α)                                  | 165.5  | Adjusted Chi Square Value (196.99, $\beta$ )                                 | 164.5  |
| 95% Gamma Approximate UCL   | 0.0111   | 95% Gamma Adjusted UCL   | N/A  |
|   |  |  |  |
| Entimates of C  | Commo Doro   | motors using KM Estimatos  |  |
|   |  | meters using KM Estimates  | 1 3318⊏ /  |
| Mean (KM)   | 9.8286E-5  | SD (KM)  | 1.3318E-4  |
| Mean (KM)<br>Variance (KM)  | 9.8286E-5<br>1.7736E-8   | SD (KM)<br>SE of Mean (KM)   | 3.0992E-5  |
| Mean (KM)<br>Variance (KM)<br>k hat (KM)                                  | 9.8286E-5<br>1.7736E-8<br>0.545                                    | SD (KM)<br>SE of Mean (KM)<br>k star (KM)                                    | 3.0992E-5<br>0.522                                   |
| Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)                   | 9.8286E-5<br>1.7736E-8<br>0.545<br>46.84                           | SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)                    | 3.0992E-5<br>0.522<br>44.9                           |
| Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)<br>theta hat (KM) | 9.8286E-5<br>1.7736E-8<br>0.545<br>46.84<br>1.8046E-4              | SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)<br>theta star (KM) | 3.0992E-5<br>0.522<br>44.9<br>1.8823E-4              |
| Mean (KM)<br>Variance (KM)<br>k hat (KM)<br>nu hat (KM)                   | 9.8286E-5<br>1.7736E-8<br>0.545<br>46.84<br>1.8046E-4<br>1.6169E-4 | SD (KM)<br>SE of Mean (KM)<br>k star (KM)<br>nu star (KM)                    | 3.0992E-5<br>0.522<br>44.9<br>1.8823E-4<br>2.6351E-4 |

| Gamm   | a Kaplan-Meie      | er (KM) Statistics  |           |
|--|--------------------|---|-----------|
| Approximate Chi Square Value (44.90, $\alpha$ )    | 30.53              | Adjusted Chi Square Value (44.90, β)  | 30.12     |
| 95% KM Approximate Gamma UCL                       | 1.4455E-4          | 95% KM Adjusted Gamma UCL   | 1.4652E-4 |
| Lognormal GO                                       | F Test on Dete     | ected Observations Only   |           |
| Shapiro Wilk Test Statistic                        | 0.784              | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value                    | 0.789              | Detected Data Not Lognormal at 10% Significance Le  | vel       |
| Lilliefors Test Statistic                          | 0.371              | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value                      | 0.389              | Detected Data appear Lognormal at 10% Significance L  | evel      |
| Detected Data appear A                             | pproximate Log     | gnormal at 10% Significance Level   |           |
|  |                    | ble for small sample sizes  |           |
| Lognormal RO                                       | S Statistics   le  | ing Imputed Non-Detects   |           |
| Mean in Original Scale                             |                    | Mean in Log Scale   | -9.402    |
| SD in Original Scale                               |                    | SD in Log Scale   | 0.727     |
| 95% t UCL (assumes normality of ROS data)          |                    | 95% Percentile Bootstrap UCL  |           |
| 95% BCA Bootstrap UCL                              |                    | 95% Bootstrap t UCL   |           |
| 95% H-UCL (Log ROS)                                |                    |   | 1.7477    |
|  |                    |   |           |
| -  |                    | ta and Assuming Lognormal Distribution  |           |
| KM Mean (logged)                                   | -9.446             | KM Geo Mean   |           |
| KM SD (logged)                                     | 0.446              | 95% Critical H Value (KM-Log)   | 1.864     |
| KM Standard Error of Mean (logged)                 | 0.112              | 95% H-UCL (KM -Log)   |           |
| KM SD (logged)                                     | 0.446              | 95% Critical H Value (KM-Log)   | 1.864     |
| KM Standard Error of Mean (logged)                 | 0.112              |   |           |
| Note: KM UCLs may be biased low                    | with this datas    | set. Other substitution method recommended  |           |
|  | DL/2 Stati         | istics  |           |
| DL/2 Normal  |                    | DL/2 Log-Transformed  |           |
| Mean in Original Scale                             | 9.3969E-4          | Mean in Log Scale   | -7.73     |
| SD in Original Scale                               | 0.00105            | SD in Log Scale   | 1.317     |
| 95% t UCL (Assumes normality)                      | 0.00121            | 95% H-Stat UCL  | 0.0018    |
| DL/2 is not a recommended me                       | ethod, provided    | d for comparisons and historical reasons  |           |
| Nonparame  | etric Distribution | n Free UCL Statistics   |           |
| •  |                    | buted at 1% Significance Level  |           |
|  |                    |   |           |
| 95% KM (t) UCL                                     | Suggested UC       | CL to Use   |           |
|  |                    |   |           |
|  |                    | ata were collected in a random and unbiased manner.   |           |
|  |                    | cted from random locations.<br>ntal or other non-random methods,  |           |
|  |                    | correctly calculate UCLs.   |           |
|  |                    |   |           |
|  |                    |   |           |
| Note: Suggestions regarding the selection of a 95% |                    | ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies. |           |

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

## C (groundwater | acetone | 67-64-1)

|                                | General       | Statistics   |         |
|--------------------------------|---------------|--|---------|
| Total Number of Observations   | 36            | Number of Distinct Observations  | 13      |
| Number of Detects              | 12            | Number of Non-Detects  | 24      |
| Number of Distinct Detects     | 9             | Number of Distinct Non-Detects   | 4       |
| Minimum Detect                 | 0.001         | Minimum Non-Detect   | 0.02    |
| Maximum Detect                 | 0.028         | Maximum Non-Detect   | 0.1     |
| Variance Detects               | 5.4745E-5     | Percent Non-Detects  | 66.67%  |
| Mean Detects                   | 0.00552       | SD Detects   | 0.0074  |
| Median Detects                 | 0.0032        | CV Detects   | 1.341   |
| Skewness Detects               | 2.979         | Kurtosis Detects   | 9.47    |
| Mean of Logged Detects         | -5.669        | SD of Logged Detects   | 0.922   |
| Norn                           | nal GOF Tes   | t on Detects Only  |         |
| Shapiro Wilk Test Statistic    | 0.582         | Shapiro Wilk GOF Test  |         |
| 1% Shapiro Wilk Critical Value | 0.805         | Detected Data Not Normal at 1% Significance Level                                  |         |
| Lilliefors Test Statistic      | 0.331         | Lilliefors GOF Test  |         |
| 1% Lilliefors Critical Value   | 0.281         | Detected Data Not Normal at 1% Significance Level                                  |         |
| Detected Dat                   | a Not Norma   | l at 1% Significance Level   |         |
|                                |               |  |         |
|                                | -             | ritical Values and other Nonparametric UCLs  | 0.00100 |
| KM Mean                        |               | KM Standard Error of Mean  | 0.00123 |
| 90KM SD                        |               | 95% KM (BCA) UCL   | 0.00669 |
| 95% KM (t) UCL                 |               | 95% KM (Percentile Bootstrap) UCL  | 0.00661 |
| 95% KM (z) UCL                 |               | 95% KM Bootstrap t UCL   | 0.00892 |
| 90% KM Chebyshev UCL           |               | 95% KM Chebyshev UCL   | 0.00985 |
| 97.5% KM Chebyshev UCL         |               | 99% KM Chebyshev UCL<br>taset. Other substitution method recommended               | 0.0167  |
|                                | with this da  |  |         |
| Gamma GOF                      | Tests on De   | etected Observations Only  |         |
| A-D Test Statistic             | 0.745         | Anderson-Darling GOF Test  |         |
| 5% A-D Critical Value          | 0.752         | Detected data appear Gamma Distributed at 5% Significand                           | e Level |
| K-S Test Statistic             | 0.259         | Kolmogorov-Smirnov GOF   |         |
| 5% K-S Critical Value          | 0.251         | Detected Data Not Gamma Distributed at 5% Significance                             | Level   |
| Detected data follow Ap        | pr. Gamma I   | Distribution at 5% Significance Level  |         |
| Gamma                          | Statistics on | Detected Data Only   |         |
| k hat (MLE)                    |               | k star (bias corrected MLE)  | 0.96    |
| Theta hat (MLE)                |               | Theta star (bias corrected MLE)  | 0.00575 |
| nu hat (MLE)                   |               | nu star (bias corrected MLE)   | 23.04   |
| Mean (detects)                 |               |  | 20.04   |
|                                |               |  |         |
|                                |               | sing Imputed Non-Detects           NDs with many tied observations at multiple DLs |         |
|                                |               | s <1.0, especially when the sample size is small (e.g., <15-20)                    |         |
|                                |               |  |         |

| For such situations, GROS                   | method may     | yield incorrect values of UCLs and BTVs  |         |
|---|----------------|--|---------|
|   |                | en the sample size is small.   |         |
| For gamma distributed detected data, BTVs a | ind UCLs ma    | y be computed using gamma distribution on KM estimates   |         |
| Minimum                                     | 0.001          | Mean   | 0.00867 |
| Maximum                                     | 0.028          | Median   | 0.01    |
| SD  | 0.00478        | CV   | 0.551   |
| k hat (MLE)                                 | 2.685          | k star (bias corrected MLE)  | 2.48    |
| Theta hat (MLE)                             | 0.00323        | Theta star (bias corrected MLE)  | 0.0035  |
| nu hat (MLE)                                | 193.3          | nu star (bias corrected)   | 178.6   |
| Adjusted Level of Significance (β)          | 0.0428         |  |         |
| Approximate Chi Square Value (178.55, α)    | 148.6          | Adjusted Chi Square Value (178.55, β)  | 147.4   |
| 95% Gamma Approximate UCL                   | 0.0104         | 95% Gamma Adjusted UCL   | 0.0105  |
|   |                |  |         |
| Estimates of G                              | iamma Parai    | meters using KM Estimates  |         |
| Mean (KM)                                   | 0.00449        | SD (KM)  | 0.00533 |
| Variance (KM)                               | 2.8442E-5      | SE of Mean (KM)  | 0.00123 |
| k hat (KM)                                  | 0.71           | k star (KM)  | 0.67    |
| nu hat (KM)                                 | 51.14          | nu star (KM)   | 48.21   |
| theta hat (KM)                              | 0.00633        | theta star (KM)  | 0.00671 |
| 80% gamma percentile (KM)                   | 0.0074         | 90% gamma percentile (KM)  | 0.0114  |
| 95% gamma percentile (KM)                   | 0.0155         | 99% gamma percentile (KM)  | 0.0255  |
|   |                |  |         |
|   | -              | eier (KM) Statistics   |         |
| Approximate Chi Square Value (48.21, α)     | 33.27          | Adjusted Chi Square Value (48.21, β)   | 32.71   |
| 95% KM Approximate Gamma UCL                | 0.00651        | 95% KM Adjusted Gamma UCL  | 0.00662 |
| Note: KM UCLs may be biased low             | with this da   | taset. Other substitution method recommended   |         |
|   |                |  |         |
| -   |                | etected Observations Only  |         |
| Shapiro Wilk Test Statistic                 | 0.934          | Shapiro Wilk GOF Test  |         |
| 10% Shapiro Wilk Critical Value             | 0.883          | Detected Data appear Lognormal at 10% Significance L   | evei    |
| Lilliefors Test Statistic                   | 0.187          | Lilliefors GOF Test  |         |
| 10% Lilliefors Critical Value               | 0.223          | Detected Data appear Lognormal at 10% Significance Lognormal at 10% Significance Lognormal at 10% Significance Lovel | evei    |
|   | pear Lognon    |  |         |
| Lognormal BO                                | S Statistics I | Using Imputed Non-Detects  |         |
| Mean in Original Scale                      | 0.00436        | Mean in Log Scale  | -5.755  |
| SD in Original Scale                        |                | SD in Log Scale  | 0.765   |
| 95% t UCL (assumes normality of ROS data)   | 0.00569        | 95% Percentile Bootstrap UCL   | 0.00576 |
| 95% BCA Bootstrap UCL                       | 0.00639        | 95% Bootstrap t UCL  | 0.00684 |
| 95% H-UCL (Log ROS)                         | 0.00559        |  |         |
| , , , , , , , , , , , , , , , , , , ,       |                | <u>                                      </u>  |         |
| Statistics using KM estimates               | on Logged [    | Data and Assuming Lognormal Distribution   |         |
| KM Mean (logged)                            | -5.764         | KM Geo Mean  | 0.00314 |
| KM SD (logged)                              | 0.779          | 95% Critical H Value (KM-Log)  | 2.15    |
| KM Standard Error of Mean (logged)          | 0.218          | 95% H-UCL (KM -Log)  | 0.00565 |
| KM SD (logged)                              | 0.779          | 95% Critical H Value (KM-Log)  | 2.15    |
| KM Standard Error of Mean (logged)          | 0.218          |  |         |
| Note: KM UCLs may be biased low             | with this da   | taset. Other substitution method recommended   |         |

|  | DL/2 S        | tatistics   |        |
|--|---------------|---|--------|
| DL/2 Normal  | 0.0157        | DL/2 Log-Transformed  | 4 500  |
| Mean in Original Scale                             | 0.0157        | Mean in Log Scale   | -4.588 |
| SD in Original Scale                               | 0.0136        | SD in Log Scale   | 1.047  |
| 95% t UCL (Assumes normality)                      | 0.0195        | 95% H-Stat UCL  | 0.0271 |
| DL/2 is not a recommended me                       | ethod, provi  | ded for comparisons and historical reasons                            |        |
| Navyara  | trie Dietriku | tion Free U.C. Statistics   |        |
|  |               | tion Free UCL Statistics nma Distributed at 5% Significance Level     |        |
|  |               |   |        |
|  | Suggested     | UCL to Use  |        |
| 95% KM Adjusted Gamma UCL                          | 0.00662       |   |        |
|  | 0.00002       |   |        |
| The calculated UCLs are based on assumpt           | ions that the | e data were collected in a random and unbiased manner.                |        |
|  |               | ollected from random locations.                                       |        |
| -  |               | mental or other non-random methods,                                   |        |
|  |               | to correctly calculate UCLs.  |        |
|  |               |   |        |
| When a data set follows an app                     | roximate dis  | stribution passing only one of the GOF tests,                         |        |
|  |               | istribution passing both GOF tests in ProUCL                          |        |
|  |               |   |        |
| Note: Suggestions regarding the selection of a 95% | UCL are pr    | ovided to help the user to select the most appropriate 95% UCL.       |        |
| Recommendations are based upon data size,          | data distrib  | ution, and skewness using results from simulation studies.            |        |
|  |               | ts; for additional insight the user may want to consult a statisticia | n.     |
|  |               |   |        |
| C (groundwater   acetophenone   98-86-2)           |               |   |        |
|  |               |   |        |
|  | General       | Statistics  |        |
| Total Number of Observations                       | 42            | Number of Distinct Observations                                       | 9      |
| Number of Detects                                  | 0             | Number of Non-Detects   | 42     |
| Number of Distinct Detects                         | 0             | Number of Distinct Non-Detects  | 9      |
|  |               |   |        |
| Warning: All observations are Non-Detects          | s (NDs), the  | prefore all statistics and estimates should also be NDs!              |        |
| Specifically, sample mean, UCLs, UPLs, and         | d other stati | stics are also NDs lying below the largest detection limit!           |        |
| The Project Team may decide to use alternative si  | te specific v | values to estimate environmental parameters (e.g., EPC, BTV).         |        |
|  | -             |   |        |
| The data set for variable C (grou                  | undwater   a  | acetophenone   98-86-2) was not processed!                            |        |
|  | · · · ·       | , .   |        |
|  |               |   |        |
| C (groundwater   acrylonitrile   107-13-1)         |               |   |        |
|  |               |   |        |
|  | General       | Statistics  |        |
| Total Number of Observations                       | 13            | Number of Distinct Observations                                       | 2      |
| Number of Detects                                  | 0             | Number of Non-Detects   | 13     |
| Number of Distinct Detects                         | 0             | Number of Distinct Non-Detects  | 2      |
|  | 0             |   | L      |
| Warning: All observations are Non Datest           | e (NDe) the   | prefore all statistics and estimates should also be NDs               |        |

## Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!

The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable C (groundwater | acrylonitrile | 107-13-1) was not processed!

## C (groundwater | aluminum | 7429-90-5)

|                              | General | Statistics                      |        |
|------------------------------|---------|---------------------------------|--------|
| Total Number of Observations | 12      | Number of Distinct Observations | 11     |
| Number of Detects            | 10      | Number of Non-Detects           | 2      |
| Number of Distinct Detects   | 10      | Number of Distinct Non-Detects  | 1      |
| Minimum Detect               | 0.072   | Minimum Non-Detect              | 0.05   |
| Maximum Detect               | 9.534   | Maximum Non-Detect              | 0.05   |
| Variance Detects             | 8.68    | Percent Non-Detects             | 16.67% |
| Mean Detects                 | 1.329   | SD Detects                      | 2.946  |
| Median Detects               | 0.23    | CV Detects                      | 2.217  |
| Skewness Detects             | 2.938   | Kurtosis Detects                | 8.827  |
| Mean of Logged Detects       | -1.124  | SD of Logged Detects            | 1.549  |

| Norma                          | al GOF Tes | t on Detects Only                                 |
|--------------------------------|------------|---|
| Shapiro Wilk Test Statistic    | 0.492      | Shapiro Wilk GOF Test                             |
| 1% Shapiro Wilk Critical Value | 0.781      | Detected Data Not Normal at 1% Significance Level |
| Lilliefors Test Statistic      | 0.413      | Lilliefors GOF Test                               |
| 1% Lilliefors Critical Value   | 0.304      | Detected Data Not Normal at 1% Significance Level |
| Detected Data                  | Not Norma  | al at 1% Significance Level                       |

| Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs |
|--|
|--|

| 0.79  | KM Standard Error of Mean         | 1.116 | KM Mean                |
|-------|-----------------------------------|-------|------------------------|
| 2.633 | 95% KM (BCA) UCL                  | 2.596 | 90KM SD                |
| 2.556 | 95% KM (Percentile Bootstrap) UCL | 2.534 | 95% KM (t) UCL         |
| 20.81 | 95% KM Bootstrap t UCL            | 2.415 | 95% KM (z) UCL         |
| 4.558 | 95% KM Chebyshev UCL              | 3.485 | 90% KM Chebyshev UCL   |
| 8.974 | 99% KM Chebyshev UCL              | 6.048 | 97.5% KM Chebyshev UCL |

| Gamma GOF Tests on Detected Observations Only |             |  |  |
|---|-------------|--|--|
| A-D Test Statistic                            | 1.24        | Anderson-Darling GOF Test                                    |  |
| 5% A-D Critical Value                         | 0.785       | Detected Data Not Gamma Distributed at 5% Significance Level |  |
| K-S Test Statistic                            | 0.329       | Kolmogorov-Smirnov GOF                                       |  |
| 5% K-S Critical Value                         | 0.282       | Detected Data Not Gamma Distributed at 5% Significance Level |  |
| Detected Data Not                             | Gamma Distr | ibuted at 5% Significance Level                              |  |

| Gamma Statistics on Detected Data Only |       |                                 |       |  |
|--|-------|---------------------------------|-------|--|
| k hat (MLE)                            | 0.457 | k star (bias corrected MLE)     | 0.387 |  |
| Theta hat (MLE)                        | 2.905 | Theta star (bias corrected MLE) | 3.435 |  |
| nu hat (MLE)                           | 9.148 | nu star (bias corrected)        | 7.737 |  |
| Mean (detects)                         | 1.329 |                                 |       |  |
|  |       |                                 |       |  |

| Gamma ROS                                       | Statistics us  | sing Imputed Non-Detects  |        |
|---|----------------|---|--------|
| GROS may not be used when data se               | et has > 50%   | NDs with many tied observations at multiple DLs                 |        |
| GROS may not be used when kstar of detects is a | small such as  | s <1.0, especially when the sample size is small (e.g., <15-20) |        |
| For such situations, GROS r                     | method may     | yield incorrect values of UCLs and BTVs                         |        |
| This is especi                                  | ally true wher | n the sample size is small.                                     |        |
| For gamma distributed detected data, BTVs a     | nd UCLs may    | y be computed using gamma distribution on KM estimates          |        |
| Minimum   | 0.01           | Mean  | 1.109  |
| Maximum   | 9.534          | Median  | 0.17   |
| SD  | 2.714          | CV  | 2.447  |
| k hat (MLE)                                     | 0.369          | k star (bias corrected MLE)                                     | 0.332  |
| Theta hat (MLE)                                 | 3.007          | Theta star (bias corrected MLE)                                 | 3.338  |
| nu hat (MLE)                                    | 8.852          | nu star (bias corrected)  | 7.973  |
| Adjusted Level of Significance (β)              | 0.029          |   |        |
| Approximate Chi Square Value (7.97, α)          | 2.719          | Adjusted Chi Square Value (7.97, β)                             | 2.274  |
| 95% Gamma Approximate UCL                       | 3.252          | 95% Gamma Adjusted UCL  | 3.889  |
|   |                |   |        |
| Estimates of G                                  | amma Paran     | neters using KM Estimates                                       |        |
| Mean (KM)                                       | 1.116          | SD (KM)   | 2.596  |
| Variance (KM)                                   | 6.737          | SE of Mean (KM)   | 0.79   |
| k hat (KM)                                      | 0.185          | k star (KM)   | 0.194  |
| nu hat (KM)                                     | 4.434          | nu star (KM)  | 4.659  |
| theta hat (KM)                                  | 6.039          | theta star (KM)   | 5.747  |
| 80% gamma percentile (KM)                       | 1.447          | 90% gamma percentile (KM)                                       | 3.373  |
| 95% gamma percentile (KM)                       | 5.793          | 99% gamma percentile (KM)                                       | 12.49  |
|   |                |   |        |
| Gamm  | a Kaplan-Me    | eier (KM) Statistics  |        |
| Approximate Chi Square Value (4.66, α)          | 0.998          | Adjusted Chi Square Value (4.66, β)                             | 0.769  |
| 95% KM Approximate Gamma UCL                    | 5.208          | 95% KM Adjusted Gamma UCL                                       | 6.763  |
|   |                |   |        |
| Lognormal GO                                    | F Test on De   | etected Observations Only                                       |        |
| Shapiro Wilk Test Statistic                     | 0.862          | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value                 | 0.869          | Detected Data Not Lognormal at 10% Significance Lev             | el     |
| Lilliefors Test Statistic                       | 0.201          | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value                   | 0.241          | Detected Data appear Lognormal at 10% Significance Le           | evel   |
| Detected Data appear A                          | pproximate L   | ognormal at 10% Significance Level                              |        |
|   | -              | <u> </u>  |        |
| Lognormal ROS                                   | S Statistics L | Jsing Imputed Non-Detects                                       |        |
| Mean in Original Scale                          | 1.109          | Mean in Log Scale   | -1.729 |
| SD in Original Scale                            | 2.714          | SD in Log Scale   | 1.997  |
| 95% t UCL (assumes normality of ROS data)       | 2.516          | 95% Percentile Bootstrap UCL                                    | 2.559  |
| 95% BCA Bootstrap UCL                           | 3.441          | 95% Bootstrap t UCL   | 19.72  |
| 95% H-UCL (Log ROS)                             | 25.76          |   |        |
| (*****  |                |   |        |
| Statistics using KM estimates                   | on Logged D    | Data and Assuming Lognormal Distribution                        |        |
| KM Mean (logged)                                | -1.436         | KM Geo Mean   | 0.238  |
| KM SD (logged)                                  | 1.512          | 95% Critical H Value (KM-Log)                                   | 3.922  |
| KM Standard Error of Mean (logged)              | 0.46           | 95% H-UCL (KM -Log)   | 4.464  |
| KM SD (logged)                                  | 1.512          | 95% Critical H Value (KM-Log)                                   | 3.922  |
| (logged)  | 1.012          | 35% Childai Hi Value (RM-LOy)                                   | 5.522  |

|  | 0.40                   |   |         |
|--|------------------------|---|---------|
| KM Standard Error of Mean (logged)                     | 0.46                   |   |         |
|  | DL/2 S                 | tatistics   |         |
| DL/2 Normal  |                        | DL/2 Log-Transformed  |         |
| Mean in Original Scale                                 | 1.112                  | Mean in Log Scale   | -1.551  |
| SD in Original Scale                                   | 2.713                  | SD in Log Scale   | 1.72    |
| 95% t UCL (Assumes normality)                          | 2.518                  | 95% H-Stat UCL  | 8.94    |
| DL/2 is not a recommended m                            | ethod, provid          | ded for comparisons and historical reasons                            |         |
| Nonparame  | etric Distribu         | tion Free UCL Statistics  |         |
| Detected Data appear Approx                            | imate Logno            | rmal Distributed at 10% Significance Level                            |         |
|  | Suggested              | UCL to Use  |         |
| KM (t) UCL   | 2.534                  |   |         |
| The calculated UCLs are based on assumption            | tions that the         | e data were collected in a random and unbiased manner.                |         |
| -  |                        | Ilected from random locations.  |         |
| If the data were collected                             | d using judgr          | nental or other non-random methods,                                   |         |
| then contact a   | statistician t         | o correctly calculate UCLs.   |         |
|  |                        |   |         |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are pr           | ovided to help the user to select the most appropriate 95% UCL.       |         |
| Recommendations are based upon data size               | , data distrib         | ution, and skewness using results from simulation studies.            |         |
| However, simulations results will not cover all Real W | /orld data set         | ts; for additional insight the user may want to consult a statisticia | an.     |
|  | General                | Statistics  |         |
| Total Number of Observations                           | 13                     | Number of Distinct Observations                                       | 7       |
| Number of Detects                                      | 0                      | Number of Non-Detects   | 13      |
| Number of Distinct Detects                             | 0                      | Number of Distinct Non-Detects  | 7       |
| Warning: All observations are Non-Detect               | ts (NDs), the          | refore all statistics and estimates should also be NDs!               |         |
|  |                        | stics are also NDs lying below the largest detection limit!           |         |
|  |                        | values to estimate environmental parameters (e.g., EPC, BTV)          |         |
|  |                        |   |         |
| The data set for variable C                            | (groundwate            | er   aniline   62-53-3) was not processed!                            |         |
|  |                        |   |         |
| (groundwater   anthracene   120-12-7)                  |                        |   |         |
|  |                        | Statistics  |         |
| Total Number of Observations                           | 43                     | Number of Distinct Observations                                       | 18      |
| Number of Detects                                      | 5                      | Number of Non-Detects   | 38      |
| Number of Distinct Detects                             | 5                      | Number of Distinct Non-Detects  | 13      |
| Minimum Detect   | 3.4250E-5              | Minimum Non-Detect  | x u350E |
|  |                        |   |         |
| Maximum Detect   | 1.6240E-4              | Maximum Non-Detect  | 0.005   |
| Maximum Detect Variance Detects Mean Detects           | 1.6240E-4<br>2.7907E-9 |   | 0.005   |

| Madian Datasta                     |               |   | N1/A      |
|------------------------------------|---------------|---|-----------|
| Median Detects                     |               | CV Detects  | N/A       |
| Skewness Detects                   | 1.618         | Kurtosis Detects  | 2.35      |
| Mean of Logged Detects             | -9.68         | SD of Logged Detects  | 0.628     |
|                                    |               |   |           |
|                                    |               | t on Detects Only   |           |
| Shapiro Wilk Test Statistic        | 0.812         | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value     | 0.686         | Detected Data appear Normal at 1% Significance Le               | vel       |
| Lilliefors Test Statistic          | 0.29          | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value       | 0.396         | Detected Data appear Normal at 1% Significance Le               | vel       |
|                                    |               | nal at 1% Significance Level                                    |           |
| Note GOF tests r                   | may be unre   | liable for small sample sizes                                   |           |
|                                    |               |   |           |
| Kaplan-Meier (KM) Statistics usin  | ng Normal C   | ritical Values and other Nonparametric UCLs                     |           |
| KM Mean                            | 6.7932E-5     | KM Standard Error of Mean                                       | 1.8670E-5 |
| 90KM SD                            | 4.2392E-5     | 95% KM (BCA) UCL  | 1.0245E-4 |
| 95% KM (t) UCL                     | 9.9333E-5     | 95% KM (Percentile Bootstrap) UCL                               | 1.0284E-4 |
| 95% KM (z) UCL                     | 9.8641E-5     | 95% KM Bootstrap t UCL  | 2.2840E-4 |
| 90% KM Chebyshev UCL               | 1.2394E-4     | 95% KM Chebyshev UCL  | 1.4931E-4 |
| 97.5% KM Chebyshev UCL             | 1.8452E-4     | 99% KM Chebyshev UCL  | 2.5369E-4 |
| Note: KM UCLs may be biased low    | with this da  | taset. Other substitution method recommended                    |           |
|                                    |               |   |           |
| Gamma GOF                          | Tests on De   | etected Observations Only                                       |           |
| A-D Test Statistic                 | 0.418         | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value              | 0.683         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| K-S Test Statistic                 | 0.296         | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value              | 0.359         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
|                                    |               | stributed at 5% Significance Level                              |           |
|                                    |               | liable for small sample sizes                                   |           |
|                                    |               |   |           |
| Gamma                              | Statistics or | Detected Data Only  |           |
| k hat (MLE)                        | 3.062         | k star (bias corrected MLE)                                     | 1.358     |
| Theta hat (MLE)                    |               | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                       | 30.62         | nu star (bias corrected MLL)                                    | 13.58     |
| Mean (detects)                     |               |   | 13.36     |
|                                    | 7.4230E-3     |   |           |
|                                    | <u></u>       |   |           |
|                                    |               | sing Imputed Non-Detects  |           |
|                                    |               | NDs with many tied observations at multiple DLs                 |           |
|                                    |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|                                    |               | yield incorrect values of UCLs and BTVs                         |           |
|                                    |               | n the sample size is small.                                     |           |
|                                    |               | y be computed using gamma distribution on KM estimates          |           |
| Minimum                            |               | Mean  | 0.00885   |
| Maximum                            | 0.01          | Median  | 0.01      |
| SD                                 | 0.00322       | CV  | 0.364     |
| k hat (MLE)                        | 1.209         | k star (bias corrected MLE)                                     | 1.14      |
| Theta hat (MLE)                    | 0.00732       | Theta star (bias corrected MLE)                                 | 0.00776   |
| nu hat (MLE)                       | 104           | nu star (bias corrected)  | 98.05     |
| Adjusted Level of Significance (β) | 0.0444        |   |           |
|                                    |               |   |           |

| Approximate Chi Square Value (98.05, α)   | 76.21                 | Adjusted Chi Square Value (98.05, β)                 | 75.54     |
|---|-----------------------|--|-----------|
| 95% Gamma Approximate UCL                 | 0.0114                | 95% Gamma Adjusted UCL                               | 0.0115    |
|   | 0.0114                | 95 % Gamma Aujusteu UCL                              | 0.0115    |
| Estimates of G                            | amma Parar            | neters using KM Estimates                            |           |
| Mean (KM)                                 |                       |  | 4.2392E-5 |
| Variance (KM)                             |                       | SE of Mean (KM)                                      |           |
| k hat (KM)                                | 2.568                 | k star (KM)  | 2.404     |
| nu hat (KM)                               | 220.8                 | nu star (KM)   | 206.8     |
| theta hat (KM)                            |                       | theta star (KM)                                      |           |
| 80% gamma percentile (KM)                 |                       | 90% gamma percentile (KM)                            |           |
| 95% gamma percentile (KM)                 |                       | 99% gamma percentile (KM)                            |           |
|   |                       | <b>5 1 ( , )</b>                                     |           |
| Gamn                                      | na Kaplan-Me          | eier (KM) Statistics                                 |           |
| Approximate Chi Square Value (206.77, α)  | 174.5                 | Adjusted Chi Square Value (206.77, $\beta$ )         | 173.5     |
| 95% KM Approximate Gamma UCL              | 8.0497E-5             | 95% KM Adjusted Gamma UCL                            | 8.0973E-5 |
| Note: KM UCLs may be biased low           | with this da          | taset. Other substitution method recommended         |           |
|   |                       |  |           |
|   |                       | etected Observations Only                            |           |
| Shapiro Wilk Test Statistic               |                       | Shapiro Wilk GOF Test                                |           |
| 10% Shapiro Wilk Critical Value           | 0.806                 | Detected Data appear Lognormal at 10% Significance L | _evel     |
| Lilliefors Test Statistic                 |                       | Lilliefors GOF Test                                  |           |
| 10% Lilliefors Critical Value             |                       | Detected Data appear Lognormal at 10% Significance L | _evel     |
|   |                       | mal at 10% Significance Level                        |           |
| Note GOF tests                            | may be unre           | liable for small sample sizes                        |           |
|   | S Statistics I        | Jsing Imputed Non-Detects                            |           |
| Mean in Original Scale                    |                       | Mean in Log Scale                                    | -9.761    |
| SD in Original Scale                      |                       | SD in Log Scale                                      | 0.485     |
| 95% t UCL (assumes normality of ROS data) |                       | 95% Percentile Bootstrap UCL                         |           |
| 95% BCA Bootstrap UCL                     |                       | 95% Bootstrap t UCL                                  |           |
| 95% H-UCL (Log ROS)                       |                       |  | 7.50742-5 |
|   | 7.47202-5             |  |           |
| Statistics using KM estimates             | on Logged [           | Data and Assuming Lognormal Distribution             |           |
| KM Mean (logged)                          | -9.749                | KM Geo Mean  | 5.8372E-5 |
| KM SD (logged)                            | 0.518                 | 95% Critical H Value (KM-Log)                        | 1.914     |
| KM Standard Error of Mean (logged)        | 0.237                 | 95% H-UCL (KM -Log)                                  |           |
| KM SD (logged)                            | 0.518                 | 95% Critical H Value (KM-Log)                        | 1.914     |
| KM Standard Error of Mean (logged)        | 0.237                 |  |           |
| Note: KM UCLs may be biased low           | <i>v</i> with this da | taset. Other substitution method recommended         |           |
|   |                       |  |           |
|   | DL/2 St               | tatistics  |           |
| DL/2 Normal                               |                       | DL/2 Log-Transformed                                 |           |
| Mean in Original Scale                    | 9.2428E-4             | Mean in Log Scale                                    | -7.785    |
| SD in Original Scale                      | 0.00106               | SD in Log Scale                                      | 1.353     |
| 95% t UCL (Assumes normality)             | 0.0012                | 95% H-Stat UCL                                       | 0.00186   |
| DL/2 is not a recommended m               | ethod, provid         | led for comparisons and historical reasons           |           |
|   |                       |  |           |
| Nonparame                                 | etric Distribut       | tion Free UCL Statistics                             |           |

|   | ear Normal Distributed at   | •  |                                       |
|---|---|--|---------------------------------------|
|   | Suggested UCL to Use  | 9  |                                       |
| 95% KM (t) U(   | CL 9.9333E-5  |  |                                       |
| Note: Suggestions regarding the selection of a 9  | 5% UCL are provided to be   | Ip the user to select the most appropriate 95% UCL.  |                                       |
|   |   | kewness using results from simulation studies.   |                                       |
|   |   | onal insight the user may want to consult a statisticia  | an.                                   |
|   |   |  |                                       |
| oundwater   antimony   7440-36-0)   |   |  |                                       |
|   |   |  |                                       |
|   | General Statistics  |  |                                       |
| Total Number of Observatio  | ns 41   | Number of Distinct Observations  | 6                                     |
| Number of Detec   | ts 2  | Number of Non-Detects  | 39                                    |
| Number of Distinct Detection  | ts 2  | Number of Distinct Non-Detects   | 4                                     |
| Minimum Dete  | ct 4.1000E-4  | Minimum Non-Detect   | 0.001                                 |
| Maximum Dete  | ct 5.5000E-4  | Maximum Non-Detect   | 0.05                                  |
| Variance Detec  | ts 9.8000E-9  | Percent Non-Detects  | 95.12                                 |
| Mean Detec  | ts 4.8000E-4  | SD Detects   | 9.8995E                               |
| Median Detec  | ts 4.8000E-4  | CV Detects   | 0.20                                  |
| Skewness Detec  | ts N/A  | Kurtosis Detects   | N/A                                   |
| Mean of Logged Detect   | ets -7.652  | SD of Logged Detects   | 0.20                                  |
| This is not enough to co  | mpute meaningful or relial  | cted Values.<br>ble statistics and estimates.  |                                       |
|   | mpute meaningful or relial  | ble statistics and estimates.  |                                       |
| No  | · · ·   | ble statistics and estimates.  |                                       |
| No<br>Not I   | ormal GOF Test on Detects   | ole statistics and estimates.<br>s Only<br>OF Test   |                                       |
| Not Not Kaplan-Meier (KM) Statistics u  | ormal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value  | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs  | 7.0000                                |
| No<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Me  | ormal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4  | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean   |                                       |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mea<br>90KM S  | rmal GOF Test on Detects<br>Enough Data to Perform G<br>Ising Normal Critical Value<br>an 4.8000E-4<br>ID 7.0000E-5   | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL   | N/A                                   |
| Not   | an 4.8000E-4<br>District al Value<br>District al Value | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | N/A<br>N/A                            |
| Kaplan-Meier (KM) Statistics u           KM Mei           90KM S           95% KM (t) UC           95% KM (z) UC  | rmal GOF Test on Detects<br>Enough Data to Perform G<br>Ising Normal Critical Value<br>an 4.8000E-4<br>D 7.0000E-5<br>CL 5.9787E-4<br>CL 5.9514E-4  | ble statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | N/A<br>N/A<br>N/A                     |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics (<br>KM Me<br>90KM S<br>95% KM (t) U(<br>95% KM (z) U(<br>90% KM Chebyshev U(  | armal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>5D 7.0000E-5<br>5L 5.9787E-4<br>5L 5.9514E-4<br>5L 5.9514E-4<br>5L 6.9000E-4  | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>7.8512E          |
| Kaplan-Meier (KM) Statistics u           KM Mei           90KM S           95% KM (t) UC           95% KM (z) UC  | armal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>5D 7.0000E-5<br>5L 5.9787E-4<br>5L 5.9514E-4<br>5L 5.9514E-4<br>5L 6.9000E-4  | ble statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | N/A<br>N/A<br>N/A<br>7.8512E          |
| Not           Not I           Kaplan-Meier (KM) Statistics of<br>KM Mea           90KM S           90KM S           95% KM (t) UC           95% KM (z) UC           90% KM Chebyshev UC           97.5% KM Chebyshev UC   | armal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>5D 7.0000E-5<br>5L 5.9787E-4<br>5L 5.9514E-4<br>5L 5.9514E-4<br>5L 6.9000E-4  | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>7.8512E          |
| Kaplan-Meier (KM) Statistics u           KM Meier           90KM S           90KM S           95% KM (t) UC           95% KM (z) UC           90% KM Chebyshev UC           97.5% KM Chebyshev UC   | armal GOF Test on Detects         Enough Data to Perform G         asing Normal Critical Value         an 4.8000E-4         5D 7.0000E-5         CL 5.9787E-4         CL 5.9514E-4         CL 6.9000E-4         CL 9.1715E-4  | ole statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>7.8512E          |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mea<br>90KM S<br>95% KM (t) UC<br>95% KM (t) UC<br>95% KM (z) UC<br>90% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC   | rmal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>5D 7.0000E-5<br>5L 5.9787E-4<br>5L 5.9514E-4<br>5L 6.9000E-4<br>5L 9.1715E-4<br>5D Tests on Detected Obs<br>Enough Data to Perform G   | ervations Only<br>OF Test<br>OF Test<br>OF Test<br>OF Test<br>M Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL  | N/A<br>N/A<br>N/A<br>7.8512E          |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mei<br>90KM S<br>95% KM (t) UC<br>95% KM (t) UC<br>95% KM (z) UC<br>90% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>Gamma GC<br>Not I  | armal GOF Test on Detects<br>Enough Data to Perform G<br>asing Normal Critical Value<br>an 4.8000E-4<br>D 7.0000E-5<br>CL 5.9787E-4<br>CL 5.9514E-4<br>CL 6.9000E-4<br>CL 9.1715E-4<br>DF Tests on Detected Obs<br>Enough Data to Perform G<br>an Statistics on Detected I  | ble statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>90% Test<br>Data Only   | N/A<br>N/A<br>N/A<br>7.8512E<br>0.001 |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mea<br>90KM S<br>95% KM (t) UC<br>95% KM (t) UC<br>95% KM (t) UC<br>95% KM (t) UC<br>95% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>Gamma GC<br>Not I<br>Khat (ML | armal GOF Test on Detects<br>Enough Data to Perform G<br>Ising Normal Critical Value<br>an 4.8000E-4<br>5D 7.0000E-5<br>CL 5.9787E-4<br>CL 5.9514E-4<br>CL 6.9000E-4<br>CL 9.1715E-4<br>DF Tests on Detected Obs<br>Enough Data to Perform G<br>In a Statistics on Detected I<br>E) 46.68   | s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (BCA) UCL<br>95% KM Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>0F Test<br>Data Only<br>k star (bias corrected MLE)  | N/A<br>N/A<br>7.8512E<br>0.001        |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mei<br>90KM S<br>90KM (t) UC<br>95% KM (t) UC<br>95% KM (z) UC<br>95% KM (z) UC<br>90% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>Gamma GC<br>Not I<br>Khat (ML                            | rmal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>iD 7.0000E-5<br>CL 5.9787E-4<br>CL 5.9514E-4<br>CL 6.9000E-4<br>CL 9.1715E-4<br>DF Tests on Detected Obs<br>Enough Data to Perform G<br>na Statistics on Detected I<br>E) 46.68<br>E) 1.0282E-5  | ble statistics and estimates.<br>s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>0 F Test<br>Data Only<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE) | N/A<br>N/A<br>N/A<br>7.8512E<br>0.001 |
| Not I<br>Not I<br>Kaplan-Meier (KM) Statistics u<br>KM Mei<br>90KM S<br>90KM S<br>95% KM (t) UC<br>95% KM (z) UC<br>95% KM (z) UC<br>95% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>97.5% KM Chebyshev UC<br>Gamma GC<br>Not I<br>Khat (ML                                 | rmal GOF Test on Detects<br>Enough Data to Perform G<br>using Normal Critical Value<br>an 4.8000E-4<br>iD 7.0000E-5<br>CL 5.9787E-4<br>CL 5.9514E-4<br>CL 6.9000E-4<br>CL 9.1715E-4<br>DF Tests on Detected Obs<br>Enough Data to Perform G<br>na Statistics on Detected I<br>E) 46.68<br>E) 1.0282E-5  | s Only<br>OF Test<br>es and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (BCA) UCL<br>95% KM Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>0F Test<br>Data Only<br>k star (bias corrected MLE)  | N/A<br>N/A<br>7.8512E<br>0.001        |

| Mean (KM)  | 4.8000E-4     | SD (KM)  | 7.0000E-5 |
|--|---------------|--|-----------|
| Variance (KM)                                      |               | SE of Mean (KM)  |           |
| k hat (KM)   | 47.02         | k star (KM)  | 43.6      |
| nu hat (KM)  | 3856          | nu star (KM)   | 3575      |
| theta hat (KM)                                     | 1.0208E-5     | theta star (KM)  | 1.1010E-5 |
| 80% gamma percentile (KM)                          | 5.3987E-4     | 90% gamma percentile (KM)  | 5.7520E-4 |
| 95% gamma percentile (KM)                          | 6.0550E-4     | 99% gamma percentile (KM)  | 6.6511E-4 |
|  |               | · · · · · · · · · · · · · · · · · · ·                                |           |
| Gamn   | na Kaplan-M   | eier (KM) Statistics   | 0.0444    |
|  | 0.407         | Adjusted Level of Significance ( $\beta$ )                           | 0.0441    |
| Approximate Chi Square Value (N/A, α)              |               | Adjusted Chi Square Value (N/A, β)                                   | 3432      |
| 95% KM Approximate Gamma UCL                       | 4.9926E-4     | 95% KM Adjusted Gamma UCL  | 4.9998E-4 |
| Lognormal GC                                       | )F Test on D  | Detected Observations Only   |           |
| -  |               | p Perform GOF Test   |           |
|  |               |  |           |
| Lognormal RO                                       | S Statistics  | Using Imputed Non-Detects  |           |
| Mean in Original Scale                             | 4.9432E-4     | Mean in Log Scale  | -7.652    |
| SD in Original Scale                               | 1.4338E-4     | SD in Log Scale  | 0.287     |
| 95% t UCL (assumes normality of ROS data)          | 5.3203E-4     | 95% Percentile Bootstrap UCL   | 5.3213E-4 |
| 95% BCA Bootstrap UCL                              | 5.3260E-4     | 95% Bootstrap t UCL  | 5.3451E-4 |
| 95% H-UCL (Log ROS)                                | 5.3623E-4     |  |           |
|  |               |  |           |
| _  |               | Data and Assuming Lognormal Distribution                             |           |
| KM Mean (logged)                                   |               | KM Geo Mean  |           |
| KM SD (logged)                                     | 0.147         | 95% Critical H Value (KM-Log)  | 1.706     |
| KM Standard Error of Mean (logged)                 |               | 95% H-UCL (KM -Log)  |           |
| KM SD (logged)                                     | 0.147         | 95% Critical H Value (KM-Log)  | 1.706     |
| KM Standard Error of Mean (logged)                 |               | ataset. Other substitution method recommended                        |           |
| Note. Nivi OCLS may be blased for                  |               |  |           |
|  | DL/2 S        | tatistics  |           |
| DL/2 Normal  |               | DL/2 Log-Transformed   |           |
| Mean in Original Scale                             | 0.0181        | Mean in Log Scale  | -4.74     |
| SD in Original Scale                               | 0.011         | SD in Log Scale  | 1.727     |
| 95% t UCL (Assumes normality)                      | 0.021         | 95% H-Stat UCL   | 0.0946    |
| DL/2 is not a recommended m                        | ethod, provi  | ded for comparisons and historical reasons                           |           |
|  |               |  |           |
|  |               | tion Free UCL Statistics   |           |
| Data do n  | ot follow a [ | Discernible Distribution   |           |
|  | Suggested     | UCL to Use   |           |
| 95% KM (t) UCL                                     |               |  |           |
|  |               | xceeds the maximum observation                                       |           |
|  |               |  |           |
| Note: Suggestions regarding the selection of a 95% | 6 UCL are pr  | ovided to help the user to select the most appropriate 95% UCL       |           |
|  |               | ution, and skewness using results from simulation studies.           |           |
| · ·  |               | ts; for additional insight the user may want to consult a statistici | an.       |
|  |               |  |           |

| roundwater   arsenic   7440-38-2)             |               |   |         |
|---|---------------|---|---------|
|   | General S     | Statistics  |         |
| Total Number of Observations                  | 41            | Number of Distinct Observations                                       | 13      |
| Number of Detects                             | 11            | Number of Non-Detects   | 30      |
| Number of Distinct Detects                    | 11            | Number of Distinct Non-Detects  | 2       |
| Minimum Detect                                | 7.1000E-4     | Minimum Non-Detect  | 8.0000E |
| Maximum Detect                                | 0.0115        | Maximum Non-Detect  | 0.03    |
| Variance Detects                              | 1.1052E-5     | Percent Non-Detects   | 73.17   |
| Mean Detects                                  | 0.00417       | SD Detects  | 0.003   |
| Median Detects                                | 0.00425       | CV Detects  | 0.79    |
| Skewness Detects                              | 1.008         | Kurtosis Detects  | 0.94    |
| Mean of Logged Detects                        | -5.832        | SD of Logged Detects  | 0.94    |
| Norn  | nal GOF Test  | t on Detects Only   |         |
| Shapiro Wilk Test Statistic                   | 0.9           | Shapiro Wilk GOF Test   |         |
| 1% Shapiro Wilk Critical Value                | 0.792         | Detected Data appear Normal at 1% Significance Lev                    | /el     |
| Lilliefors Test Statistic                     | 0.149         | Lilliefors GOF Test   |         |
| 1% Lilliefors Critical Value                  | 0.291         | Detected Data appear Normal at 1% Significance Lev                    | /el     |
| Detected Data                                 | appear Norm   | al at 1% Significance Level   |         |
| Kaplan-Meier (KM) Statistics usi              | na Normal Ci  | ritical Values and other Nonparametric UCLs                           |         |
| KM Mean                                       | -             | KM Standard Error of Mean   | 9.6331  |
| 90KM SD                                       | 0.00318       | 95% KM (BCA) UCL  | 0.005   |
| 95% KM (t) UCL                                | 0.0055        | 95% KM (Percentile Bootstrap) UCL                                     | 0.005   |
| 95% KM (z) UCL                                | 0.00546       | 95% KM Bootstrap t UCL  | 0.006   |
| 90% KM Chebyshev UCL                          |               | 95% KM Chebyshev UCL  | 0.008   |
| 97.5% KM Chebyshev UCL                        | 0.0099        | 99% KM Chebyshev UCL  | 0.01    |
| -   |               | aset. Other substitution method recommended                           |         |
| Gamma GOF                                     | Tests on De   | tected Observations Only  |         |
| A-D Test Statistic                            |               | Anderson-Darling GOF Test   |         |
| 5% A-D Critical Value                         |               | Detected data appear Gamma Distributed at 5% Significant              |         |
| K-S Test Statistic                            |               | Kolmogorov-Smirnov GOF  | 2010    |
| 5% K-S Critical Value                         |               | Detected data appear Gamma Distributed at 5% Significant              |         |
|   |               | tributed at 5% Significance Level                                     |         |
| Gamma   | Statistics on | Detected Data Only  |         |
| k hat (MLE)                                   |               | k star (bias corrected MLE)   | 1.2     |
| Theta hat (MLE)                               | 0.00266       | Theta star (bias corrected MLE)                                       | 0.003   |
| nu hat (MLE)                                  |               | nu star (bias corrected MLL)  | 26.3    |
| Mean (detects)                                | 0.00417       |   | 20.3    |
| Gamma ROS                                     | Statistics us | ing Imputed Non-Detects   |         |
|   |               | NDs with many tied observations at multiple DLs                       |         |
|   |               | s <1.0, especially when the sample size is small (e.g., <15-20)       |         |
| Greecing not be used when total of detects is | unun suun da  | $\sim$ 1.5, superior in the sumple size is small (e.g., $>10^{-2}$ U) |         |

| This is especi   | ally true whe  | n the sample size is small.                            |                |
|--|----------------|--|----------------|
| For gamma distributed detected data, BTVs a                        | nd UCLs mag    | y be computed using gamma distribution on KM estimates |                |
| Minimum  | 7.1000E-4      | Mean   | 0.00856        |
| Maximum  | 0.0139         | Median   | 0.01           |
| SD   | 0.00323        | CV   | 0.377          |
| k hat (MLE)  | 3.226          | k star (bias corrected MLE)                            | 3.006          |
| Theta hat (MLE)  | 0.00265        | Theta star (bias corrected MLE)                        | 0.00285        |
| nu hat (MLE)   | 264.5          | nu star (bias corrected)                               | 246.5          |
| Adjusted Level of Significance (β)                                 | 0.0441         |  |                |
| Approximate Chi Square Value (246.50, $\alpha$ )                   | 211.1          | Adjusted Chi Square Value (246.50, β)                  | 210            |
| 95% Gamma Approximate UCL  | 0.00999        | 95% Gamma Adjusted UCL                                 | 0.0101         |
| Estimates of Q   |                |  |                |
|  | 0.00388        | neters using KM Estimates                              | 0.00318        |
| Mean (KM)  |                | SD (KM)  |                |
| Variance (KM)  |                | SE of Mean (KM)  |                |
| k hat (KM)   | 1.487<br>121.9 | k star (KM)  | 1.395<br>114.4 |
| nu hat (KM)  | 0.00261        | nu star (KM)   | 0.00278        |
| theta hat (KM)<br>80% gamma percentile (KM)                        | 0.00201        | theta star (KM)<br>90% gamma percentile (KM)           | 0.00278        |
| 95% gamma percentile (KM)  | 0.00005        | 99% gamma percentile (KM)                              | 0.00823        |
|  | 0.0104         |  | 0.0102         |
| Gamm   | a Kaplan-Me    | eier (KM) Statistics                                   |                |
| Approximate Chi Square Value (114.35, α)                           | 90.67          | Adjusted Chi Square Value (114.35, β)                  | 89.9           |
| 95% KM Approximate Gamma UCL                                       | 0.00489        | 95% KM Adjusted Gamma UCL                              | 0.00494        |
| Note: KM UCLs may be biased low                                    | with this dat  | taset. Other substitution method recommended           |                |
|  |                |  |                |
| _  |                | etected Observations Only                              |                |
| Shapiro Wilk Test Statistic  | 0.924          | Shapiro Wilk GOF Test                                  |                |
| 10% Shapiro Wilk Critical Value                                    | 0.876          | Detected Data appear Lognormal at 10% Significance     | Level          |
| Lilliefors Test Statistic  | 0.198          | Lilliefors GOF Test                                    |                |
| 10% Lilliefors Critical Value                                      | 0.231          | Detected Data appear Lognormal at 10% Significance     | Level          |
| Detected Data ap   | pear Lognorr   | mal at 10% Significance Level                          |                |
|  | C Statiatica I | Ising Imputed Nep Detecto                              |                |
| Lognormal RO<br>Mean in Original Scale                             | 0.00409        | Jsing Imputed Non-Detects<br>Mean in Log Scale         | -5.963         |
| SD in Original Scale   | 0.00409        | SD in Log Scale  |                |
| 95% t UCL (assumes normality of ROS data)                          | 0.00418        | 95% Percentile Bootstrap UCL                           | 0.00523        |
| 95% I OCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL | 0.00537        | 95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL    | 0.00553        |
| 95% H-UCL (Log ROS)  | 0.00627        |  | 0.00000        |
|  |                |  |                |
| Statistics using KM estimates                                      | on Logged C    | Data and Assuming Lognormal Distribution               |                |
| KM Mean (logged)   | -5.95          | KM Geo Mean  | 0.0026         |
| KM SD (logged)   | 0.949          | 95% Critical H Value (KM-Log)                          | 2.297          |
| KM Standard Error of Mean (logged)                                 | 0.287          | 95% H-UCL (KM -Log)                                    | 0.00577        |
| KM SD (logged)   | 0.949          | 95% Critical H Value (KM-Log)                          | 2.297          |
| KM Standard Error of Mean (logged)                                 | 0.287          |  |                |
| Note: KM UCLs may be biased low                                    | with this dat  | taset. Other substitution method recommended           | 1              |
|  |                |  |                |

|   | DL/2 Stat  | tistics   |                                       |
|---|--|---|---------------------------------------|
| DL/2 Normal   |  | DL/2 Log-Transformed  |                                       |
| Mean in Original Scale  | 0.0117   | Mean in Log Scale   | -4.726                                |
| SD in Original Scale  | 0.00543  | SD in Log Scale   | 1.001                                 |
| 95% t UCL (Assumes normality)   | 0.0132   | 95% H-Stat UCL  | 0.0212                                |
| DL/2 is not a recommended me  | thod, provide  | d for comparisons and historical reasons  |                                       |
| N   |  |   |                                       |
| · · · · ·   |  | on Free UCL Statistics ributed at 1% Significance Level   |                                       |
|   |  |   |                                       |
| (   | Suggested U  | CL to Use   |                                       |
| 95% KM (t) UCL  | 0.0055   |   |                                       |
|   |  |   |                                       |
|   |  | vided to help the user to select the most appropriate 95% UCL.  |                                       |
| •   |  | ion, and skewness using results from simulation studies.  |                                       |
| However, simulations results will not cover all Real Wo   | orld data sets;  | ; for additional insight the user may want to consult a statistician  | n.                                    |
| C (groundwater   atrazine   1912-24-9)  |  |   |                                       |
|   |  |   |                                       |
|   | General St   | tatistics   |                                       |
| Total Number of Observations  | 30   | Number of Distinct Observations   | 4                                     |
| Number of Detects   | 0  | Number of Non-Detects   | 30                                    |
|   |  |   |                                       |
| Number of Distinct Detects  | 0  | Number of Distinct Non-Detects  | 4                                     |
| Warning: All observations are Non-Detects   | (NDs), there   | Number of Distinct Non-Detects         ofore all statistics and estimates should also be NDs!         ics are also NDs lying below the largest detection limit!   | 4                                     |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site  | (NDs), there<br>other statisti<br>e specific val   | fore all statistics and estimates should also be NDs!   |                                       |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site  | (NDs), there<br>other statisti<br>e specific val   | ofore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).  |                                       |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (gro<br>C (groundwater   barium   7440-39-3)   | (NDs), there<br>other statisti<br>e specific val<br>oundwater   a<br>General St  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>atrazine   1912-24-9) was not processed!  |                                       |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (gro  | (NDs), there<br>other statisti<br>e specific val   | ofore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics   | 40                                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (groundwater   barium   7440-39-3)<br>C (groundwater   barium   7440-39-3)  | (NDs), there<br>other statisti<br>e specific val<br>oundwater   a<br>General St<br>41  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations  | 40                                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (gro<br>C (groundwater   barium   7440-39-3)<br>Total Number of Observations<br>Minimum  | (NDs), there<br>other statisti<br>e specific val<br>pundwater   a<br>General St<br>41<br>0.0098  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>atrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean  | 40 0 0.0824                           |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (groundwater   barium   7440-39-3)<br>C (groundwater   barium   7440-39-3)  | (NDs), there<br>other statisti<br>e specific val<br>pundwater   a<br>General St<br>41<br>0.0098<br>0.342   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median  | 40 0 0.0824 0.0495                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (gro<br>C (groundwater   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD   | (NDs), there<br>other statisti<br>e specific val<br>oundwater   a<br>General St<br>41<br>0.0098<br>0.342<br>0.0779   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>atrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean  | 40 0 0.0824 0.0495 0.0122             |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative site<br>The data set for variable C (groundwater   barium   7440-39-3)<br>C (groundwater   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum  | (NDs), there<br>other statisti<br>e specific val<br>pundwater   a<br>General St<br>41<br>0.0098<br>0.342   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median  | 40 0 0.0824 0.0495                    |
| Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (gro<br>C (groundwater   barium   7440-39-3)<br>Total Number of Observations<br>Minimum<br>Maximum<br>SD   | (NDs), there<br>other statisti<br>e specific val<br>oundwater   a<br>General St<br>41<br>0.0098<br>0.342<br>0.0779<br>0.946  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness  | 40 0 0.0824 0.0495 0.0122             |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative sit         The data set for variable C (groundwater   barium   7440-39-3)         C (groundwater   barium   7440-39-3)         Total Number of Observations         Minimum         SD         Coefficient of Variation  | (NDs), there<br>other statisti<br>e specific val<br>pundwater   a<br>pundwater   a<br>general St<br>41<br>0.0098<br>0.342<br>0.0779<br>0.946<br>Normal GC  | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>DF Test   | 40 0 0.0824 0.0495 0.0122             |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative sit         The data set for variable C (groundwater   barium   7440-39-3)         C (groundwater   barium   7440-39-3)         Total Number of Observations         Minimum         SD         Coefficient of Variation         Shapiro Wilk Test Statistic  | (NDs), there<br>other statisti<br>e specific val<br>bundwater   a<br>bundwater   a<br>coundwater   a<br>coundwater | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>DF Test<br>Shapiro Wilk GOF Test                    | 40 0 0.0824 0.0495 0.0122             |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative sit         The data set for variable C (groundwater   barium   7440-39-3)         C (groundwater   barium   7440-39-3)         Total Number of Observations         Minimum         Maximum         SD         Coefficient of Variation         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value | (NDs), there<br>other statisti<br>e specific val<br>pundwater   a<br>oundwater   a<br>deneral St<br>41<br>0.0098<br>0.342<br>0.0779<br>0.946<br>Normal GC<br>0.807<br>0.92   | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>atrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>DF Test<br>Data Not Normal at 1% Significance Level | 40 0 0.0824 0.0495 0.0122             |
| Warning: All observations are Non-Detects         Specifically, sample mean, UCLs, UPLs, and         The Project Team may decide to use alternative sit         The data set for variable C (groundwater   barium   7440-39-3)         C (groundwater   barium   7440-39-3)         Total Number of Observations         Minimum         SD         Coefficient of Variation         Shapiro Wilk Test Statistic  | (NDs), there<br>other statisti<br>e specific val<br>bundwater   a<br>bundwater   a<br>coundwater   a<br>coundwater | efore all statistics and estimates should also be NDs!<br>ics are also NDs lying below the largest detection limit!<br>lues to estimate environmental parameters (e.g., EPC, BTV).<br>htrazine   1912-24-9) was not processed!<br>tatistics<br>Number of Distinct Observations<br>Number of Missing Observations<br>Mean<br>Median<br>Std. Error of Mean<br>Skewness<br>DF Test<br>Shapiro Wilk GOF Test                    | 40<br>0<br>0.0824<br>0.0495<br>0.0122 |

| Ass   | uming Norn   | nal Distribution   |         |
|---|--|--|---------|
| 95% Normal UCL  |  | 95% UCLs (Adjusted for Skewness)   |         |
| 95% Student's-t UCL   | 0.103  | 95% Adjusted-CLT UCL (Chen-1995)   | 0.106   |
|   |  | 95% Modified-t UCL (Johnson-1978)  | 0.103   |
|   |  |  |         |
|   | Gamma C  |  |         |
| A-D Test Statistic  | 0.673  | Anderson-Darling Gamma GOF Test  |         |
| 5% A-D Critical Value   | 0.769  | Detected data appear Gamma Distributed at 5% Significance  | e Level |
| K-S Test Statistic  | 0.154  | Kolmogorov-Smirnov Gamma GOF Test  |         |
| 5% K-S Critical Value   | 0.141  | Data Not Gamma Distributed at 5% Significance Leve   | el      |
| Detected data follow App  | or. Gamma L  | Distribution at 5% Significance Level  |         |
|   | Gamma  | Statistics   |         |
| k hat (MLE)   | 1.405  | k star (bias corrected MLE)  | 1.318   |
| Theta hat (MLE)   | 0.0587   | Theta star (bias corrected MLE)  | 0.0625  |
| nu hat (MLE)  | 115.2  | nu star (bias corrected)   | 108.1   |
| MLE Mean (bias corrected)   | 0.0824   | MLE Sd (bias corrected)  | 0.0718  |
|   |  | Approximate Chi Square Value (0.05)  | 85.08   |
| Adjusted Level of Significance  | 0.0441   | Adjusted Chi Square Value  | 84.34   |
|   |  |  |         |
| Ass   | uming Gam  | ma Distribution  |         |
| 95% Approximate Gamma UCL   | 0.105  | 95% Adjusted Gamma UCL   | 0.106   |
|   |  |  |         |
|   | Lognormal  | GOF Test   |         |
| Shapiro Wilk Test Statistic   | 0.971  | Shapiro Wilk Lognormal GOF Test  |         |
| 10% Shapiro Wilk Critical Value   | 0.95   | Data appear Lognormal at 10% Significance Level  |         |
| Lilliefors Test Statistic   | 0.111  | Lilliefors Lognormal GOF Test  |         |
| 10% Lilliefors Critical Value   | 0.126  | Data appear Lognormal at 10% Significance Level  |         |
| Data appear l   | ognormal a   | t 10% Significance Level   |         |
|   |  |  |         |
|   | Lognormal  |  |         |
| Minimum of Logged Data  | -4.625   | Mean of logged Data  | -2.893  |
| Maximum of Logged Data  | -1.073   | SD of logged Data  | 0.913   |
|   | ming Logno   | mol Distribution   |         |
| Assu  |  | rmal Distribution 90% Chebyshev (MVUE) UCL   | 0.123   |
|   |  |  |         |
| 95% H-UCL   | 0.116  |  |         |
| 95% Chebyshev (MVUE) UCL  | 0.142  | 97.5% Chebyshev (MVUE) UCL   | 0.167   |
|   |  |  | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL  | 0.142<br>0.217   | 97.5% Chebyshev (MVUE) UCL   | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet  | 0.142<br>0.217<br>tric Distribut   | 97.5% Chebyshev (MVUE) UCL   | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet  | 0.142<br>0.217<br>tric Distribut   | 97.5% Chebyshev (MVUE) UCL   | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data appear                           | 0.142<br>0.217<br>tric Distribut   | 97.5% Chebyshev (MVUE) UCL<br>ion Free UCL Statistics<br>Discernible Distribution  | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data appear<br>Nonpara                | 0.142<br>0.217<br>tric Distribut<br>r to follow a<br>ametric Dist          | 97.5% Chebyshev (MVUE) UCL<br>ion Free UCL Statistics<br>Discernible Distribution  | 0.167   |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data appear<br>Nonpara<br>95% CLT UCL | 0.142<br>0.217<br>tric Distribut   | 97.5% Chebyshev (MVUE) UCL<br>ion Free UCL Statistics<br>Discernible Distribution<br>ribution Free UCLs<br>95% BCA Bootstrap UCL |         |
| 95% Chebyshev (MVUE) UCL<br>99% Chebyshev (MVUE) UCL<br>Nonparamet<br>Data appear<br>Nonpara                | 0.142<br>0.217<br>tric Distribut<br>t to follow a<br>ametric Dist<br>0.102 | 97.5% Chebyshev (MVUE) UCL<br>ion Free UCL Statistics<br>Discernible Distribution  | 0.107   |

|  | 0.158   | 99% Chebyshev(Mean, Sd) UCL  | 0.203   |
|--|---|--|---|
|  | Suggested UC  | L to Use   |   |
| 95% Adjusted Gamma UCL   | 0.106   |  |   |
|  |   |  |   |
|  |   | ution passing only one of the GOF tests,   |   |
| it is suggested to use a UCL bas   | ed upon a distri  | bution passing both GOF tests in ProUCL  |   |
| Note: Connections recording the collection of a QE0  |   |  |   |
|  |   | ded to help the user to select the most appropriate 95% UCL.<br>n, and skewness using results from simulation studies.   |   |
|  |   | for additional insight the user may want to consult a statisticia  | in.   |
|  |   |  |   |
| (groundwater   benzaldehyde   100-52-7)  |   |  |   |
|  | General Sta   | tistics  |   |
| Total Number of Observations   | 30  | Number of Distinct Observations  | 4   |
| Number of Detects  | 0   | Number of Non-Detects  | 30  |
| Number of Distinct Detects   | 0   | Number of Distinct Non-Detects   | 4   |
|  | L.  |  |   |
| The data set for variable C (grou  | undwater   benz   | aldehyde   100-52-7) was not processed!  |   |
|  | undwater   benz   | aldehyde   100-52-7) was not processed!  |   |
|  | undwater   benz   |  |   |
|  |   |  | 16  |
| r (groundwater   benzene   71-43-2)  | General Sta   | tistics  | 16 34   |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations  | General Sta<br>43   | tistics Number of Distinct Observations  |   |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects   | General Sta<br>43<br>9<br>9   | tistics<br>Number of Distinct Observations<br>Number of Non-Detects  | 34<br>8   |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | General Sta           43           9           9           2.0000E-4           0.007  | tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 34<br>8   |
| r (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | General Sta           43           9           9           2.0000E-4           0.007           4.9950E-6  | tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 34<br>8<br>6.7000E<br>0.005<br>79.07  |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | General Sta           43           9           9           2.0000E-4           0.007           4.9950E-6           0.00212  | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects  | 34<br>8<br>6.7000E<br>0.005<br>79.07<br>0.002                                   |
| F (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | General State           43           9           9           2.0000E-4           0.007           4.9950E-6           0.00212           0.001  | tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 34<br>8<br>6.7000E<br>0.005<br>79.07<br>0.002<br>1.050                          |
| r (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects   | General Sta           43           9           9           2.0000E-4           0.007           4.9950E-6           0.00212           0.001           1.509  | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects Kurtosis Detects  | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.002<br>1.050<br>2.01                  |
| F (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects   | General State           43           9           9           2.0000E-4           0.007           4.9950E-6           0.00212           0.001  | tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.0022<br>1.056<br>2.015                |
| c (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | General Sta           43           9           9           2.0000E-4           0.007           4.9950E-6           0.00212           0.001           1.509  | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects Kurtosis Detects SD of Logged Detects   | 34<br>8<br>6.7000E  |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects   | General Sta         43         9         9         2.0000E-4         0.007         4.9950E-6         0.00212         0.001         1.509         -6.694   | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects Kurtosis Detects SD of Logged Detects   | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.002<br>1.050<br>2.01                  |
| c (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm   | General Sta         43         9         9         2.0000E-4         0.007         4.9950E-6         0.00212         0.001         1.509         -6.694   | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects Kurtosis Detects SD of Logged Detects The Detects Only  | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.0022<br>1.056<br>2.015<br>1.157       |
| e (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic  | General Sta         43         9         9         2.0000E-4         0.007         4.9950E-6         0.00212         0.001         1.509         -6.694   | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects CV Detects SD of Logged Detects The Detects Only Shapiro Wilk GOF Test  | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.0022<br>1.056<br>2.015<br>1.157       |
| r (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value  | General Sta         43       9         9       9         2.0000E-4       0.007         4.9950E-6       0.00212         0.001       1.509         -6.694       -6.694         nal GOF Test or       0.829         0.764       -764 | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects CV Detects SD of Logged Detects n Detects Only Shapiro Wilk GOF Test Detected Data appear Normal at 1% Significance Lev                     | 34<br>8<br>5.7000E<br>0.005<br>79.07<br>0.0022<br>1.056<br>2.015<br>1.157<br>el |
| C (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic                               | General Sta         43       9         9       9         2.0000E-4       0.007         4.9950E-6       0.00212         0.001       1.509         -6.694       0.829         0.829       0.764         0.247       0.247           | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects CV Detects SD of Logged Detects n Detects Only Shapiro Wilk GOF Test Detected Data appear Normal at 1% Significance Lev Lilliefors GOF Test | 34<br>8<br>5.7000E<br>0.005<br>79.0<br>0.002<br>1.05<br>2.01<br>1.15<br>el      |
| (groundwater   benzene   71-43-2)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norr<br>Shapiro Wilk Test Statistic<br>1% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic<br>1% Lilliefors Critical Value | General Sta         43       9         9       9         2.0000E-4       0.007         4.9950E-6       0.00212         0.001       1.509         -6.694       0.829         0.764       0.247         0.316       0.316           | tistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Minimum Non-Detect Maximum Non-Detect Percent Non-Detects SD Detects CV Detects CV Detects SD of Logged Detects n Detects Only Shapiro Wilk GOF Test Detected Data appear Normal at 1% Significance Lev Lilliefors GOF Test | 34<br>8<br>5.7000E<br>0.005<br>79.0<br>0.002<br>1.05<br>2.01<br>1.15<br>el      |

| .ge.          | itical Values and other Nonparametric UCLs   |   |
|---------------|--|---|
| 8.0293E-4     | KM Standard Error of Mean  | 2.1321E-4   |
| 0.0012        | 95% KM (BCA) UCL   | 0.0012  |
| 0.00116       | 95% KM (Percentile Bootstrap) UCL  | 0.00119   |
| 0.00115       | 95% KM Bootstrap t UCL   | 0.0013  |
| 0.00144       | 95% KM Chebyshev UCL   | 0.00173   |
| 0.00213       | 99% KM Chebyshev UCL   | 0.00292   |
| Tests on Det  | tected Observations Only   |   |
| 0.226         | Anderson-Darling GOF Test  |   |
| 0.742         | Detected data appear Gamma Distributed at 5% Significance  | ce Level  |
| 0.192         | Kolmogorov-Smirnov GOF   |   |
| 0.286         | Detected data appear Gamma Distributed at 5% Significance  | ce Level  |
|               | -  |   |
| may be unrel  | iable for small sample sizes   |   |
| Statistics on | Detected Data Only   |   |
| 1.069         | k star (bias corrected MLE)  | 0.787   |
|               |  | 0.00269   |
| 19.24         | nu star (bias corrected)   | 14.16   |
| 0.00212       |  |   |
| Statistics us | ing Imputed Non-Detects  |   |
| et has > 50%  | NDs with many tied observations at multiple DLs  |   |
| small such as | <1.0, especially when the sample size is small (e.g., <15-20)  |   |
| nethod may y  | vield incorrect values of UCLs and BTVs  |   |
|               |  |   |
|               | / be computed using gamma distribution on KM estimates   |   |
| 2.0000E-4     | Mean   | 0.00835   |
| 0.01          | Median   | 0.01  |
| 0.00339       | CV   | 0.406   |
| 2.098         | k star (bias corrected MLE)  | 1.967   |
| 0.00398       | Theta star (bias corrected MLE)  | 0.00424   |
| 180.4         | nu star (bias corrected)   | 169.2   |
| 0.0444        |  |   |
| 140.1         |  | 139.2   |
| 0.0101        | 95% Gamma Adjusted UCL   | 0.0101  |
| amma Pararr   | neters using KM Estimates  |   |
| 8.0293E-4     | SD (KM)  | 0.0012  |
| 1.4443E-6     | SE of Mean (KM)  | 2.1321E-4   |
| 0.446         | k star (KM)  | 0.431   |
| 38.39         | nu star (KM)   | 37.04   |
| 0.0018        | theta star (KM)  | 0.00186   |
| 0.00131       | 90% gamma percentile (KM)  | 0.00224   |
|               |  | 0.00578   |
| 0.00325       | 99% gamma percentile (KM)  | 0.0057  |
|               | 0.0012<br>0.00116<br>0.00115<br>0.00144<br>0.00213<br>Tests on Der<br>0.226<br>0.742<br>0.192<br>0.286<br>Gamma Dis<br>may be unrel<br>Statistics on<br>1.069<br>0.00198<br>19.24<br>0.00212<br>Statistics us<br>et has > 50%<br>small such as<br>method may y<br>ally true wher<br>nd UCLs may<br>2.0000E-4<br>0.01<br>0.00339<br>2.098<br>0.00398<br>180.4<br>0.001<br>0.00398<br>180.4<br>0.01<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.00398<br>180.4<br>0.011<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.0101<br>0.00398<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0018<br>0.0 | 0.0012         95% KM (BCA) UCL           0.00116         95% KM (Percentile Bootstrap) UCL           0.00115         95% KM Chebyshev UCL           0.00123         99% KM Chebyshev UCL           0.00213         99% KM Chebyshev UCL           0.00214         Detected Observations Only           0.226         Anderson-Darling GOF Test           0.742         Detected data appear Gamma Distributed at 5% Significance           0.192         Kolmogorov-Smirnov GOF           0.286         Detected Data appear Gamma Distributed at 5% Significance           "Gamma Distributed at 5% Significance Level         may be unreliable for small sample sizes           Statistics on Detected Data Only         1.069         k star (bias corrected MLE)           0.00198         Theta star (bias corrected MLE)         19.24           0.00192         nu star (bias corrected MLE)           19.24         nu star (bias corrected MLE)           0.00128         small such as <1.0, especially when the sample size is small (e.g., <15-20) |

| Approximate Chi Square Value (37.04, $\alpha$ )   |   |   |                  |
|---|---|---|------------------|
| Approximate on Square value (57.04, u)  | 24.11   | Adjusted Chi Square Value (37.04, $\beta$ )   | 23.75            |
| 95% KM Approximate Gamma UCL  | 0.00123   | 95% KM Adjusted Gamma UCL   | 0.0012           |
|   |   |   |                  |
| -   |   | etected Observations Only<br>Shapiro Wilk GOF Test  |                  |
| Shapiro Wilk Test Statistic   | 0.981   | •   | l                |
| 10% Shapiro Wilk Critical Value   | 0.859   | Detected Data appear Lognormal at 10% Significance L  | evel             |
| Lilliefors Test Statistic   | 0.129   | Lilliefors GOF Test   |                  |
| 10% Lilliefors Critical Value   | 0.252   | Detected Data appear Lognormal at 10% Significance L  | evel             |
|   |   | nal at 10% Significance Level   |                  |
| Note GOF tests r  | may be unrel  | liable for small sample sizes   |                  |
| Lognormal POS   | Statistics I  | Jsing Imputed Non-Detects   |                  |
| Mean in Original Scale  |   | Mean in Log Scale   | -7.66            |
| SD in Original Scale  | 0.00122   | SD in Log Scale   | 0.96             |
|   |   | 5   |                  |
| 95% t UCL (assumes normality of ROS data)   | 0.00112   | 95% Percentile Bootstrap UCL  | 0.001            |
| 95% BCA Bootstrap UCL   | 0.00124   | 95% Bootstrap t UCL   | 0.001            |
| 95% H-UCL (Log ROS)   | 0.00105   |   |                  |
| Statistics using KM estimates   | on Loaaed D   | ata and Assuming Lognormal Distribution   |                  |
| KM Mean (logged)  | -7.591  | KM Geo Mean   | 5.0494           |
| KM SD (logged)  | 0.82  | 95% Critical H Value (KM-Log)   | 2.17             |
| KM Standard Error of Mean (logged)  | 0.257   | 95% H-UCL (KM -Log)   |                  |
| KM SD (logged)  | 0.82  | 95% Critical H Value (KM-Log)   | 2.17             |
| KM Standard Error of Mean (logged)  | 0.257   |   | 2.17             |
|   |   |   |                  |
|   | DL/2 Sta  |   |                  |
|   |   |   |                  |
| DL/2 Normal   |   | DL/2 Log-Transformed  |                  |
| DL/2 Normal<br>Mean in Original Scale   | 9.2234E-4   | DL/2 Log-Transformed<br>Mean in Log Scale   | -7.36            |
| Mean in Original Scale<br>SD in Original Scale  | 9.2234E-4<br>0.00123  | _   |                  |
| Mean in Original Scale  |   | Mean in Log Scale   | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)   | 0.00123   | Mean in Log Scale<br>SD in Log Scale  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me   | 0.00123<br>0.00124<br>ethod, provid   | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame  | 0.00123<br>0.00124<br>ethod, provid   | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame  | 0.00123<br>0.00124<br>ethod, provid   | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis  | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>ed for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level   | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U   | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>ed for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level   | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis  | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>ed for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level   | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116  | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116  | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use<br>data were collected in a random and unbiased manner.  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116<br>ions that the<br>lata were col  | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use  | -7.36 0.71 0.001 |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distribution<br>Normal Dis<br>Suggested U<br>0.00116<br>ions that the<br>lata were col<br>using judgm   | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>ed for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use<br>data were collected in a random and unbiased manner.<br>lected from random locations.  | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116<br>ions that the<br>ata were col<br>using judgm<br>statistician to                                 | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use<br>data were collected in a random and unbiased manner.<br>lected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs. | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%  | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116<br>ions that the<br>ata were col<br>using judgm<br>statistician to                                 | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use<br>data were collected in a random and unbiased manner.<br>lected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs. | 0.71             |
| Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended me<br>Nonparame<br>Detected Data appear<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size, | 0.00123<br>0.00124<br>ethod, provid<br>tric Distributi<br>r Normal Dis<br>Suggested U<br>0.00116<br>ions that the<br>ata were col<br>using judgm<br>statistician to<br>UCL are pro<br>data distribu | Mean in Log Scale<br>SD in Log Scale<br>95% H-Stat UCL<br>led for comparisons and historical reasons<br>ion Free UCL Statistics<br>tributed at 1% Significance Level<br>JCL to Use<br>data were collected in a random and unbiased manner.<br>lected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs. | 0.71             |

|  | General        | Statistics  |           |
|--|----------------|---|-----------|
| Total Number of Observations                     | 13             | Number of Distinct Observations                             | 4         |
| Number of Detects                                | 0              | Number of Non-Detects                                       | 13        |
| Number of Distinct Detects                       | 0              | Number of Distinct Non-Detects                              | 4         |
|  | I              |   |           |
|  |                | refore all statistics and estimates should also be NDs!     |           |
|  |                | stics are also NDs lying below the largest detection limit! |           |
| The Project Team may decide to use alternative s | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV) | ).        |
| The data act for variable Q (a                   |                |   |           |
|  | groundwater    | benzidine   92-87-5) was not processed!                     |           |
|  |                |   |           |
| C (groundwater   benzo(a)anthracene   56-55-3)   |                |   |           |
|  |                |   |           |
|  | General        | Statistics  |           |
| Total Number of Observations                     | 43             | Number of Distinct Observations                             | 18        |
| Number of Detects                                | 4              | Number of Non-Detects                                       | 39        |
| Number of Distinct Detects                       | 4              | Number of Distinct Non-Detects                              | 14        |
| Minimum Detect                                   | 3.8000E-5      | Minimum Non-Detect  | 9.2167E-5 |
| Maximum Detect                                   | 1.1050E-4      | Maximum Non-Detect  | 0.0056    |
| Variance Detects                                 | 1.0262E-9      | Percent Non-Detects   | 90.7%     |
| Mean Detects                                     | 6.4375E-5      | SD Detects  | 3.2035E-5 |
| Median Detects                                   | 5.4500E-5      | CV Detects  | N/A       |
| Skewness Detects                                 | 1.543          | Kurtosis Detects  | 2.536     |
| Mean of Logged Detects                           | -9.733         | SD of Logged Detects  | 0.455     |
|  |                |   |           |
| Norn   | nal GOF Tes    | t on Detects Only   |           |
| Shapiro Wilk Test Statistic                      | 0.867          | Shapiro Wilk GOF Test                                       |           |
| 1% Shapiro Wilk Critical Value                   | 0.687          | Detected Data appear Normal at 1% Significance Lev          | vel       |
| Lilliefors Test Statistic                        | 0.304          | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value                     | 0.413          | Detected Data appear Normal at 1% Significance Lev          | vel       |
| Detected Data                                    | appear Norm    | nal at 1% Significance Level                                |           |
| Note GOF tests                                   | may be unre    | liable for small sample sizes                               |           |
|  |                |   |           |
|  | -              | ritical Values and other Nonparametric UCLs                 |           |
|  | 5.9250E-5      | KM Standard Error of Mean                                   |           |
|  | 2.4342E-5      | 95% KM (BCA) UCL  | N/A       |
| 95% KM (t) UCL                                   |                | 95% KM (Percentile Bootstrap) UCL                           | N/A       |
| 95% KM (z) UCL                                   |                | 95% KM Bootstrap t UCL                                      | N/A       |
| 90% KM Chebyshev UCL                             |                | 95% KM Chebyshev UCL  |           |
| 97.5% KM Chebyshev UCL                           | 1.3357E-4      | 99% KM Chebyshev UCL  | 1.7766E-4 |
|  |                |   |           |
|  |                | etected Observations Only                                   |           |
| A-D Test Statistic                               |                | Anderson-Darling GOF Test                                   |           |
| 5% A-D Critical Value                            |                | Detected data appear Gamma Distributed at 5% Significant    | ce Level  |
| K-S Test Statistic                               |                | Kolmogorov-Smirnov GOF                                      |           |
| 5% K-S Critical Value                            | 0.396          | Detected data appear Gamma Distributed at 5% Significant    | ce Level  |

| Detected data appear                            | Gamma Di      | stributed at 5% Significance Level                              |           |
|---|---------------|---|-----------|
| Note GOF tests                                  | may be unre   | eliable for small sample sizes                                  |           |
|   |               |   |           |
|   |               | n Detected Data Only  |           |
| k hat (MLE)                                     | 6.22          | k star (bias corrected MLE)                                     | 1.722     |
| Theta hat (MLE)                                 |               | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                                    | 49.76         | nu star (bias corrected)  | 13.77     |
| Mean (detects)                                  | 6.43/5E-5     |   |           |
| Gamma ROS                                       | Statistics u  | sing Imputed Non-Detects  |           |
|   |               | 6 NDs with many tied observations at multiple DLs               |           |
| GROS may not be used when kstar of detects is a | small such a  | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
| For such situations, GROS                       | nethod may    | yield incorrect values of UCLs and BTVs                         |           |
| This is especi                                  | ally true whe | en the sample size is small.                                    |           |
| For gamma distributed detected data, BTVs a     | nd UCLs ma    | y be computed using gamma distribution on KM estimates          |           |
| Minimum   | 3.8000E-5     | Mean  | 0.00908   |
| Maximum   | 0.01          | Median  | 0.01      |
| SD  | 0.00292       | CV  | 0.322     |
| k hat (MLE)                                     | 1.46          | k star (bias corrected MLE)                                     | 1.374     |
| Theta hat (MLE)                                 | 0.00622       | Theta star (bias corrected MLE)                                 | 0.00661   |
| nu hat (MLE)                                    | 125.5         | nu star (bias corrected)  | 118.1     |
| Adjusted Level of Significance (β)              | 0.0444        |   |           |
| Approximate Chi Square Value (118.12, α)        | 94.03         | Adjusted Chi Square Value (118.12, β)                           | 93.28     |
| 95% Gamma Approximate UCL                       | 0.0114        | 95% Gamma Adjusted UCL  | N/A       |
|   |               |   |           |
|   |               | meters using KM Estimates                                       |           |
| Mean (KM)                                       |               |   | 2.4342E-5 |
| Variance (KM)                                   |               | SE of Mean (KM)   |           |
| k hat (KM)                                      | 5.925         | k star (KM)   | 5.527     |
| nu hat (KM)                                     |               | nu star (KM)<br>theta star (KM)                                 |           |
| theta hat (KM)<br>80% gamma percentile (KM)     |               | 90% gamma percentile (KM)                                       |           |
| 95% gamma percentile (KM)                       |               | 99% gamma percentile (KM)                                       |           |
|   | 1.0000L-4     |   | 1.0200E-4 |
| Gamm  | a Kaplan-M    | eier (KM) Statistics  |           |
| Approximate Chi Square Value (475.31, α)        | 425.8         | Adjusted Chi Square Value (475.31, β)                           | 424.1     |
| 95% KM Approximate Gamma UCL                    |               | 95% KM Adjusted Gamma UCL                                       |           |
|   |               |   |           |
| Lognormal GC                                    | F Test on D   | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic                     | 0.947         | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value                 | 0.792         | Detected Data appear Lognormal at 10% Significance              | Level     |
| Lilliefors Test Statistic                       | 0.239         | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value                   | 0.346         | Detected Data appear Lognormal at 10% Significance              | Level     |
| Detected Data ap                                | pear Lognor   | mal at 10% Significance Level                                   |           |
| Note GOF tests                                  | may be unre   | eliable for small sample sizes                                  |           |
|   |               |   |           |
|   |               | Using Imputed Non-Detects                                       |           |
| Mean in Original Scale                          | 5.8077E-5     | Mean in Log Scale   | -9.813    |

| SD in Original Scale  |  |  | 0.045   |
|---|--|--|---|
| 95% t UCL (assumes normality of ROS data)   |  | SD in Log Scale<br>95% Percentile Bootstrap UCL  | 0.345   |
| 95% FOCE (assumes normality of ROS data)<br>95% BCA Bootstrap UCL   |  | 95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL  |   |
| 95% H-UCL (Log ROS)   |  | 95 % Bootstrap t OCL   | 0.4451E-5   |
|   |  |  |   |
| -   |  | a and Assuming Lognormal Distribution  |   |
| KM Mean (logged)  | -9.803   | KM Geo Mean  |   |
| KM SD (logged)  | 0.353  | 95% Critical H Value (KM-Log)  | 1.808   |
| KM Standard Error of Mean (logged)  | 0.179  | 95% H-UCL (KM -Log)  |   |
| KM SD (logged)  |  | 95% Critical H Value (KM-Log)  | 1.808   |
| KM Standard Error of Mean (logged)  | 0.179  |  |   |
| Note: KM UCLs may be biased low   | v with this datase   | et. Other substitution method recommended  |   |
|   | DL/2 Statis  | stics  |   |
| DL/2 Normal   |  | DL/2 Log-Transformed   |   |
| Mean in Original Scale  | 9.2365E-4  | Mean in Log Scale  | -7.782  |
| SD in Original Scale  | 0.00106  | SD in Log Scale  | 1.34  |
| 95% t UCL (Assumes normality)   | 0.0012   | 95% H-Stat UCL   | 0.00182   |
| DL/2 is not a recommended m   | ethod, provided  | for comparisons and historical reasons   |   |
|   |  |  |   |
| Nonparame   | etric Distribution   | Free UCL Statistics  |   |
| Detected Data appea   | ar Normal Distrib  | outed at 1% Significance Level   |   |
|   |  |  |   |
|   | Suggested UC   | L to Use   |   |
| 95% KM (t) UCL  | 7.9267E-5  |  |   |
|   |  |  |   |
| Note: Suggestions reporting the selection of a 050  |  |  |   |
|   |  | led to help the user to select the most appropriate 95% UCL  |   |
| Recommendations are based upon data size  | , data distribution  | n, and skewness using results from simulation studies.   |   |
| Recommendations are based upon data size  | , data distribution  |  |   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | , data distribution  | n, and skewness using results from simulation studies.   |   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W  | , data distribution  | n, and skewness using results from simulation studies.   |   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   benzo(a)pyrene   50-32-8)  | , data distributior<br>/orld data sets; fo<br>General Stat   | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics  | an.   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations  | , data distributior<br>Vorld data sets; fo<br>General Stat<br>43   | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations   | an.<br>18   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects   | , data distributior<br>/orld data sets; fo<br>General Stat<br>43<br>7  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects  | an.<br>18<br>36   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | , data distribution<br>Vorld data sets; fo<br>General Stat<br>43<br>7<br>7<br>7  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | an.<br>18<br>36<br>11   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | , data distribution<br>/orld data sets; fo<br>General Stat<br>43<br>7<br>7<br>2.2000E-5  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects  | an.<br>18<br>36<br>11<br>5.0000E-4  |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | , data distribution<br>/orld data sets; fo<br>General Stat<br>43<br>7<br>7<br>2.2000E-5  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | an.<br>18<br>36<br>11   |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect   | , data distribution<br>Vorld data sets; for<br>General Stat<br>43<br>7<br>7<br>2.2000E-5<br>7.2500E-5  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056  |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect   | , data distributior         /orld data sets; fr         General Stat         43         7         2.2000E-5         7.2500E-5         3.555E-10  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect  | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.729  |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects   | , data distributior         /orld data sets; fr         General Stat         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>Percent Non-Detects  | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.729<br>1.8854E-5<br>N/A                    |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects   | , data distribution<br>/orld data sets; fo<br>General Stat<br>43<br>7<br>7<br>2.2000E-5<br>7.2500E-5<br>3.555E-10<br>4.8786E-5   | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.72%<br>1.8854E-5                           |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects<br>Variance Detects<br>Mean Detects  | , data distributior         /orld data sets; fr         General Stat         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5  | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.729<br>1.8854E-5<br>N/A                    |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects           | , data distributior         /orld data sets; for         /orld data sets; for         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5         -0.471         -10.01 | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.72%<br>1.8854E-5<br>N/A<br>-1.118          |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm                               | , data distribution         /orld data sets; for         General State         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5         -0.471         -10.01        | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.72%<br>1.8854E-5<br>N/A<br>-1.118          |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Maximum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm | , data distribution         /orld data sets; for         General Stat         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5         -0.471         -10.01         | n, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistician<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>SD Detects<br>CV Detects<br>SD of Logged Detects<br>ND Detects<br>SD of Logged Detects | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.72%<br>1.8854E-5<br>N/A<br>-1.118<br>0.457 |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   benzo(a)pyrene   50-32-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects<br>Norm                               | , data distribution         /orld data sets; for         General State         43         7         2.2000E-5         7.2500E-5         3.555E-10         4.8786E-5         5.4000E-5         -0.471         -10.01        | n, and skewness using results from simulation studies.<br>For additional insight the user may want to consult a statisticity<br>tistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects<br>CV Detects<br>SD of Logged Detects   | an.<br>18<br>36<br>11<br>5.0000E-4<br>0.0056<br>83.72%<br>1.8854E-5<br>N/A<br>-1.118<br>0.457 |

| 1% Lilliefors Critical Value                  | 0.35           | Detected Data appear Normal at 1% Significance Le               | vol       |
|---|----------------|---|-----------|
|   |                | nal at 1% Significance Level                                    | vei       |
|   |                | eliable for small sample sizes                                  |           |
|   | may be unit    |   |           |
| Konlan Majar (KM) Statistics us               | na Narmal C    | vision Values and other Newsersotric LICLs                      |           |
|   | 4.8786E-5      | critical Values and other Nonparametric UCLs                    | 7 10005 0 |
|   | 4.8786E-5      | KM Standard Error of Mean                                       |           |
|   |                | 95% KM (BCA) UCL  |           |
| 95% KM (t) UCL                                |                | 95% KM (Percentile Bootstrap) UCL                               |           |
| 95% KM (z) UCL                                |                | 95% KM Bootstrap t UCL  |           |
| 90% KM Chebyshev UCL                          |                | 95% KM Chebyshev UCL  |           |
| 97.5% KM Chebyshev UCL                        |                | 99% KM Chebyshev UCL  | 1.1969E-4 |
| Note: KM UCLs may be biased lov               | v with this da | taset. Other substitution method recommended                    |           |
|   |                |   |           |
|   |                | etected Observations Only                                       |           |
| A-D Test Statistic                            | -              | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                         | 0.709          | Detected data appear Gamma Distributed at 5% Significar         | nce Level |
| K-S Test Statistic                            | 0.224          | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                         | 0.313          | Detected data appear Gamma Distributed at 5% Significar         | nce Level |
| Detected data appea                           | r Gamma Di     | stributed at 5% Significance Level                              |           |
| Note GOF tests                                | may be unre    | eliable for small sample sizes                                  |           |
|   |                |   |           |
| Gamma   | Statistics or  | n Detected Data Only  |           |
| k hat (MLE)                                   | 6.415          | k star (bias corrected MLE)                                     | 3.761     |
| Theta hat (MLE)                               | 7.6055E-6      | Theta star (bias corrected MLE)                                 | 1.2973E-5 |
| nu hat (MLE)                                  | 89.8           | nu star (bias corrected)  | 52.65     |
| Mean (detects)                                | 4.8786E-5      |   |           |
|   |                |   |           |
| Gamma ROS                                     | Statistics u   | sing Imputed Non-Detects  |           |
| GROS may not be used when data s              | et has > 50%   | 6 NDs with many tied observations at multiple DLs               |           |
| GROS may not be used when kstar of detects is | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
| For such situations, GROS                     | method may     | yield incorrect values of UCLs and BTVs                         |           |
| This is espec                                 | ially true whe | en the sample size is small.                                    |           |
| For gamma distributed detected data, BTVs a   | and UCLs ma    | by be computed using gamma distribution on KM estimates         |           |
| Minimum                                       | 2.2000E-5      | Mean  | 0.00838   |
| Maximum                                       | 0.01           | Median  | 0.01      |
| SD  | 0.00372        | CV  | 0.444     |
| k hat (MLE)                                   |                | k star (bias corrected MLE)                                     | 0.796     |
| Theta hat (MLE)                               | 0.00999        | Theta star (bias corrected MLE)                                 | 0.0105    |
| nu hat (MLE)                                  |                | nu star (bias corrected)  | 68.47     |
| Adjusted Level of Significance (β)            |                |   |           |
| Approximate Chi Square Value (68.47, α)       |                | Adjusted Chi Square Value (68.47, β)                            | 49.89     |
| 95% Gamma Approximate UCL                     | 0.0114         | 95% Gamma Adjusted UCL  | 0.0115    |
|   |                |   | 5.0110    |
| Estimates of (                                | amma Para      | meters using KM Estimates                                       |           |
|   | 4.8786E-5      | -   | 1.7456E-5 |
| Variance (KM)                                 |                | SD (KM)<br>SE of Mean (KM)                                      |           |
| k hat (KM)                                    |                | k star (KM)   | 7.1263E-6 |
|   |                |   |           |
| nu hat (KM)                                   | 671.7          | nu star (KM)  | 626.2     |

| -                 |   |   |
|-------------------|---|---|
| (M) 8.1821E-5     | 99% gamma percentile (KM)   | 1.0034E-4   |
| ımma Kaplan-Me    | eier (KM) Statistics  |   |
| , α) 569.2        | Adjusted Chi Square Value (626.21, β)   | 567.3   |
| JCL 5.3676E-5     | 95% KM Adjusted Gamma UCL   | 5.3854E-5   |
| low with this day | taset. Other substitution method recommended  |   |
| GOF Test on D     | etected Observations Only   |   |
|                   | -   |   |
|                   | -   | aval  |
|                   |   | evei  |
|                   |   | ovol  |
|                   |   | evei  |
|                   | -   |   |
|                   |   |   |
| ROS Statistics l  | Using Imputed Non-Detects   |   |
| ale 4.8604E-5     | Mean in Log Scale   | -10.01  |
| ale 1.9539E-5     | SD in Log Scale   | 0.399   |
| ata) 5.3615E-5    | 95% Percentile Bootstrap UCL  | 5.3608E-  |
| JCL 5.4028E-5     | 95% Bootstrap t UCL   | 5.4270E-  |
| OS) 5.4589E-5     |   |   |
| ates on Logged [  | Data and Assuming Lognormal Distribution  |   |
|                   |   | 4.5036E-5   |
| -                 |   | 1.848   |
|                   |   |   |
| -                 |   | 1.848   |
|                   |   | 1.040   |
|                   | taset. Other substitution method recommended  |   |
|                   |   |   |
| DL/2 St           |   |   |
|                   |   |   |
|                   |   | -7.827  |
|                   |   | 1.413   |
| 57                |   | 0.0020  |
| d method, provid  | ded for comparisons and historical reasons  |   |
| ametric Distribut | tion Free UCL Statistics  |   |
|                   |   |   |
| Suggested         |   |   |
| JCL 6.0772E-5     |   |   |
|                   |   |   |
|                   |   |   |
| 95% UCL are pro   | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   |   |
|                   | , α)       569.2         JCL       5.3676E-5         Iow with this da         GOF Test on D         stic       0.873         alue       0.838         stic       0.233         alue       0.28         a appear Lognor         ststs may be unree         ROS Statistics         sale       4.8604E-5         cale       1.9539E-5         atal       5.3615E-5         JCL       5.4028E-5         DL       5.4589E-5         atal       0.173         ed)       0.173         ed)       0.173         aed)       0.173         aed)       0.173         aed)       0.173         aed)       0.173         aed)       0.173         aed)       0.1010         aed)       0.0106         lity)       0.00119         d       method, provid | KM)       6.2995E-5       90% gamma percentile (KM)         KM)       8.1821E-5       99% gamma percentile (KM)         Immark       Kaplan-Meier (KM) Statistics       99% gamma percentile (KM)         Immark       Kaplan-Meier (KM) Statistics       95% KM Adjusted Gamma UCL         ICL       5.3676E-5       95% KM Adjusted Gamma UCL         IOW with this dataset. Other substitution method recommended       0.873       Shapiro Wilk GOF Test         Idue       0.838       Detected Data appear Lognormal at 10% Significance Level         stic       0.233       Lilliefors GOF Test         Idue       0.28       Detected Data appear Lognormal at 10% Significance Level         ststs may be unreliable for small sample sizes       Statistics         ROS       Statistics Using Imputed Non-Detects         rate       1.8604E-5       Mean in Log Scale         rate       1.539E-5       SD in Log Scale         rate       1.539E-5       95% Percentile Bootstrap UCL         OL       5.4028E-5       95% Critical H Value (KM-Log)         red       0.423       95% Critical H Value (KM-Log)         red       0.173       95% Critical H Value (KM-Log)         red       0.173       95% Critical H Value (KM-Log)         red       0.173 </td |

| C (groundwater   benzo(b)fluoranthene   205-99-2)                                    |   |   |                   |
|--|---|---|-------------------|
|  | General   | Statistics  |                   |
| Total Number of Observations   | 43  | Number of Distinct Observations   | 18                |
| Number of Detects  | 43  | Number of Non-Detects   | 42                |
| Number of Distinct Detects   | 1   | Number of Non-Detects   | 42                |
|  | I   |   | 17                |
| Warning: Only one distinct data value was detecte                                    | d! ProUCL (   | (or any other software) should not be used on such a data set   | 1                 |
| It is suggested to use alternative site specific values determ                       | nined by the  | Project Team to estimate environmental parameters (e.g., El   | PC, BTV).         |
| The data set for variable C (groundw   | vater   benzo   | o(b)fluoranthene   205-99-2) was not processed!   |                   |
| C (groundwater   benzo(e)pyrene   192-97-2)  |   |   |                   |
|  | General   | Statistics  |                   |
| Total Number of Observations   | 7   | Number of Distinct Observations   | 7                 |
| Number of Detects  | 2   | Number of Non-Detects   | 5                 |
| Number of Distinct Detects   | 2   | Number of Distinct Non-Detects  | 5                 |
| Minimum Detect   | 3.0000E-5   | Minimum Non-Detect  | 9.2167E-5         |
| Maximum Detect   |   | Maximum Non-Detect  | 1.0917E-4         |
| Variance Detects   | 4.3245E-9   | Percent Non-Detects   | 71.43%            |
| Mean Detects   | 7.6500E-5   | SD Detects  | 6.5761E-5         |
| Median Detects   | 7.6500E-5   | CV Detects  | N/A               |
| Skewness Detects   | N/A   | Kurtosis Detects  | N/A               |
| Mean of Logged Detects   | -9.709  | SD of Logged Detects  | 0.998             |
| Warning: Da  | ata set has o   | only 2 Detected Values.   |                   |
|  |   | gful or reliable statistics and estimates.  |                   |
|  |   | -   |                   |
|  |   |   |                   |
| Note: Sample size is small (e.g., <10), if data a                                    | re collected  | using incremental sampling methodology (ISM) approach,  |                   |
| refer also to ITRC Tech Reg Guide o  | on ISM (ITR   | C 2020 and ITRC 2012) for additional guidance,  |                   |
| but note that ITRC may recommend the   | e t-UCL or t  | he Chebyshev UCL for small sample sizes (n < 7).  |                   |
| The Chebyshev UCL of   | ften results i  | n gross overestimates of the mean.  |                   |
| Refer to the ProUCL 5.2 Tech   | hnical Guide  | e for a discussion of the Chebyshev UCL.  |                   |
|  |   |   |                   |
| Norma  | al GOF Tes  | t on Detects Only   |                   |
|  |   | t on Detects Only<br>Perform GOF Test   |                   |
| Not Eno  | ough Data to  | Perform GOF Test  |                   |
| Not Eno<br>Kaplan-Meier (KM) Statistics usin   | ough Data to<br>ng Normal C                                     | Perform GOF Test ritical Values and other Nonparametric UCLs  | 1.7395E-!         |
| Not Eno<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean                              | ng Normal C<br>4.3286E-5  | Perform GOF Test ritical Values and other Nonparametric UCLs KM Standard Error of Mean  |                   |
| Not Eno<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD                   | ng Normal C<br>4.3286E-5<br>3.2543E-5                           | ritical Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL                                      | N/A               |
| Not Eno<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL | ng Normal C<br>4.3286E-5<br>3.2543E-5<br>7.7087E-5              | ritical Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL | N/A<br>N/A        |
| Not Eno<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD                   | ng Normal C<br>4.3286E-5<br>3.2543E-5<br>7.7087E-5<br>7.1898E-5 | ritical Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL                                      | N/A<br>N/A<br>N/A |

|  | Tests on Detected C   |  |   |
|--|---|--|---|
| Not Enc  | ough Data to Perforn  | 1 GOF Test   |   |
| Commo  | Statiation on Datasta   | ad Data Only   |   |
| k hat (MLE)  | Statistics on Detecte   | k star (bias corrected MLE)  | N/A   |
| Theta hat (MLE)  |   | Theta star (bias corrected MLE)  | N/A   |
| nu hat (MLE)   | 9.285   | nu star (bias corrected MEL)   | N/A   |
| Mean (detects)   |   |  |   |
|  |   |  |   |
| Estimates of Ga  | amma Parameters u   | sing KM Estimates  |   |
| Mean (KM)  |   | SD (KM)  | 3.2543E-  |
| Variance (KM)  |   | SE of Mean (KM)  |   |
| k hat (KM)   | 1.769   | k star (KM)  | 1.106   |
| nu hat (KM)  | 24.77   | nu star (KM)   | 15.49   |
| theta hat (KM)   | 2.4467E-5   | theta star (KM)  | 3.9130E-  |
| 80% gamma percentile (KM)  | 6.9064E-5   | 90% gamma percentile (KM)  |   |
| 95% gamma percentile (KM)  | 1.2515E-4   | 99% gamma percentile (KM)  | 1.8954E-  |
|  |   |  |   |
| Gamma  | a Kaplan-Meier (KM  | ) Statistics   |   |
|  |   | Adjusted Level of Significance (β)   | 0.0158  |
| Approximate Chi Square Value (15.49, $\alpha$ )  | 7.601   | Adjusted Chi Square Value (15.49, β)   | 6.012   |
|  |   |  |   |
| 95% KM Approximate Gamma UCL   | 8.8189E-5<br>F Test on Detected (<br>ough Data to Perform   | •  | 1.1150E-  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc  | F Test on Detected ough Data to Perforn   | Observations Only<br>n GOF Test  | 1.1150E-  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS   | F Test on Detected o<br>bugh Data to Perforn<br>S Statistics Using Im   | Observations Only<br>n GOF Test<br>puted Non-Detects   |   |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale   | F Test on Detected o<br>bugh Data to Perforn<br>S Statistics Using Im<br>4.3286E-5  | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale  | -10.21  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale   | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5  | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale   | -10.21  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5   | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL  | -10.21<br>0.533<br>N/A  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL   | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A  | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale   | -10.21  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A  | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL  | -10.21<br>0.533<br>N/A  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A<br>7.3415E-5   | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL  | -10.21<br>0.533<br>N/A  |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A<br>7.3415E-5   | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL  | -10.21<br>0.533<br>N/A<br>N/A   |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A<br>7.3415E-5<br>on Logged Data and   | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL   | -10.21<br>0.533<br>N/A<br>N/A   |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)  | F Test on Detected of<br>bugh Data to Perform<br>S Statistics Using Im<br>4.3286E-5<br>3.5151E-5<br>6.9102E-5<br>N/A<br>7.3415E-5<br>on Logged Data and<br>-10.21   | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL   | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45   |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)  | F Test on Detected of bugh Data to Perform           S Statistics Using Im           4.3286E-5           3.5151E-5           6.9102E-5           N/A           7.3415E-5           on Logged Data and           -10.21           0.494  | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL   | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45   |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)  | F Test on Detected of bugh Data to Perform           S Statistics Using Im           4.3286E-5           3.5151E-5           6.9102E-5           N/A           7.3415E-5           on Logged Data and           -10.21           0.494           0.264  | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL  | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-                             |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)   | F Test on Detected (         bugh Data to Perform         S Statistics Using Im         4.3286E-5         3.5151E-5         6.9102E-5         N/A         7.3415E-5         on Logged Data and         -10.21         0.494         0.264         0.494         0.264   | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL  | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-                             |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)   | F Test on Detected of pugh Data to Perform         S Statistics Using Im         4.3286E-5         3.5151E-5         6.9102E-5         N/A         7.3415E-5         on Logged Data and         -10.21         0.494         0.264         0.494  | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL<br>I Assuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)   | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-                             |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)  | F Test on Detected (         bugh Data to Perform         S Statistics Using Im         4.3286E-5         3.5151E-5         6.9102E-5         N/A         7.3415E-5         on Logged Data and         -10.21         0.494         0.264         0.494         0.264   | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL<br>1<br>Assuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)  | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-<br>2.45                     |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Description<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged) | F Test on Detected of pugh Data to Perform         S Statistics Using Im         4.3286E-5         3.5151E-5         6.9102E-5         N/A         7.3415E-5         on Logged Data and         -10.21         0.494         0.264         0.494         0.264         DL/2 Statistics         5.8969E-5                          | Observations Only<br>n GOF Test<br>aputed Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL<br>1<br>Assuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log) | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-<br>2.45<br>6.7934E-<br>2.45 |
| 95% KM Approximate Gamma UCL<br>Lognormal GO<br>Not Enc<br>Lognormal ROS<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates of<br>KM Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)<br>KM SD (logged)<br>KM Standard Error of Mean (logged)  | F Test on Detected (         bugh Data to Perform         S Statistics Using Im         4.3286E-5         3.5151E-5         6.9102E-5         N/A         7.3415E-5         on Logged Data and         -10.21         0.494         0.264         0.494         0.264         DL/2 Statistics         5.8969E-5         2.9526E-5 | Observations Only<br>n GOF Test<br>puted Non-Detects<br>Mean in Log Scale<br>SD in Log Scale<br>95% Percentile Bootstrap UCL<br>95% Bootstrap t UCL<br>95% Bootstrap t UCL<br>1<br>Assuming Lognormal Distribution<br>KM Geo Mean<br>95% Critical H Value (KM-Log)<br>95% H-UCL (KM -Log)<br>95% Critical H Value (KM-Log)<br>95% Critical H Value (KM-Log)  | -10.21<br>0.533<br>N/A<br>N/A<br>3.6700E-<br>2.45<br>6.7934E-<br>2.45<br>6.7934E-<br>2.45 |

| Nonparame   | ot follow a Discerr   |  |   |
|---|---|--|---|
| Data do n   | lot follow a Discerr  |  |   |
|   | Suggested UCL to  | o Use  |   |
| Recommendation cannot be provided   |   |  |   |
| Recommendations are based upon data size  | , data distribution, a  | I to help the user to select the most appropriate 95% UCL<br>and skewness using results from simulation studies.<br>additional insight the user may want to consult a statistici   |   |
| proundwater   benzo(g,h,i)perylene   191-24-2)  |   |  |   |
|   | General Statist   | ine  |   |
| Total Number of Observations  |   | Number of Distinct Observations  | 18  |
| Number of Detects   |   | Number of Non-Detects  | 41  |
| Number of Distinct Detects  |   | Number of Distinct Non-Detects   | 16  |
| Minimum Detect  | _   | Minimum Non-Detect   |   |
| Maximum Detect  |   | Maximum Non-Detect   | 0.0056                                      |
| Variance Detects  |   | Percent Non-Detects  | 95.35                                       |
| Mean Detects  |   | SD Detects   |   |
| Median Detects  |   | CV Detects   | N/A   |
| Skewness Detects  |   | Kurtosis Detects   | N/A   |
|   |   |  |   |
| Mean of Logged Detects  | -9.293  | SD of Logged Detects   | 0.252                                       |
| Mean of Logged Detects  | -9.293  | SD of Logged Detects   | 0.252                                       |
|   | -9.293  |  | 0.252                                       |
| Warning: D  | Pata set has only 2   |  | 0.252                                       |
| Warning: D  | Pata set has only 2   | Detected Values.   | 0.252                                       |
| Warning: D<br>This is not enough to comp  | Pata set has only 2   | Detected Values.<br>reliable statistics and estimates.   | 0.252                                       |
| Warning: D<br>This is not enough to comp<br>Norm  | ata set has only 2<br>pute meaningful or  | Detected Values.<br>reliable statistics and estimates.<br>etects Only  | 0.252                                       |
| Warning: D<br>This is not enough to comp<br>Norm  | ata set has only 2<br>pute meaningful or<br>nal GOF Test on D   | Detected Values.<br>reliable statistics and estimates.<br>etects Only  | 0.252                                       |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End   | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfo  | Detected Values.<br>reliable statistics and estimates.<br>etects Only  | 0.252                                       |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean   | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfo<br>ng Normal Critical<br>9.3500E-5   | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test  |   |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean   | pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfo  | Detected Values. reliable statistics and estimates. etects Only orm GOF Test Values and other Nonparametric UCLs   |   |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean   | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfo<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5  | Detected Values. reliable statistics and estimates. etects Only orm GOF Test Values and other Nonparametric UCLs KM Standard Error of Mean   | 1.6500E-                                    |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4  | Detected Values. reliable statistics and estimates. etects Only orm GOF Test Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL  | 1.6500E-<br>N/A                             |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL<br>90% KM Chebyshev UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4  | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL   | 1.6500E<br>N/A<br>N/A<br>N/A<br>1.6542E     |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not Eno<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4  | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL   | 1.6500E-<br>N/A<br>N/A<br>N/A<br>1.6542E-   |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4<br>Tests on Detected  | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL   | 1.6500E<br>N/A<br>N/A<br>N/A<br>1.6542E     |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4   | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL   | 1.6500E<br>N/A<br>N/A<br>N/A<br>1.6542E     |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4<br>Tests on Detected  | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL   | 1.6500E<br>N/A<br>N/A<br>N/A<br>1.6542E     |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4<br>Tests on Detected<br>ough Data to Perfor<br>Statistics on Detected                       | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL   | 1.6500E<br>N/A<br>N/A<br>N/A<br>1.6542E     |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF<br>Not End  | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>ng Normal Critical<br>9.3500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4<br>Tests on Detected<br>ough Data to Perfor<br>Statistics on Detected<br>31.77     | Detected Values.<br>reliable statistics and estimates.<br>etects Only<br>orm GOF Test<br>Values and other Nonparametric UCLs<br>KM Standard Error of Mean<br>95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL<br>95% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>99% KM Chebyshev UCL<br>90% Chebyshev UCL                    | 1.6500E<br>N/A<br>N/A<br>1.6542E<br>2.5767E |
| Warning: D<br>This is not enough to comp<br>Norm<br>Not End<br>Kaplan-Meier (KM) Statistics usin<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (t) UCL<br>95% KM (z) UCL<br>95% KM (z) UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>97.5% KM Chebyshev UCL<br>Gamma GOF<br>Not End<br>K hat (MLE) | Pata set has only 2<br>pute meaningful or<br>nal GOF Test on D<br>ough Data to Perfor<br>9.3500E-5<br>1.6500E-5<br>1.2125E-4<br>1.2064E-4<br>1.4300E-4<br>1.9654E-4<br>Tests on Detected<br>ough Data to Perfor<br>Statistics on Detected<br>31.77<br>2.9426E-6 | Detected Values. reliable statistics and estimates. etects Only orm GOF Test Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL 95% KM Bootstrap t UCL 95% KM Chebyshev UCL 95% KM Chebyshev UCL 99% KM Chebyshev UCL 99% KM Chebyshev UCL 4 Observations Only orm GOF Test cted Data Only k star (bias corrected MLE) | 1.6500E<br>N/A<br>N/A<br>1.6542E<br>2.5767E |

| Estimates of Gamma Parameters using KM Estimates   |                 |   |           |  |  |
|--|-----------------|---|-----------|--|--|
| Mean (KM)  | 9.3500E-5       | SD (KM)   | 1.6500E-5 |  |  |
| Variance (KM)  | 2.723E-10       | SE of Mean (KM)   | 1.6500E-5 |  |  |
| k hat (KM)   | 32.11           | k star (KM)   | 29.89     |  |  |
| nu hat (KM)  | 2762            | nu star (KM)  | 2570      |  |  |
| theta hat (KM)   | 2.9118E-6       | theta star (KM)   | 3.1285E-6 |  |  |
| 80% gamma percentile (KM)  | 1.0751E-4       | 90% gamma percentile (KM)   | 1.1598E-4 |  |  |
| 95% gamma percentile (KM)  | 1.2330E-4       | 99% gamma percentile (KM)   | 1.3782E-4 |  |  |
| Gamn   | na Kaplan-Me    | eier (KM) Statistics  |           |  |  |
|  |                 | Adjusted Level of Significance (β)                                  | 0.0444    |  |  |
| Approximate Chi Square Value (N/A, α)  | 2453            | Adjusted Chi Square Value (N/A, β)                                  | 2449      |  |  |
| 95% KM Approximate Gamma UCL   | 9.7951E-5       | 95% KM Adjusted Gamma UCL   | 9.8108E-5 |  |  |
|  |                 | etected Observations Only   |           |  |  |
| •  |                 | Perform GOF Test  |           |  |  |
|  |                 |   |           |  |  |
| Lognormal RO   | S Statistics    | Using Imputed Non-Detects   |           |  |  |
| Mean in Original Scale   |                 | Mean in Log Scale   | -9.293    |  |  |
| SD in Original Scale   |                 | SD in Log Scale   | 0.276     |  |  |
| 95% t UCL (assumes normality of ROS data)  | 1.0251E-4       | 95% Percentile Bootstrap UCL  | 1.0244E-4 |  |  |
| 95% BCA Bootstrap UCL  | 1.0330E-4       | 95% Bootstrap t UCL   | 1.0344E-4 |  |  |
| 95% H-UCL (Log ROS)  | 1.0303E-4       |   |           |  |  |
|  |                 |   |           |  |  |
| Statistics using KM estimates  | on Logged [     | Data and Assuming Lognormal Distribution                            |           |  |  |
| KM Mean (logged)   | -9.293          | KM Geo Mean   | 9.2033E-5 |  |  |
| KM SD (logged)   | 0.178           | 95% Critical H Value (KM-Log)                                       | 1.701     |  |  |
| KM Standard Error of Mean (logged)   |                 | 95% H-UCL (KM -Log)   |           |  |  |
| KM SD (logged)   |                 | 95% Critical H Value (KM-Log)                                       | 1.701     |  |  |
| KM Standard Error of Mean (logged)   |                 |   |           |  |  |
| Note: KM UCLs may be biased low  | v with this da  | taset. Other substitution method recommended                        |           |  |  |
|  | DL/2 St         | tatistics   |           |  |  |
| DL/2 Normal  |                 | DL/2 Log-Transformed  |           |  |  |
| Mean in Original Scale   | 9.2735E-4       | Mean in Log Scale   | -7.725    |  |  |
| SD in Original Scale   |                 | SD in Log Scale   | 1.253     |  |  |
| 95% t UCL (Assumes normality)  | 0.0012          | 95% H-Stat UCL  | 0.00162   |  |  |
| DL/2 is not a recommended m  | ethod, provid   | ded for comparisons and historical reasons                          | 1         |  |  |
|  |                 |   |           |  |  |
| Nonparame  | etric Distribut | tion Free UCL Statistics  |           |  |  |
| Data do n  | ot follow a D   | iscernible Distribution   |           |  |  |
|  |                 |   |           |  |  |
|  | Suggested       | UCL to Use  |           |  |  |
| 95% KM (t) UCL   |                 |   |           |  |  |
| Warning: Recomme   | nded UCL ex     | cceeds the maximum observation                                      |           |  |  |
| Note: Suggestions regarding the selection of a 05%   |                 | puided to help the user to select the most expression $0.5\%$ $100$ |           |  |  |
|  |                 | ovided to help the user to select the most appropriate 95% UCL      |           |  |  |
| Recommendations are based upon data size, data distribution, and skewness using results from simulation studies. |                 |   |           |  |  |

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

## C (groundwater | benzo(k)fluoranthene | 207-08-9) General Statistics **Total Number of Observations** 43 Number of Distinct Observations 18 Number of Detects 4 Number of Non-Detects 39 Number of Distinct Detects 4 Number of Distinct Non-Detects 14 Minimum Detect 3.6000E-5 Minimum Non-Detect 9.2167E-5 Maximum Detect 9.1500E-5 Maximum Non-Detect 0.0056 Variance Detects 5.758E-10 Percent Non-Detects 90.7% Mean Detects 5.8250E-5 SD Detects 2.3995E-5 Median Detects 5.2750E-5 **CV** Detects N/A **Skewness Detects** 1.174 Kurtosis Detects 1.416 Mean of Logged Detects 0.395 -9.811 SD of Logged Detects Normal GOF Test on Detects Only Shapiro Wilk Test Statistic 0.929 Shapiro Wilk GOF Test 1% Shapiro Wilk Critical Value 0.687 Detected Data appear Normal at 1% Significance Level Lilliefors Test Statistic 0.246 Lilliefors GOF Test 0.413 Detected Data appear Normal at 1% Significance Level 1% Lilliefors Critical Value Detected Data appear Normal at 1% Significance Level Note GOF tests may be unreliable for small sample sizes Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs KM Mean 5.8250E-5 KM Standard Error of Mean 1.1997E-5 90KM SD 2.0780E-5 95% KM (BCA) UCL N/A 95% KM (t) UCL 7.8429E-5 95% KM (Percentile Bootstrap) UCL N/A 95% KM (z) UCL 7.7984E-5 95% KM Bootstrap t UCL N/A 90% KM Chebyshev UCL 9.4242E-5 95% KM Chebyshev UCL 1.1055E-4 97.5% KM Chebyshev UCL 1.3317E-4 99% KM Chebyshev UCL 1.7762E-4 Gamma GOF Tests on Detected Observations Only A-D Test Statistic 0.246 Anderson-Darling GOF Test 5% A-D Critical Value 0.658 Detected data appear Gamma Distributed at 5% Significance Level K-S Test Statistic 0.199 Kolmogorov-Smirnov GOF 0.395 5% K-S Critical Value Detected data appear Gamma Distributed at 5% Significance Level Detected data appear Gamma Distributed at 5% Significance Level Note GOF tests may be unreliable for small sample sizes Gamma Statistics on Detected Data Only k hat (MLE) 8.499 k star (bias corrected MLE) 2.291 Theta hat (MLE) 6.8541E-6 Theta star (bias corrected MLE) 2.5422E-5 nu hat (MLE) 67.99 nu star (bias corrected) 18.33 Mean (detects) 5.8250E-5 Gamma ROS Statistics using Imputed Non-Detects GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

| GROS may not be used when kstar of detects is          | small such as  | s <1.0, especially when the sample size is small (e.g., <15-20) |           |  |  |  |  |
|--|--|---|-----------|--|--|--|--|
| For such situations, GROS                              | method may y   | vield incorrect values of UCLs and BTVs                         |           |  |  |  |  |
| This is espec  | ially true wher  | n the sample size is small.                                     |           |  |  |  |  |
| For gamma distributed detected data, BTVs a            | and UCLs may   | y be computed using gamma distribution on KM estimates          |           |  |  |  |  |
| Minimum  | 3.6000E-5  | Mean  | 0.00908   |  |  |  |  |
| Maximum  | 0.01   | Median  | 0.01      |  |  |  |  |
| SD   | 0.00292  | CV  | 0.322     |  |  |  |  |
| k hat (MLE)  | 1.435  | k star (bias corrected MLE)                                     | 1.351     |  |  |  |  |
| Theta hat (MLE)  | 0.00632  | Theta star (bias corrected MLE)                                 | 0.00672   |  |  |  |  |
| nu hat (MLE)   | 123.4  | nu star (bias corrected)  | 116.1     |  |  |  |  |
| Adjusted Level of Significance (β)                     | 0.0444   |   |           |  |  |  |  |
| Approximate Chi Square Value (116.15, α)               | 92.27  | Adjusted Chi Square Value (116.15, $\beta$ )                    | 91.53     |  |  |  |  |
| 95% Gamma Approximate UCL                              | 0.0114   | 95% Gamma Adjusted UCL  | N/A       |  |  |  |  |
|  |  |   |           |  |  |  |  |
|  |  | neters using KM Estimates                                       | <u> </u>  |  |  |  |  |
| Mean (KM)  |  |   | 2.0780E-5 |  |  |  |  |
| Variance (KM)  |  | SE of Mean (KM)   |           |  |  |  |  |
| k hat (KM)   |  | k star (KM)   | 7.325     |  |  |  |  |
| nu hat (KM)  |  | nu star (KM)  | 630       |  |  |  |  |
| theta hat (KM)   |  | theta star (KM)   |           |  |  |  |  |
| 80% gamma percentile (KM)<br>95% gamma percentile (KM) |  | 90% gamma percentile (KM)<br>99% gamma percentile (KM)          |           |  |  |  |  |
| 95% gamma percentile (KM)                              | 9.7507E-5  | 99% gamma percentile (KM)                                       | 1.1959E-4 |  |  |  |  |
| Gamm   | a Kanlan Me  | er (KM) Statistics  |           |  |  |  |  |
| Approximate Chi Square Value (629.95, α)               |  | Adjusted Chi Square Value (629.95, β)                           | 570.8     |  |  |  |  |
| 95% KM Approximate Gamma UCL                           |  | 95% KM Adjusted Gamma UCL                                       |           |  |  |  |  |
|  | 0.40702.0  |   | 0.42022 0 |  |  |  |  |
| Lognormal GC   | OF Test on De  | etected Observations Only                                       |           |  |  |  |  |
| Shapiro Wilk Test Statistic                            | 0.983  | Shapiro Wilk GOF Test   |           |  |  |  |  |
| 10% Shapiro Wilk Critical Value                        | 0.792  | Detected Data appear Lognormal at 10% Significance I            | Level     |  |  |  |  |
| Lilliefors Test Statistic                              | 0.185  | Lilliefors GOF Test   |           |  |  |  |  |
| 10% Lilliefors Critical Value                          | 0.346  | Detected Data appear Lognormal at 10% Significance I            | Level     |  |  |  |  |
| Detected Data ap                                       | pear Lognorn   | nal at 10% Significance Level                                   |           |  |  |  |  |
| Note GOF tests   | may be unrel   | liable for small sample sizes                                   |           |  |  |  |  |
|  |  |   |           |  |  |  |  |
| Lognormal RO   | S Statistics U   | Jsing Imputed Non-Detects                                       |           |  |  |  |  |
| Mean in Original Scale                                 | 5.8767E-5  | Mean in Log Scale   | -9.811    |  |  |  |  |
| SD in Original Scale                                   | 2.3066E-5  | SD in Log Scale   | 0.374     |  |  |  |  |
| 95% t UCL (assumes normality of ROS data)              |  | 95% Percentile Bootstrap UCL                                    |           |  |  |  |  |
| 95% BCA Bootstrap UCL                                  |  | 95% Bootstrap t UCL   | 6.5707E-5 |  |  |  |  |
| 95% H-UCL (Log ROS)                                    | 6.5357E-5  |   |           |  |  |  |  |
|  |  |   |           |  |  |  |  |
|  | Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution |   |           |  |  |  |  |
| KM Mean (logged)                                       |  | KM Geo Mean   |           |  |  |  |  |
| KM SD (logged)   |  | 95% Critical H Value (KM-Log)                                   | 1.801     |  |  |  |  |
| KM Standard Error of Mean (logged)                     |  | 95% H-UCL (KM -Log)   |           |  |  |  |  |
| KM SD (logged)   |  | 95% Critical H Value (KM-Log)                                   | 1.801     |  |  |  |  |
| KM Standard Error of Mean (logged)                     | 0.197  |   |           |  |  |  |  |

|   | DL/2 Sta  | atistics  |   |
|---|---|---|---|
| DL/2 Normal   |   | DL/2 Log-Transformed  |   |
| Mean in Original Scale  | 9.2308E-4   | Mean in Log Scale   | -7.789                                      |
| SD in Original Scale  | 0.00106   | SD in Log Scale   | 1.35  |
| 95% t UCL (Assumes normality)   | 0.0012  | 95% H-Stat UCL  | 0.001                                       |
| DL/2 is not a recommended me  | thod, provide   | ed for comparisons and historical reasons   |   |
| Nonparame   | tric Distributi   | ion Free UCL Statistics   |   |
| Detected Data appear  | · Normal Dist   | tributed at 1% Significance Level   |   |
|   | Suggested L   | JCL to Use  |   |
| 95% KM (t) UCL  |   |   |   |
|   |   |   |   |
| Note: Suggestions regarding the selection of a 05%  |   | vided to help the user to select the most appropriate 95% UCL.  |   |
|   |   |   | -   |
| •   |   | tion, and skewness using results from simulation studies.   |   |
| However, simulations results will not cover all Real W  | orld data sets  | s; for additional insight the user may want to consult a statisticia  | an.   |
|   |   |   |   |
| undwater   benzoic acid   65-85-0)  |   |   |   |
|   |   |   |   |
|   | General S   | Statistics  |   |
| Total Number of Observations  |   | Number of Distinct Observations   | 6   |
|   | _   |   | -   |
| Number of Detects   | 0   | Number of Non-Detects   | 13  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 6   |
| Warning: All observations are Non-Detects   | s (NDs), ther   | efore all statistics and estimates should also be NDs!  |   |
| Specifically, sample mean, UCLs, UPLs, and  | l other statist   | tics are also NDs lying below the largest detection limit!  |   |
| The Project Team may decide to use alternative si   | te specific va  | alues to estimate environmental parameters (e.g., EPC, BTV)   | ).  |
|   |   |   |   |
| The data act for variable C (are  | undurator I h   | entrais said LCE QE () was not pressed  |   |
| The data set for variable C (gro  | undwater   b  | enzoic acid   65-85-0) was not processed!   |   |
| The data set for variable C (gro  | undwater   b  | enzoic acid   65-85-0) was not processed!   |   |
| ¥   | undwater   b  | enzoic acid   65-85-0) was not processed!   |   |
| The data set for variable C (gro<br>undwater   beryllium   7440-41-7)   | undwater   b  | enzoic acid   65-85-0) was not processed!   |   |
| ¥   | · ·   |   |   |
| undwater   beryllium   7440-41-7)   | General S   | Statistics  |   |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations   | General S<br>41   | Statistics Number of Distinct Observations  | 12  |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects  | <b>General S</b><br>41<br>10  | Statistics  | 12 31                                       |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations   | General S<br>41   | Statistics Number of Distinct Observations  |   |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects  | General S<br>41<br>10<br>10   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | 31<br>2                                     |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | General S<br>41<br>10<br>10   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 31<br>2<br>4.0000                           |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | General S<br>41<br>10<br>10<br>6.7000E-5<br>0.0089  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 31<br>2<br>4.0000<br>0.00                   |
| Undwater   beryllium   7440-41-7) Total Number of Observations Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect   | General S<br>41<br>10<br>10<br>6.7000E-5<br>0.0089  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect  | 31<br>2<br>4.0000<br>0.009<br>75.6          |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects                                    | General S<br>41<br>10<br>10<br>6.7000E-5<br>0.0089<br>6.7422E-6   | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects                             | 31<br>2<br>4.0000<br>0.009<br>75.6<br>0.002 |
| Undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects                    | General S<br>41<br>10<br>6.7000E-5<br>0.0089<br>6.7422E-6<br>0.00211  | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects               | 31<br>2                                     |
| undwater   beryllium   7440-41-7)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detects<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects | General S           41           10           10           6.7000E-5           0.0089           6.7422E-6           0.00211           0.00135 | Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects | 31<br>2<br>4.0000<br>0.00<br>75.6<br>0.00   |

Normal GOF Test on Detects Only

| Shapiro Wilk Test Statistic  | 0.705   | Shapiro Wilk GOF Test  |           |  |  |  |
|--|---|--|-----------|--|--|--|
| 1% Shapiro Wilk Critical Value   | 0.781   | Detected Data Not Normal at 1% Significance Leve                 | el        |  |  |  |
| Lilliefors Test Statistic  | 0.332   | Lilliefors GOF Test  |           |  |  |  |
| 1% Lilliefors Critical Value   | 0.304   | Detected Data Not Normal at 1% Significance Leve                 | el        |  |  |  |
| Detected Dat   | a Not Norma   | l at 1% Significance Level                                       |           |  |  |  |
|  |   |  |           |  |  |  |
| Kaplan-Meier (KM) Statistics usi   | ng Normal C   | ritical Values and other Nonparametric UCLs                      |           |  |  |  |
| KM Mean  | 0.00109   | KM Standard Error of Mean  | 3.4626E-4 |  |  |  |
| 90KM SD  | 0.00159   | 95% KM (BCA) UCL   | 0.00178   |  |  |  |
| 95% KM (t) UCL   | 0.00168   | 95% KM (Percentile Bootstrap) UCL                                | 0.00171   |  |  |  |
| 95% KM (z) UCL   | 0.00166   | 95% KM Bootstrap t UCL   | 0.00193   |  |  |  |
| 90% KM Chebyshev UCL   | 0.00213   | 95% KM Chebyshev UCL   | 0.0026    |  |  |  |
| 97.5% KM Chebyshev UCL   | 0.00326   | 99% KM Chebyshev UCL   | 0.00454   |  |  |  |
| Note: KM UCLs may be biased low  | with this da  | taset. Other substitution method recommended                     |           |  |  |  |
|  |   |  |           |  |  |  |
|  |   | tected Observations Only   |           |  |  |  |
| A-D Test Statistic   | 0.431   | Anderson-Darling GOF Test  |           |  |  |  |
| 5% A-D Critical Value  | 0.755   | Detected data appear Gamma Distributed at 5% Significance Level  |           |  |  |  |
| K-S Test Statistic   | 0.189   | Kolmogorov-Smirnov GOF   |           |  |  |  |
|  | 5% K-S Critical Value 0.275 Detected data appear Gamma Distributed at 5% Significance Lev |  | ice Level |  |  |  |
| Detected data appea  | r Gamma Dis   | stributed at 5% Significance Level                               |           |  |  |  |
|  |   |  |           |  |  |  |
|  |   | Detected Data Only   |           |  |  |  |
| k hat (MLE)  | 0.821   | k star (bias corrected MLE)                                      | 0.641     |  |  |  |
| Theta hat (MLE)  | 0.00257   | Theta star (bias corrected MLE)                                  | 0.00328   |  |  |  |
| nu hat (MLE)   | 16.42   | nu star (bias corrected)   | 12.83     |  |  |  |
| Mean (detects)   | 0.00211   |  |           |  |  |  |
| Commo POS  | Statiation un   | sing Imputed Non-Detects   |           |  |  |  |
|  |   | NDs with many tied observations at multiple DLs                  |           |  |  |  |
|  |   | s < 1.0, especially when the sample size is small (e.g., <15-20) |           |  |  |  |
|  |   | yield incorrect values of UCLs and BTVs                          |           |  |  |  |
|  |   | n the sample size is small.                                      |           |  |  |  |
|  | -   | y be computed using gamma distribution on KM estimates           |           |  |  |  |
|  | 6.7000E-5   | Mean   | 0.00807   |  |  |  |
| Maximum  | 0.01  | Median   | 0.000     |  |  |  |
| SD   | 0.00365   | CV   | 0.452     |  |  |  |
| k hat (MLE)  | 1.609   | k star (bias corrected MLE)                                      | 1.508     |  |  |  |
| Theta hat (MLE)  | 0.00502   | Theta star (bias corrected MLE)                                  | 0.00536   |  |  |  |
| nu hat (MLE)   | 132   | nu star (bias corrected MEL)                                     | 123.6     |  |  |  |
| Adjusted Level of Significance (β)   | 0.0441  |  | 0.0       |  |  |  |
| Adjusted Level of Significance (β)<br>Approximate Chi Square Value (123.64, α) | 98.96   | Adjusted Chi Square Value (123.64, β)                            | 98.16     |  |  |  |
| 95% Gamma Approximate UCL  | 0.0101  | 95% Gamma Adjusted UCL   | 0.0102    |  |  |  |
|  | 0.0101  |  | 0.0102    |  |  |  |
| Estimates of Gamma Parameters using KM Estimates                               |   |  |           |  |  |  |
| Mean (KM)  |   | SD (KM)  | 0.00159   |  |  |  |
| Variance (KM)  |   | SE of Mean (KM)  |           |  |  |  |
| k hat (KM)   | 0.471   | k star (KM)  | 0.453     |  |  |  |
| K lidt (Rivi)  | 0.471   | r Stal (RW)  | 0.400     |  |  |  |

| nu hat (KM)                               | 38.65           | nu star (KM)   | 37.16     |
|---|-----------------|--|-----------|
| theta hat (KM)                            | 0.00232         | theta star (KM)  | 0.00241   |
| 80% gamma percentile (KM)                 | 0.00179         | 90% gamma percentile (KM)                              | 0.00302   |
| 95% gamma percentile (KM)                 | 0.00435         | 99% gamma percentile (KM)                              | 0.00766   |
|   | 0.00100         |  | 0.00700   |
| Gamm                                      | a Kaplan-Me     | eier (KM) Statistics                                   |           |
| Approximate Chi Square Value (37.16, α)   | 24.2            | Adjusted Chi Square Value (37.16, β)                   | 23.82     |
| 95% KM Approximate Gamma UCL              | 0.00168         | 95% KM Adjusted Gamma UCL                              | 0.00171   |
| Note: KM UCLs may be biased low           | with this da    | taset. Other substitution method recommended           |           |
|   |                 |  |           |
| Lognormal GO                              | F Test on D     | etected Observations Only                              |           |
| Shapiro Wilk Test Statistic               | 0.887           | Shapiro Wilk GOF Test                                  |           |
| 10% Shapiro Wilk Critical Value           | 0.869           | Detected Data appear Lognormal at 10% Significance L   | evel      |
| Lilliefors Test Statistic                 | 0.248           | Lilliefors GOF Test                                    |           |
| 10% Lilliefors Critical Value             | 0.241           | Detected Data Not Lognormal at 10% Significance Lev    | /el       |
| Detected Data appear A                    | oproximate l    | ognormal at 10% Significance Level                     |           |
|   |                 |  |           |
|   |                 | Using Imputed Non-Detects                              |           |
| Mean in Original Scale                    | 0.00109         | Mean in Log Scale                                      | -7.724    |
| SD in Original Scale                      | 0.00166         | SD in Log Scale  | 1.434     |
| 95% t UCL (assumes normality of ROS data) | 0.00152         | 95% Percentile Bootstrap UCL                           | 0.00155   |
| 95% BCA Bootstrap UCL                     | 0.00166         | 95% Bootstrap t UCL                                    | 0.00182   |
| 95% H-UCL (Log ROS)                       | 0.00237         |  |           |
| Ctatistics using KM actimates             | on Loggod F     |  |           |
| KM Mean (logged)                          | -7.861          | Data and Assuming Lognormal Distribution KM Geo Mean   | 3 8552E-1 |
| KM SD (logged)                            | 1.569           | 95% Critical H Value (KM-Log)                          | 3.046     |
| KM Standard Error of Mean (logged)        | 0.427           | 95% H-UCL (KM -Log)                                    | 0.00281   |
| KM SD (logged)                            | 1.569           | 95% Critical H Value (KM-Log)                          | 3.046     |
| KM Standard Error of Mean (logged)        | 0.427           |  |           |
|   |                 |  |           |
|   | DL/2 St         | tatistics  |           |
| DL/2 Normal                               |                 | DL/2 Log-Transformed                                   |           |
| Mean in Original Scale                    | 0.00212         | Mean in Log Scale                                      | -6.517    |
| SD in Original Scale                      | 0.00144         | SD in Log Scale  | 1.101     |
| 95% t UCL (Assumes normality)             | 0.0025          | 95% H-Stat UCL   | 0.00416   |
| DL/2 is not a recommended me              | ethod, provid   | ded for comparisons and historical reasons             |           |
|   |                 |  |           |
| Nonparame                                 | tric Distribu   | tion Free UCL Statistics                               |           |
| Detected Data appear                      | <b>Gamma Di</b> | stributed at 5% Significance Level                     |           |
|   |                 |  |           |
|   | Suggested       | UCL to Use   |           |
| 95% KM Adjusted Gamma UCL                 | 0.00171         |  |           |
|   |                 |  |           |
|   |                 | e data were collected in a random and unbiased manner. |           |
|   |                 | Ilected from random locations.                         |           |
|   |                 | nental or other non-random methods,                    |           |
| then contact a                            | statistician t  | o correctly calculate UCLs.                            |           |
|   |                 |  |           |

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies. However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician. C (groundwater | bis(2-chloroethoxy)methane | 111-91-1) General Statistics Total Number of Observations 42 Number of Distinct Observations 9 Number of Detects 0 Number of Non-Detects 42 Number of Distinct Detects 0 Number of Distinct Non-Detects 9 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | bis(2-chloroethoxy)methane | 111-91-1) was not processed! C (groundwater | bis(2-chloroethyl) ether | 111-44-4) General Statistics 42 Total Number of Observations Number of Distinct Observations 9 Number of Detects 0 Number of Non-Detects 42 Number of Distinct Detects 0 Number of Distinct Non-Detects 9 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | bis(2-chloroethyl) ether | 111-44-4) was not processed! C (groundwater | bis(2-ethylhexyl)phthalate | 117-81-7) **General Statistics** Total Number of Observations 42 Number of Distinct Observations 10 Number of Detects 0 Number of Non-Detects 42 Number of Distinct Detects 0 Number of Distinct Non-Detects 10 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | bis(2-ethylhexyl)phthalate | 117-81-7) was not processed! C (groundwater | bromobenzene | 108-86-1)

|   |              | Statistics  |    |
|---|--------------|---|----|
| Total Number of Observations                      | 13           | Number of Distinct Observations                               | 3  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 13 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 3  |
| Warning: All observations are Non-Detect          | s (NDs), the | erefore all statistics and estimates should also be NDs!      |    |
|   |              | stics are also NDs lying below the largest detection limit!   |    |
|   |              | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |              |   |    |
| The data set for variable C (grou                 | ndwater I h  | romobenzene   108-86-1) was not processed!                    |    |
|   |              |   |    |
|   |              |   |    |
| C (groundwater   bromochloromethane   74-97-5)    |              |   |    |
|   |              |   |    |
|   |              | Statistics  |    |
| Total Number of Observations                      | 13           | Number of Distinct Observations                               | 3  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 13 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 3  |
|   |              |   |    |
|   |              | erefore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and        | l other stat | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si | te specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |              |   |    |
| The data set for variable C (ground               | water   bror | nochloromethane   74-97-5) was not processed!                 |    |
|   |              |   |    |
|   |              |   |    |
| C (groundwater   bromodichloromethane   75-27-4)  |              |   |    |
|   |              |   |    |
|   |              | Statistics  |    |
| Total Number of Observations                      | 36           | Number of Distinct Observations                               | 4  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 36 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 4  |
|   |              |   |    |
| -   |              | erefore all statistics and estimates should also be NDs!      |    |
|   |              | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si | te specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |              |   |    |
| The data set for variable C (groundw              | ater   brom  | odichloromethane   75-27-4) was not processed!                |    |
|   |              |   |    |
|   |              |   |    |
| C (groundwater   bromoform   75-25-2)             |              |   |    |
|   |              |   |    |
|   |              | Statistics  |    |
| Total Number of Observations                      | 36           | Number of Distinct Observations                               | 5  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 36 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | F  |
|   |              |   | 5  |

|  |                | refore all statistics and estimates should also be NDs!     |         |
|--|----------------|---|---------|
|  |                | stics are also NDs lying below the largest detection limit! |         |
| The Project Team may decide to use alternative s | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV) | ).      |
|  |                |   |         |
| The data set for variable C (g                   | roundwater     | bromoform   75-25-2) was not processed!                     |         |
|  |                |   |         |
|  |                |   |         |
| C (groundwater   bromomethane   74-83-9)         |                |   |         |
|  |                |   |         |
|  | General        |   |         |
| Total Number of Observations                     |                | Number of Distinct Observations                             | 5       |
| Number of Detects                                |                | Number of Non-Detects                                       | 36      |
| Number of Distinct Detects                       | 0              | Number of Distinct Non-Detects                              | 5       |
|  |                |   |         |
| -  |                | refore all statistics and estimates should also be NDs!     |         |
|  |                | stics are also NDs lying below the largest detection limit! |         |
| The Project Team may decide to use alternative s | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV) | I.      |
|  |                |   |         |
| The data set for variable C (gro                 | undwater   bi  | romomethane   74-83-9) was not processed!                   |         |
|  |                |   |         |
|  |                |   |         |
| C (groundwater   butylbenzylphthalate   85-68-7) |                |   |         |
|  |                |   |         |
|  | General        |   |         |
| Total Number of Observations                     |                | Number of Distinct Observations                             | 9       |
| Number of Detects                                |                | Number of Non-Detects                                       | 42      |
| Number of Distinct Detects                       | 0              | Number of Distinct Non-Detects                              | 9       |
|  |                |   |         |
|  |                | refore all statistics and estimates should also be NDs!     |         |
|  |                | stics are also NDs lying below the largest detection limit! |         |
| The Project Team may decide to use alternative s | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV) | I.      |
|  |                |   |         |
| The data set for variable C (ground              | dwater   buty  | Ibenzylphthalate   85-68-7) was not processed!              |         |
|  |                |   |         |
|  |                |   |         |
| C (groundwater   cadmium   7440-43-9)            |                |   |         |
|  |                |   |         |
|  | General        |   |         |
| Total Number of Observations                     |                | Number of Distinct Observations                             | 22      |
| Number of Detects                                |                | Number of Non-Detects                                       | 16      |
| Number of Distinct Detects                       |                | Number of Distinct Non-Detects                              | 1       |
| Minimum Detect                                   |                | Minimum Non-Detect  | 0.005   |
| Maximum Detect                                   |                | Maximum Non-Detect  | 0.005   |
| Variance Detects                                 |                | Percent Non-Detects   | 39.02%  |
| Mean Detects                                     |                | SD Detects  | 0.00261 |
| Median Detects                                   |                | CV Detects  | 1.195   |
| Skewness Detects                                 |                | Kurtosis Detects  | 6.484   |
| Mean of Logged Detects                           | -6.898         | SD of Logged Detects  | 1.512   |

| Norr   | nal GOF Tes | t on Detects Only   |          |
|--|-------------|---|----------|
| Shapiro Wilk Test Statistic                  | 0.733       | Shapiro Wilk GOF Test   |          |
| 1% Shapiro Wilk Critical Value               | 0.886       | Detected Data Not Normal at 1% Significance Leve                | I        |
| Lilliefors Test Statistic                    | 0.246       | Lilliefors GOF Test   |          |
| 1% Lilliefors Critical Value                 | 0.201       | Detected Data Not Normal at 1% Significance Leve                | I        |
| Detected Dat                                 | a Not Norma | l at 1% Significance Level                                      |          |
|  |             |   |          |
| Kaplan-Meier (KM) Statistics us              | -           | ritical Values and other Nonparametric UCLs                     |          |
| KM Mean                                      |             | KM Standard Error of Mean                                       |          |
| 90KM SD                                      |             | 95% KM (BCA) UCL  | 0.00253  |
| 95% KM (t) UCL                               | 0.0025      | 95% KM (Percentile Bootstrap) UCL                               | 0.00252  |
| 95% KM (z) UCL                               | 0.00248     | 95% KM Bootstrap t UCL  | 0.00272  |
| 90% KM Chebyshev UCL                         | 0.00298     | 95% KM Chebyshev UCL  | 0.00349  |
| 97.5% KM Chebyshev UCL                       | 0.00419     | 99% KM Chebyshev UCL  | 0.00556  |
|  |             |   |          |
|  |             | etected Observations Only                                       |          |
| A-D Test Statistic                           |             | Anderson-Darling GOF Test                                       |          |
| 5% A-D Critical Value                        |             | Detected data appear Gamma Distributed at 5% Significant        | ce Level |
| K-S Test Statistic                           |             | Kolmogorov-Smirnov GOF  |          |
| 5% K-S Critical Value                        |             | Detected data appear Gamma Distributed at 5% Significant        | ce Level |
| Detected data appea                          | r Gamma Di  | stributed at 5% Significance Level                              |          |
|  |             |   |          |
|  |             | Detected Data Only  |          |
| k hat (MLE)                                  |             | k star (bias corrected MLE)                                     | 0.708    |
| Theta hat (MLE)                              |             | Theta star (bias corrected MLE)                                 | 0.00308  |
| nu hat (MLE)                                 |             | nu star (bias corrected)  | 35.42    |
| Mean (detects)                               | 0.00218     |   |          |
|  |             |   |          |
|  |             | sing Imputed Non-Detects  |          |
| -  |             | 5 NDs with many tied observations at multiple DLs               |          |
|  |             | s <1.0, especially when the sample size is small (e.g., <15-20) |          |
|  | -           | yield incorrect values of UCLs and BTVs                         |          |
|  |             | en the sample size is small.                                    |          |
| -  |             | y be computed using gamma distribution on KM estimates          |          |
|  | 4.2500E-5   | Mean  | 0.00523  |
| Maximum                                      |             | Median  | 0.0028   |
| SD   |             | CV  | 0.833    |
| k hat (MLE)                                  |             | k star (bias corrected MLE)                                     | 0.751    |
| Theta hat (MLE)                              |             | Theta star (bias corrected MLE)                                 | 0.00697  |
| nu hat (MLE)                                 |             | nu star (bias corrected)  | 61.54    |
| Adjusted Level of Significance (β)           |             |   |          |
| Approximate Chi Square Value (61.54, α)      |             | Adjusted Chi Square Value (61.54, β)                            | 43.97    |
| 95% Gamma Approximate UCL                    | 0.00724     | 95% Gamma Adjusted UCL  | 0.00732  |
|  |             |   |          |
|  |             |   |          |
|  |             | meters using KM Estimates                                       |          |
| Estimates of G<br>Mean (KM)<br>Variance (KM) | 0.00187     | meters using KM Estimates<br>SD (KM)<br>SE of Mean (KM)         | 0.00214  |

| k hat (KM)                                | 0.762           | k star (KM)  | 0.723     |
|---|-----------------|--|-----------|
| nu hat (KM)                               | 62.49           | nu star (KM)   | 59.25     |
| theta hat (KM)                            | 0.00246         | theta star (KM)  | 0.00259   |
| 80% gamma percentile (KM)                 | 0.00307         | 90% gamma percentile (KM)                              | 0.00466   |
| 95% gamma percentile (KM)                 | 0.0063          | 99% gamma percentile (KM)                              | 0.0102    |
|   |                 |  |           |
| Gamma                                     | a Kaplan-Me     | eier (KM) Statistics                                   |           |
| Approximate Chi Square Value (59.25, α)   | 42.55           | Adjusted Chi Square Value (59.25, β)                   | 42.04     |
| 95% KM Approximate Gamma UCL              | 0.00261         | 95% KM Adjusted Gamma UCL                              | 0.00264   |
|   |                 |  |           |
|   |                 | etected Observations Only                              |           |
| Shapiro Wilk Test Statistic               | 0.918           | Shapiro Wilk GOF Test                                  |           |
| 10% Shapiro Wilk Critical Value           | 0.931           | Detected Data Not Lognormal at 10% Significance Lev    | /el       |
| Lilliefors Test Statistic                 | 0.22            | Lilliefors GOF Test                                    |           |
| 10% Lilliefors Critical Value             | 0.159           | Detected Data Not Lognormal at 10% Significance Lev    | /el       |
|   |                 | al at 10% Significance Level                           |           |
| L ognormal BOS                            | Statistics I    | Jsing Imputed Non-Detects                              |           |
| Mean in Original Scale                    | 0.00181         | Mean in Log Scale                                      | -7.028    |
| SD in Original Scale                      | 0.00221         | SD in Log Scale  | 1.371     |
| 95% t UCL (assumes normality of ROS data) | 0.00239         | 95% Percentile Bootstrap UCL                           | 0.00241   |
| 95% BCA Bootstrap UCL                     | 0.00253         | 95% Bootstrap t UCL                                    | 0.00241   |
| 95% H-UCL (Log ROS)                       | 0.00235         | 55% Boolstap ( 66)                                     | 0.00200   |
|   | 0.00410         |  |           |
| Statistics using KM estimates             | on Logged [     | Data and Assuming Lognormal Distribution               |           |
| KM Mean (logged)                          | -7.005          | KM Geo Mean  | 9.0762E-4 |
| KM SD (logged)                            | 1.442           | 95% Critical H Value (KM-Log)                          | 2.88      |
| KM Standard Error of Mean (logged)        | 0.291           | 95% H-UCL (KM -Log)                                    | 0.00495   |
| KM SD (logged)                            | 1.442           | 95% Critical H Value (KM-Log)                          | 2.88      |
| KM Standard Error of Mean (logged)        | 0.291           |  |           |
| I   |                 | 1  |           |
|   | DL/2 St         |  |           |
| DL/2 Normal                               |                 | DL/2 Log-Transformed                                   |           |
| Mean in Original Scale                    | 0.00231         | Mean in Log Scale                                      | -6.544    |
| SD in Original Scale                      | 0.00202         | SD in Log Scale  | 1.254     |
| 95% t UCL (Assumes normality)             | 0.00284         | 95% H-Stat UCL   | 0.00533   |
| DL/2 is not a recommended me              | sthod, provid   | led for comparisons and historical reasons             |           |
| Nonparame                                 | tric Distribut  | tion Free UCL Statistics                               |           |
|   |                 | stributed at 5% Significance Level                     |           |
|   |                 |  |           |
|   | Suggested       | UCL to Use   |           |
| 95% KM Adjusted Gamma UCL                 | 0.00264         |  |           |
|   |                 | · · · · · · · · · · · · · · · · · · ·                  |           |
|   |                 | e data were collected in a random and unbiased manner. |           |
|   |                 | llected from random locations.                         |           |
|   |                 | nental or other non-random methods,                    |           |
| then contact as                           | statistician te | o correctly calculate UCLs.                            |           |

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness using results from simulation studies. However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician. C (groundwater | caprolactam | 105-60-2) General Statistics 30 Total Number of Observations Number of Distinct Observations 5 Number of Detects 0 Number of Non-Detects 30 Number of Distinct Detects 0 Number of Distinct Non-Detects 5 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | caprolactam | 105-60-2) was not processed! C (groundwater | carbazole | 86-74-8) General Statistics Total Number of Observations 42 Number of Distinct Observations 11 Number of Detects Number of Non-Detects 2 40 2 Number of Distinct Detects Number of Distinct Non-Detects 9 Minimum Detect 8.0000E-4 Minimum Non-Detect 0.002 0.011 Maximum Detect 9.0000E-4 Maximum Non-Detect Variance Detects 5.0000E-9 95.24% Percent Non-Detects Mean Detects 8.5000E-4 SD Detects 7.0711E-5 Median Detects 8.5000E-4 CV Detects 0.0832 **Skewness Detects** N/A Kurtosis Detects N/A Mean of Logged Detects -7.072 SD of Logged Detects 0.0833 Warning: Data set has only 2 Detected Values. This is not enough to compute meaningful or reliable statistics and estimates. Normal GOF Test on Detects Only Not Enough Data to Perform GOF Test Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs KM Mean 8.5000E-4 KM Standard Error of Mean 5.0000E-5 90KM SD 5.0000E-5 95% KM (BCA) UCL N/A 95% KM (t) UCL 9.3414E-4 95% KM (Percentile Bootstrap) UCL N/A 95% KM (z) UCL 9.3224E-4 95% KM Bootstrap t UCL N/A 90% KM Chebyshev UCL 0.001 95% KM Chebyshev UCL 0.00107 97.5% KM Chebyshev UCL 0.00116 99% KM Chebyshev UCL 0.00135

|  |                | etected Observations Only Perform GOF Test |           |
|--|----------------|--|-----------|
|  |                |  |           |
|  |                | Detected Data Only                         |           |
| k hat (MLE)  |                | k star (bias corrected MLE)                | N/A       |
| Theta hat (MLE)                                      |                | Theta star (bias corrected MLE)            | N/A       |
| nu hat (MLE)<br>Mean (detects)                       |                | nu star (bias corrected)                   | N/A       |
| Wearr (detects)                                      | 0.3000E-4      |  |           |
| Estimates of G                                       | iamma Parai    | meters using KM Estimates                  |           |
| Mean (KM)  | 8.5000E-4      | SD (KM)                                    | 5.0000E-  |
| Variance (KM)  | 2.5000E-9      | SE of Mean (KM)                            | 5.0000E-  |
| k hat (KM)   |                | k star (KM)                                | 268.4     |
| nu hat (KM)  |                | nu star (KM)                               | 22543     |
| theta hat (KM)                                       |                | theta star (KM)                            |           |
| 80% gamma percentile (KM)                            |                | 90% gamma percentile (KM)                  |           |
| 95% gamma percentile (KM)                            |                | 99% gamma percentile (KM)                  |           |
|  |                |  |           |
| Gamn   | na Kaplan-Mo   | eier (KM) Statistics                       |           |
|  |                | Adjusted Level of Significance (β)         | 0.0443    |
| Approximate Chi Square Value (N/A, α)                | 22195          | Adjusted Chi Square Value (N/A, β)         | 22183     |
| 95% KM Approximate Gamma UCL                         | 8.6333E-4      | 95% KM Adjusted Gamma UCL                  | 8.6381E-4 |
|  |                |  |           |
|  |                | etected Observations Only                  |           |
| Not En   | ough Data to   | Perform GOF Test                           |           |
|  | C Ctatiation I | Joing Imputed New Detects                  |           |
|  |                | Using Imputed Non-Detects                  | 7 070     |
| Mean in Original Scale                               |                | Mean in Log Scale                          | -7.072    |
| SD in Original Scale                                 |                | SD in Log Scale                            | 0.104     |
| 95% t UCL (assumes normality of ROS data)            |                | 95% Percentile Bootstrap UCL               |           |
| 95% BCA Bootstrap UCL                                |                | 95% Bootstrap t UCL                        | 8.7771E-4 |
| 95% H-UCL (Log ROS)                                  | 8.7681E-4      |  |           |
| Statistics using KM estimates                        | on Logged [    | Data and Assuming Lognormal Distribution   |           |
| KM Mean (logged)                                     |                | KM Geo Mean                                | 8 4853E-4 |
| KM SD (logged)                                       |                | 95% Critical H Value (KM-Log)              | N/A       |
| KM Standard Error of Mean (logged)                   |                | 95% H-UCL (KM -Log)                        | N/A       |
| KM Standard Error of Mean (logged)<br>KM SD (logged) | 0.0589         | 95% Critical H Value (KM-Log)              |           |
| KM Standard Error of Mean (logged)                   |                |  | N/A       |
|  | 0.0000         |  |           |
|  | DL/2 St        | tatistics                                  |           |
| DL/2 Normal  |                | DL/2 Log-Transformed                       |           |
| Mean in Original Scale                               | 0.00232        | Mean in Log Scale                          | -6.371    |
| SD in Original Scale                                 | 0.0019         | SD in Log Scale                            | 0.763     |
| 95% t UCL (Assumes normality)                        | 0.00281        | 95% H-Stat UCL                             | 0.0029    |
| DL/2 is not a recommended m                          | ethod, provid  | ded for comparisons and historical reasons |           |
|  |                |  |           |
| Nonparame  | etric Distribu | tion Free UCL Statistics                   |           |
|  |                |  |           |

| Data do no   | t follow a        | a Discernible Distribution   |          |
|--|-------------------|--|----------|
|  | Suggoot           | ed UCL to Use  |          |
| 95% KM (t) UCL   | ••                |  |          |
|  |                   | exceeds the maximum observation  |          |
|  |                   |  |          |
| Note: Suggestions regarding the selection of a 95%             | UCL are           | provided to help the user to select the most appropriate 95% UCL.  |          |
| Recommendations are based upon data size,                      | data dist         | ribution, and skewness using results from simulation studies.  |          |
| However, simulations results will not cover all Real Wo        | orld data         | sets; for additional insight the user may want to consult a statisticia  | n.       |
|  |                   |  |          |
| C (groundwater   carbon disulfide   75-15-0)                   |                   |  |          |
|  |                   |  |          |
|  |                   | ral Statistics   |          |
| Total Number of Observations                                   | 36                | Number of Distinct Observations  | 3        |
| Number of Detects  | 0                 | Number of Non-Detects  | 36       |
| Number of Distinct Detects                                     | 0                 | Number of Distinct Non-Detects   | 3        |
| Man land All also model and blan Data de                       |                   | the section will statistic and estimate school distance in AID-1   |          |
|  |                   | therefore all statistics and estimates should also be NDs!<br>atistics are also NDs lying below the largest detection limit! |          |
|  |                   | ic values to estimate environmental parameters (e.g., EPC, BTV).   |          |
|  |                   | ic values to estimate environmental parameters (e.g., EFC, BTV).   |          |
| The data set for variable C (group                             | ndwater '         | carbon disulfide   75-15-0) was not processed!   |          |
|  |                   |  |          |
|  |                   |  |          |
| C (groundwater   carbon tetrachloride   56-23-5)               |                   |  |          |
|  |                   |  |          |
|  | Gener             | ral Statistics   |          |
| Total Number of Observations                                   | 36                | Number of Distinct Observations  | 4        |
| Number of Detects  | 0                 | Number of Non-Detects  | 36       |
| Number of Distinct Detects                                     | 0                 | Number of Distinct Non-Detects   | 4        |
|  |                   |  |          |
| Warning: All observations are Non-Detects                      | <b>s (NDs),</b> f | therefore all statistics and estimates should also be NDs!   |          |
| Specifically, sample mean, UCLs, UPLs, and                     | l other st        | atistics are also NDs lying below the largest detection limit!   |          |
| The Project Team may decide to use alternative sit             | te specifi        | ic values to estimate environmental parameters (e.g., EPC, BTV).   |          |
|  |                   |  |          |
| The data set for variable C (ground                            | water   c         | arbon tetrachloride   56-23-5) was not processed!  |          |
|  |                   |  |          |
|  |                   |  |          |
| C (groundwater   chlorobenzene   108-90-7)                     |                   |  |          |
|  |                   |  |          |
|  | Gener             | ral Statistics   |          |
| Total Number of Observations                                   | 36                | Number of Distinct Observations  | 4        |
| Number of Detects  | 1                 | Number of Non-Detects  | 35       |
| Number of Distinct Detects                                     | 1                 | Number of Distinct Non-Detects   | 4        |
|  |                   |  |          |
| Warning: Only one distinct data value was detecte              | d! ProUC          | CL (or any other software) should not be used on such a data set!  |          |
| It is suggested to use alternative site specific values determ | ined by '         | the Project Team to estimate environmental parameters (e.g., EP  | C, BTV). |

The data set for variable C (groundwater | chlorobenzene | 108-90-7) was not processed! C (groundwater | chloroethane | 75-00-3) **General Statistics** Total Number of Observations 36 Number of Distinct Observations 5 Number of Detects 0 Number of Non-Detects 36 Number of Distinct Detects 0 Number of Distinct Non-Detects 5 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | chloroethane | 75-00-3) was not processed! C (groundwater | chloroform | 67-66-3) **General Statistics Total Number of Observations** 36 Number of Distinct Observations 5 Number of Detects 0 Number of Non-Detects 36 Number of Distinct Detects 0 Number of Distinct Non-Detects 5 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | chloroform | 67-66-3) was not processed! C (groundwater | chloromethane | 74-87-3) **General Statistics** Total Number of Observations 36 Number of Distinct Observations 5 Number of Detects 0 Number of Non-Detects 36 Number of Distinct Detects 0 Number of Distinct Non-Detects 5 Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs! Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit! The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV). The data set for variable C (groundwater | chloromethane | 74-87-3) was not processed! C (groundwater | chromium (total) | 7440-47-3) **General Statistics** 

| Total Number of Observations                  | <u>/1</u>      | Number of Distinct Observations                                 | 10        |
|---|----------------|---|-----------|
| Total Number of Observations                  |                | Number of Distinct Observations                                 | 18        |
| Number of Detects                             |                | Number of Non-Detects   | 22        |
| Number of Distinct Detects                    |                | Number of Distinct Non-Detects                                  | 3         |
| Minimum Detect                                |                | Minimum Non-Detect  | 0.001     |
| Maximum Detect                                |                | Maximum Non-Detect  | 0.015     |
| Variance Detects                              |                | Percent Non-Detects   | 53.66%    |
| Mean Detects                                  |                | SD Detects  | 0.00785   |
| Median Detects                                |                | CV Detects  | 1.937     |
| Skewness Detects                              | 4.169          | Kurtosis Detects  | 17.77     |
| Mean of Logged Detects                        | -6.053         | SD of Logged Detects  | 0.807     |
|   |                |   |           |
| Norn  | nal GOF Tes    | st on Detects Only  |           |
| Shapiro Wilk Test Statistic                   | 0.364          | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value                | 0.863          | Detected Data Not Normal at 1% Significance Level               |           |
| Lilliefors Test Statistic                     | 0.402          | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value                  | 0.229          | Detected Data Not Normal at 1% Significance Level               |           |
| Detected Dat                                  | a Not Norma    | al at 1% Significance Level                                     |           |
|   |                |   |           |
| Kaplan-Meier (KM) Statistics usi              | ng Normal C    | Critical Values and other Nonparametric UCLs                    |           |
| KM Mean                                       | 0.00285        | KM Standard Error of Mean                                       | 8.8194E-4 |
| 90KM SD                                       | 0.00539        | 95% KM (BCA) UCL  | 0.00457   |
| 95% KM (t) UCL                                | 0.00433        | 95% KM (Percentile Bootstrap) UCL                               | 0.00444   |
| 95% KM (z) UCL                                |                | 95% KM Bootstrap t UCL  | 0.00911   |
| 90% KM Chebyshev UCL                          | 0.00549        | 95% KM Chebyshev UCL  | 0.00669   |
| 97.5% KM Chebyshev UCL                        |                | 99% KM Chebyshev UCL  | 0.0116    |
| -   |                | ataset. Other substitution method recommended                   |           |
|   |                |   |           |
| Gamma GOF                                     | Tests on De    | etected Observations Only                                       |           |
| A-D Test Statistic                            |                | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                         |                | Detected Data Not Gamma Distributed at 5% Significance          |           |
| K-S Test Statistic                            |                | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                         |                | Detected Data Not Gamma Distributed at 5% Significance          |           |
|   |                |   | Level     |
|   | Gamma Dist     | tributed at 5% Significance Level                               |           |
|   | <u></u>        |   |           |
|   |                | n Detected Data Only  |           |
| k hat (MLE)                                   |                | k star (bias corrected MLE)                                     | 0.923     |
| Theta hat (MLE)                               |                | Theta star (bias corrected MLE)                                 | 0.00439   |
| nu hat (MLE)                                  |                | nu star (bias corrected)  | 35.06     |
| Mean (detects)                                | 0.00405        |   |           |
|   |                |   |           |
|   |                | sing Imputed Non-Detects  |           |
| GROS may not be used when data s              | et has > 50%   | 6 NDs with many tied observations at multiple DLs               |           |
| GROS may not be used when kstar of detects is | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
| For such situations, GROS                     | method may     | yield incorrect values of UCLs and BTVs                         |           |
| This is espec                                 | ially true whe | en the sample size is small.                                    |           |
| For gamma distributed detected data, BTVs a   | and UCLs ma    | ay be computed using gamma distribution on KM estimates         |           |
| Minimum                                       | 9.6000E-4      | Mean  | 0.00728   |
| Maximum                                       | 0.036          | Median  | 0.01      |
| L   | <u> </u>       |   |           |

| SD   | 0.00609        | CV   | 0.835     |
|--|----------------|--|-----------|
| k hat (MLE)  | 1.573          | k star (bias corrected MLE)                        | 1.474     |
| Theta hat (MLE)  | 0.00463        | Theta star (bias corrected MLE)                    | 0.00494   |
| nu hat (MLE)   | 129            | nu star (bias corrected)                           | 120.9     |
| Adjusted Level of Significance (β)                           | 0.0441         | , , , , , , , , , , , , , , , , , , ,              |           |
| Approximate Chi Square Value (120.88, α)                     | 96.49          | Adjusted Chi Square Value (120.88, β)              | 95.69     |
| 95% Gamma Approximate UCL                                    | 0.00913        | 95% Gamma Adjusted UCL                             | 0.0092    |
|  |                |  |           |
| Estimates of G   | iamma Para     | meters using KM Estimates                          |           |
| Mean (KM)  | 0.00285        | SD (KM)  | 0.00539   |
| Variance (KM)  | 2.9039E-5      | SE of Mean (KM)                                    | 8.8194E-4 |
| k hat (KM)   | 0.279          | k star (KM)  | 0.275     |
| nu hat (KM)  | 22.89          | nu star (KM)                                       | 22.55     |
| theta hat (KM)   | 0.0102         | theta star (KM)                                    | 0.0104    |
| 80% gamma percentile (KM)                                    | 0.00426        | 90% gamma percentile (KM)                          | 0.00848   |
| 95% gamma percentile (KM)                                    | 0.0134         | 99% gamma percentile (KM)                          | 0.0263    |
|  |                |  |           |
|  | na Kaplan-M    | eier (KM) Statistics                               |           |
| Approximate Chi Square Value (22.55, α)                      | 12.75          | Adjusted Chi Square Value (22.55, β)               | 12.48     |
| 95% KM Approximate Gamma UCL                                 | 0.00503        | 95% KM Adjusted Gamma UCL                          | 0.00514   |
| Note: KM UCLs may be biased low                              | with this da   | taset. Other substitution method recommended       |           |
|  |                |  |           |
|  |                | etected Observations Only                          |           |
| Shapiro Wilk Test Statistic                                  |                | Shapiro Wilk GOF Test                              |           |
| 10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | 0.917<br>0.247 | Detected Data Not Lognormal at 10% Significance Le | evel      |
| 10% Lilliefors Critical Value                                | 0.247          | Detected Data Not Lognormal at 10% Significance Le | wol       |
|  |                | al at 10% Significance Level                       |           |
|  | tot Lognorm    |  |           |
| Lognormal RO   | S Statistics   | Using Imputed Non-Detects                          |           |
| Mean in Original Scale                                       |                | Mean in Log Scale                                  | -6.311    |
| SD in Original Scale   | 0.00547        | SD in Log Scale                                    | 0.786     |
| 95% t UCL (assumes normality of ROS data)                    | 0.00431        | 95% Percentile Bootstrap UCL                       | 0.00452   |
| 95% BCA Bootstrap UCL  | 0.00552        | 95% Bootstrap t UCL                                | 0.00817   |
| 95% H-UCL (Log ROS)  | 0.00322        |  |           |
|  |                |  |           |
| Statistics using KM estimates                                | on Logged [    | Data and Assuming Lognormal Distribution           |           |
| KM Mean (logged)   | -6.271         | KM Geo Mean  | 0.00189   |
| KM SD (logged)   | 0.679          | 95% Critical H Value (KM-Log)                      | 2.037     |
| KM Standard Error of Mean (logged)                           | 0.129          | 95% H-UCL (KM -Log)                                | 0.00296   |
| KM SD (logged)   | 0.679          | 95% Critical H Value (KM-Log)                      | 2.037     |
| KM Standard Error of Mean (logged)                           | 0.129          |  |           |
| Note: KM UCLs may be biased low                              | with this da   | taset. Other substitution method recommended       |           |
|  |                |  |           |
|  | DL/2 S         | tatistics  |           |
| DL/2 Normal  |                | DL/2 Log-Transformed                               |           |
| Mean in Original Scale                                       | 0.00506        | Mean in Log Scale                                  | -5.74     |
| SD in Original Scale   | 0.00576        | SD in Log Scale                                    | 1.008     |

| 95% t UCL (Assumes normality)                      | 0.00658        | 95% H-Stat UCL  | 0.00779                              |
|--|----------------|---|--------------------------------------|
|  |                | ded for comparisons and historical reasons                          | 0.00779                              |
| DL/2 IS not a recommended m                        | etnoa, provid  | ded for comparisons and historical reasons                          |                                      |
| Namana   | tuis Distribu  |   |                                      |
|  |                | tion Free UCL Statistics  |                                      |
| Data do n  | IOT TOILOW & L |   |                                      |
|  | Quanastad      |   |                                      |
| 95% KM (t) UCL                                     | 0.00433        | UCL to Use  | 1                                    |
| 95% KW (t) UCL                                     | 0.00433        |   |                                      |
| The coloulated UCLs are based on ecouran           | tions that the | e data were collected in a random and unbiased manner.              |                                      |
| -  |                | illected from random locations.                                     |                                      |
|  |                | nental or other non-random methods,                                 |                                      |
|  |                | to correctly calculate UCLs.  |                                      |
|  |                |   |                                      |
| Note: Suggestions regarding the selection of a 95% |                | ovided to help the user to select the most appropriate 95% UCL      |                                      |
|  |                | ution, and skewness using results from simulation studies.          |                                      |
|  |                | ts; for additional insight the user may want to consult a statistic | ian                                  |
|  | vonu uata se   | to, for additional moight the user may wallt to consult a Statistic | all.                                 |
| C (groundwater   chrysene   218-01-9)              |                |   |                                      |
|  |                |   |                                      |
|  | General        | Statistics  |                                      |
| Total Number of Observations                       |                | Number of Distinct Observations                                     | 18                                   |
| Number of Detects                                  | _              | Number of Non-Detects   | 39                                   |
| Number of Distinct Detects                         |                | Number of Distinct Non-Detects                                      | 14                                   |
| Minimum Detect                                     |                | Minimum Non-Detect  |                                      |
| Maximum Detect                                     |                | Maximum Non-Detect  | 0.0056                               |
| Variance Detects                                   |                | Percent Non-Detects   | 90.7%                                |
| Mean Detects                                       |                | SD Detects  |                                      |
| Median Detects                                     |                | CV Detects  | N/A                                  |
| Skewness Detects                                   |                | Kurtosis Detects  |                                      |
| Mean of Logged Detects                             |                | SD of Logged Detects  | 0.424                                |
|  | -3.004         |   | 0.424                                |
| Norn   |                | t on Detects Only   |                                      |
| Shapiro Wilk Test Statistic                        | r              | Shapiro Wilk GOF Test   |                                      |
| 1% Shapiro Wilk Critical Value                     |                | Detected Data appear Normal at 1% Significance Le                   | vel                                  |
| Lilliefors Test Statistic                          |                | Lilliefors GOF Test   |                                      |
| 1% Lilliefors Critical Value                       |                | Detected Data appear Normal at 1% Significance Le                   | vel                                  |
|  |                | nal at 1% Significance Level  |                                      |
|  |                | eliable for small sample sizes                                      |                                      |
|  |                |   |                                      |
| Kaplan-Meier (KM) Statistics usi                   | ng Normal C    | ritical Values and other Nonparametric UCLs                         |                                      |
|  | 6.1889E-5      | KM Standard Error of Mean   | 1.1623F-5                            |
|  | 2.3953E-5      | 95% KM (BCA) UCL  | N/A                                  |
| 95% KM (t) UCL                                     |                | 95% KM (Percentile Bootstrap) UCL                                   | N/A                                  |
| 95% KM (z) UCL                                     |                | 95% KM Bootstrap t UCL  | N/A                                  |
| 90% KM Chebyshev UCL                               |                | 95% KM Chebyshev UCL  |                                      |
| 97.5% KM Chebyshev UCL                             |                | 99% KM Chebyshev UCL  |                                      |
|  |                |   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
|  |                |   |                                      |

| Gamma GOF                                | Tests on De   | etected Observations Only                                       |           |
|--|---------------|---|-----------|
| A-D Test Statistic                       | r             | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                    | 0.658         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| K-S Test Statistic                       | 0.28          | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                    |               | Detected data appear Gamma Distributed at 5% Significan         | ce l evel |
|  |               | stributed at 5% Significance Level                              |           |
|  |               | eliable for small sample sizes                                  |           |
|  |               |   |           |
| Gamma                                    | Statistics or | n Detected Data Only  |           |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 1.925     |
| Theta hat (MLE)                          |               | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                             |               | nu star (bias corrected MLL)                                    | 15.4      |
|  |               |   | 15.4      |
| Mean (detects)                           | 6.7000E-5     |   |           |
|  |               |   |           |
|  |               | sing Imputed Non-Detects  |           |
|  |               | 6 NDs with many tied observations at multiple DLs               |           |
|  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|  |               | yield incorrect values of UCLs and BTVs                         |           |
| · · ·                                    |               | en the sample size is small.                                    |           |
|  |               | by be computed using gamma distribution on KM estimates         |           |
| Minimum                                  | 4.3000E-5     | Mean  | 0.00908   |
| Maximum                                  | 0.01          | Median  | 0.01      |
| SD                                       | 0.00292       | CV  | 0.322     |
| k hat (MLE)                              | 1.476         | k star (bias corrected MLE)                                     | 1.389     |
| Theta hat (MLE)                          | 0.00615       | Theta star (bias corrected MLE)                                 | 0.00654   |
| nu hat (MLE)                             | 127           | nu star (bias corrected)  | 119.4     |
| Adjusted Level of Significance (β)       | 0.0444        |   |           |
| Approximate Chi Square Value (119.43, α) | 95.2          | Adjusted Chi Square Value (119.43, β)                           | 94.45     |
| 95% Gamma Approximate UCL                | 0.0114        | 95% Gamma Adjusted UCL  | N/A       |
|  |               |   |           |
| Estimates of G                           | amma Para     | meters using KM Estimates                                       |           |
| Mean (KM)                                | 6.1889E-5     | SD (KM)   | 2.3953E-5 |
| Variance (KM)                            |               | SE of Mean (KM)   |           |
| k hat (KM)                               |               | k star (KM)   | 6.225     |
| nu hat (KM)                              |               | nu star (KM)  | 535.4     |
| theta hat (KM)                           |               | theta star (KM)   |           |
| 80% gamma percentile (KM)                |               | 90% gamma percentile (KM)                                       |           |
| 95% gamma percentile (KM)                |               | 90% gamma percentile (KM)                                       |           |
| 95 % gamma percendie (KM)                | 1.0752E-4     | 55 % garnina percenule (KM)                                     | 1.5505E-4 |
|  | a Kanlan M    | ciar (VAI) Statistica   |           |
|  | -             | eier (KM) Statistics  | 404       |
| Approximate Chi Square Value (535.38, α) |               | Adjusted Chi Square Value (535.38, β)                           | 481       |
| 95% KM Approximate Gamma UCL             | 6.8641E-5     | 95% KM Adjusted Gamma UCL                                       | 6.8888E-5 |
|  |               |   |           |
|  |               | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic              |               | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value          |               | Detected Data appear Lognormal at 10% Significance I            | _evel     |
| Lilliefors Test Statistic                | 0.255         | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value            | 0.346         | Detected Data appear Lognormal at 10% Significance I            | _evel     |
|  |               | ·   |           |

| Detected Data ap                                       | pear Lognor          | mal at 10% Significance Level   |        |
|--|----------------------|---|--------|
| Note GOF tests   | may be unre          | liable for small sample sizes   |        |
|  | 2 Statistics I       | Jsing Imputed Non-Detects   |        |
| Mean in Original Scale                                 |                      | Mean in Log Scale   | -9.75  |
| SD in Original Scale                                   |                      | SD in Log Scale   | 0.31   |
| 95% t UCL (assumes normality of ROS data)              |                      | 95% Percentile Bootstrap UCL  |        |
| 95% BCA Bootstrap UCL                                  |                      | 95% Bootstrap t UCL   |        |
| 95% H-UCL (Log ROS)                                    |                      |   |        |
|  |                      |   |        |
| Statistics using KM estimates<br>KM Mean (logged)      | on Logged L<br>-9.75 | Data and Assuming Lognormal Distribution KM Geo Mean                  | E 0210 |
|  | -9.75                | 95% Critical H Value (KM-Log)   | 5.8310 |
| KM SD (logged)   | 0.326                | · •   |        |
| KM Standard Error of Mean (logged)                     |                      | 95% H-UCL (KM -Log)   |        |
| KM SD (logged)<br>KM Standard Error of Mean (logged)   | 0.326                | 95% Critical H Value (KM-Log)   | 1.7    |
|  |                      | taset. Other substitution method recommended                          |        |
|  | DL/2 SI              | latiation   |        |
| DL/2 Normal  | DL/2 31              | DL/2 Log-Transformed  |        |
| Mean in Original Scale                                 | 9 2390F-4            | Mean in Log Scale   | -7.7   |
| SD in Original Scale                                   | 0.00106              | SD in Log Scale   | 1.3    |
| 95% t UCL (Assumes normality)                          | 0.0012               | 95% H-Stat UCL  | 0.00   |
|  |                      | led for comparisons and historical reasons                            |        |
|  |                      |   |        |
|  |                      | tion Free UCL Statistics  |        |
|  | r Normai Dis         | stributed at 1% Significance Level                                    |        |
|  | Suggested            | UCL to Use  |        |
| 95% KM (t) UCL   |                      |   |        |
|  |                      |   |        |
| Note: Suggestions regarding the selection of a 95%     | UCL are pro          | ovided to help the user to select the most appropriate 95% UCL        |        |
| Recommendations are based upon data size,              | data distribu        | ution, and skewness using results from simulation studies.            |        |
| However, simulations results will not cover all Real W | orld data set        | ts; for additional insight the user may want to consult a statisticia | an.    |
|  |                      |   |        |
| undwater   cis-1,2-dichloroethene   156-59-2)          |                      |   |        |
|  | General              | Statistics  |        |
| Total Number of Observations                           | 36                   | Number of Distinct Observations                                       | 4      |
| Number of Detects                                      | 0                    | Number of Non-Detects   | 36     |
| Number of Distinct Detects                             | 0                    | Number of Distinct Non-Detects  | 4      |
| Warning: All observations are Non-Detect               | s (NDe) the          | refore all statistics and estimates should also be NDs!               |        |
| -  |                      | stics are also NDs lying below the largest detection limit!           |        |
|  |                      | alues to estimate environmental parameters (e.g., EPC, BTV)           | ).     |
| The Flueur feath may decide to use alternative st      |                      |   | 1.1    |
|  | •                    |   |        |

|   | General       | Statistics  |       |
|---|---------------|---|-------|
| Total Number of Observations                    | 41            | Number of Distinct Observations                                 | 35    |
| Number of Detects                               | 35            | Number of Non-Detects   | 6     |
| Number of Distinct Detects                      | 34            | Number of Distinct Non-Detects                                  | 1     |
| Minimum Detect                                  | 0.0024        | Minimum Non-Detect  | 0.00  |
| Maximum Detect                                  | 0.805         | Maximum Non-Detect  | 0.00  |
| Variance Detects                                | 0.0315        | Percent Non-Detects   | 14.0  |
| Mean Detects                                    | 0.108         | SD Detects  | 0.1   |
| Median Detects                                  | 0.024         | CV Detects  | 1.6   |
| Skewness Detects                                | 2.532         | Kurtosis Detects  | 6.8   |
| Mean of Logged Detects                          | -3.443        | SD of Logged Detects  | 1.6   |
| Norm  | al GOF Tes    | t on Detects Only   |       |
| Shapiro Wilk Test Statistic                     | 0.64          | Shapiro Wilk GOF Test   |       |
| 1% Shapiro Wilk Critical Value                  | 0.91          | Detected Data Not Normal at 1% Significance Level               |       |
| Lilliefors Test Statistic                       | 0.277         | Lilliefors GOF Test   |       |
| 1% Lilliefors Critical Value                    | 0.172         | Detected Data Not Normal at 1% Significance Level               |       |
| Kaplan-Meier (KM) Statistics usir               | ng Normal C   | ritical Values and other Nonparametric UCLs                     |       |
| KM Mean   | 0.0923        | KM Standard Error of Mean                                       | 0.0   |
| 90KM SD   | 0.166         | 95% KM (BCA) UCL  | 0.1   |
| 95% KM (t) UCL                                  | 0.137         | 95% KM (Percentile Bootstrap) UCL                               | 0.1   |
| 95% KM (z) UCL                                  | 0.136         | 95% KM Bootstrap t UCL  | 0.1   |
| 90% KM Chebyshev UCL                            | 0.171         | 95% KM Chebyshev UCL  | 0.2   |
| 97.5% KM Chebyshev UCL                          | 0.256         | 99% KM Chebyshev UCL  | 0.3   |
| Gamma GOF                                       | Tests on De   | stected Observations Only                                       |       |
| A-D Test Statistic                              | 1.215         | Anderson-Darling GOF Test                                       |       |
| 5% A-D Critical Value                           | 0.81          | Detected Data Not Gamma Distributed at 5% Significance          | Level |
| K-S Test Statistic                              | 0.161         | Kolmogorov-Smirnov GOF  |       |
| 5% K-S Critical Value                           | 0.157         | Detected Data Not Gamma Distributed at 5% Significance          | Leve  |
| Detected Data Not C                             | amma Dist     | ributed at 5% Significance Level                                |       |
| Gamma   | Statistics or | Detected Data Only  |       |
| k hat (MLE)                                     | 0.52          | k star (bias corrected MLE)                                     | 0.4   |
| Theta hat (MLE)                                 | 0.207         | Theta star (bias corrected MLE)                                 | 0.2   |
| nu hat (MLE)                                    | 36.43         | nu star (bias corrected)  | 34.0  |
| Mean (detects)                                  | 0.108         |   |       |
| Gamma ROS                                       | Statistics us | sing Imputed Non-Detects  |       |
|   |               | NDs with many tied observations at multiple DLs                 |       |
| GROS may not be used when kstar of detects is s | mall such a   | s <1.0, especially when the sample size is small (e.g., <15-20) |       |
|   |               |   |       |

| For gamma distributed detected data, BTVs an | nd UCLs ma  | y be computed using gamma distribution on KM estimates |        |
|--|-------------|--|--------|
| Minimum                                      | 0.0024      | Mean   | 0.0933 |
| Maximum                                      | 0.805       | Median   | 0.0182 |
| SD   | 0.167       | CV   | 1.794  |
| k hat (MLE)                                  | 0.51        | k star (bias corrected MLE)                            | 0.489  |
| Theta hat (MLE)                              | 0.183       | Theta star (bias corrected MLE)                        | 0.191  |
| nu hat (MLE)                                 | 41.85       | nu star (bias corrected)                               | 40.12  |
| Adjusted Level of Significance (β)           | 0.0441      |  |        |
| Approximate Chi Square Value (40.12, α)      | 26.6        | Adjusted Chi Square Value (40.12, β)                   | 26.2   |
| 95% Gamma Approximate UCL                    | 0.141       | 95% Gamma Adjusted UCL                                 | 0.143  |
|  |             |  |        |
|  |             | meters using KM Estimates                              | 0.100  |
| Mean (KM)                                    | 0.0923      | SD (KM)  | 0.166  |
| Variance (KM)                                | 0.0275      | SE of Mean (KM)  | 0.0263 |
| k hat (KM)                                   | 0.31        | k star (KM)  | 0.304  |
| nu hat (KM)                                  | 25.43       | nu star (KM)   | 24.9   |
| theta hat (KM)                               | 0.298       | theta star (KM)  | 0.304  |
| 80% gamma percentile (KM)                    | 0.142       | 90% gamma percentile (KM)                              | 0.272  |
| 95% gamma percentile (KM)                    | 0.421       | 99% gamma percentile (KM)                              | 0.807  |
| Gamma  | a Kaplan-M  | eier (KM) Statistics                                   |        |
| Approximate Chi Square Value (24.90, α)      | 14.53       | Adjusted Chi Square Value (24.90, β)                   | 14.24  |
| 95% KM Approximate Gamma UCL                 | 0.158       | 95% KM Adjusted Gamma UCL                              | 0.161  |
|  |             |  |        |
| Lognormal GOI                                | F Test on D | etected Observations Only                              |        |
| Shapiro Wilk Test Statistic                  | 0.942       | Shapiro Wilk GOF Test                                  |        |
| 10% Shapiro Wilk Critical Value              | 0.944       | Detected Data Not Lognormal at 10% Significance Lev    | /el    |
| Lilliefors Test Statistic                    | 0.132       | Lilliefors GOF Test                                    |        |
| 10% Lilliefors Critical Value                | 0.136       | Detected Data appear Lognormal at 10% Significance L   | evel   |
| Detected Data appear Ap                      | proximate l | Lognormal at 10% Significance Level                    |        |
| Lognormal ROS                                | Statistics  | Using Imputed Non-Detects                              |        |
| Mean in Original Scale                       | 0.0922      | Mean in Log Scale                                      | -3.852 |
| SD in Original Scale                         | 0.168       | SD in Log Scale  | 1.846  |
| 95% t UCL (assumes normality of ROS data)    | 0.136       | 95% Percentile Bootstrap UCL                           | 0.138  |
| 95% BCA Bootstrap UCL                        | 0.148       | 95% Bootstrap t UCL                                    | 0.16   |
| 95% H-UCL (Log ROS)                          | 0.317       | · · ·  |        |
|  |             | I  |        |
|  |             | Data and Assuming Lognormal Distribution               | 0.005  |
| KM Mean (logged)                             | -3.771      | KM Geo Mean  | 0.023  |
| KM SD (logged)                               | 1.708       | 95% Critical H Value (KM-Log)                          | 3.235  |
| KM Standard Error of Mean (logged)           | 0.272       | 95% H-UCL (KM -Log)                                    | 0.238  |
| KM SD (logged)                               | 1.708       | 95% Critical H Value (KM-Log)                          | 3.235  |
| KM Standard Error of Mean (logged)           | 0.272       |  |        |
|  |             | tatistics  |        |
| DL/2 Normal                                  | 002 3       | DL/2 Log-Transformed                                   |        |
|  |             |  |        |
| Mean in Original Scale                       | 0.0922      | Mean in Log Scale                                      | -3.816 |

|  | 0.100  |  | 1.781                      |
|--|--|--|----------------------------|
| SD in Original Scale<br>95% t UCL (Assumes normality)  | 0.168  | SD in Log Scale<br>95% H-Stat UCL  | 0.275                      |
|  | 0.136  |  | 0.275                      |
| DL/2 is not a recommended m  | etnoa, provid  | ded for comparisons and historical reasons   |                            |
| Nonporom   | trio Diotribut   | tion Free UCL Statistics   |                            |
| -  |  |  |                            |
| Detected Data appear Approx  | Imate Logno  | rmal Distributed at 10% Significance Level   |                            |
|  | Oursested  |  |                            |
|  |  | UCL to Use   |                            |
| KM H-UCL   | 0.238  |  |                            |
|  |  |  |                            |
| · · · · · · · · · · · · · · · · · · ·  |  | e data were collected in a random and unbiased manner.   |                            |
|  |  | llected from random locations.   |                            |
|  |  | nental or other non-random methods,  |                            |
| then contact a   | statistician t   | o correctly calculate UCLs.  |                            |
|  |  |  |                            |
|  |  | ovided to help the user to select the most appropriate 95% UCL.  |                            |
|  |  | ution, and skewness using results from simulation studies.   |                            |
| However, simulations results will not cover all Real W   | /orld data set   | ts; for additional insight the user may want to consult a statistician   | n.                         |
|  |  |  |                            |
| C (groundwater   copper   7440-50-8)   |  |  |                            |
|  |  |  |                            |
|  | General  | Statistics   |                            |
| Total Number of Observations   | 41   | Number of Distinct Observations  | 17                         |
| Number of Detects  | 16   | Number of Non-Detects  | 25                         |
| Number of Distinct Detects   | 16   | Number of Distinct Non-Detects   | 1                          |
| Minimum Detect   | 6.6500E-4  | Minimum Non-Detect   | 0.02                       |
| Maximum Detect   | 0.11   | Maximum Non-Detect   | 0.02                       |
| Variance Detects   | 7.5242E-4  | Percent Non-Detects  | 60.98%                     |
| Mean Detects   | 0.0184   | SD Detects   | 0.0274                     |
| Median Detects   | 0.0106   | CV Detects   | 1.488                      |
| Skewness Detects   | 2.771  | Kurtosis Detects   | 8.804                      |
| Mean of Logged Detects   | -4.883   | SD of Logged Detects   | 1.454                      |
|  |  |  |                            |
| Norn   | nal GOF Tes  | t on Detects Only  |                            |
| Shapiro Wilk Test Statistic  | 0.645  | Shapiro Wilk GOF Test  |                            |
| 1% Shapiro Wilk Critical Value   | 0.844  | Detected Data Not Normal at 1% Significance Level  |                            |
|  |  |  |                            |
|  | 0.301  | Lilliefors GOF Test  |                            |
| Lilliefors Test Statistic  | 0.301<br>0.248   | Lilliefors GOF Test Detected Data Not Normal at 1% Significance Level  |                            |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value  | 0.248  | Detected Data Not Normal at 1% Significance Level  |                            |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value  | 0.248  |  |                            |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Date   | 0.248<br>a Not Norma   | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level   |                            |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi   | 0.248<br>a Not Norma<br>ng Normal C  | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs   | 0.00317                    |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi<br>KM Mean  | 0.248<br>a Not Norma<br>ng Normal C<br>0.0112                                | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs KM Standard Error of Mean   |                            |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi<br>KM Mean<br>90KM SD                                     | 0.248<br>a Not Norma<br>ng Normal C<br>0.0112<br>0.0181                      | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL  | 0.0169                     |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi<br>KM Mean<br>90KM SD<br>95% KM (t) UCL                   | 0.248<br>a Not Norma<br>ng Normal C<br>0.0112<br>0.0181<br>0.0166            | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL                        | 0.0169<br>0.0168           |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi<br>KM Mean<br>90KM SD<br>95% KM (t) UCL<br>95% KM (z) UCL | 0.248<br>a Not Normal<br>ng Normal C<br>0.0112<br>0.0181<br>0.0166<br>0.0165 | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL 95% KM Bootstrap t UCL | 0.0169<br>0.0168<br>0.0198 |
| Lilliefors Test Statistic<br>1% Lilliefors Critical Value<br>Detected Data<br>Kaplan-Meier (KM) Statistics usi<br>KM Mean<br>90KM SD<br>95% KM (t) UCL                   | 0.248<br>a Not Norma<br>ng Normal C<br>0.0112<br>0.0181<br>0.0166            | Detected Data Not Normal at 1% Significance Level I at 1% Significance Level ritical Values and other Nonparametric UCLs KM Standard Error of Mean 95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL                        | 0.0168                     |

| Gamma GOF                                | Tests on De   | etected Observations Only                                       |         |
|--|---------------|---|---------|
| A-D Test Statistic                       | 0.457         | Anderson-Darling GOF Test                                       |         |
| 5% A-D Critical Value                    | 0.78          | Detected data appear Gamma Distributed at 5% Significance       | e Level |
| K-S Test Statistic                       | 0.157         | Kolmogorov-Smirnov GOF  |         |
| 5% K-S Critical Value                    | 0.224         | Detected data appear Gamma Distributed at 5% Significance       | e Level |
| Detected data appea                      | r Gamma Di    | stributed at 5% Significance Level                              |         |
|  |               |   |         |
|  |               | Detected Data Only  |         |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 0.596   |
| Theta hat (MLE)                          |               | Theta star (bias corrected MLE)                                 | 0.0309  |
| nu hat (MLE)                             | 21.83         | nu star (bias corrected)  | 19.07   |
| Mean (detects)                           | 0.0184        |   |         |
| Gamma ROS                                | Statistics us | sing Imputed Non-Detects  |         |
|  |               | 5 NDs with many tied observations at multiple DLs               |         |
|  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |         |
|  |               | yield incorrect values of UCLs and BTVs                         |         |
|  | -             | en the sample size is small.                                    |         |
|  |               | y be computed using gamma distribution on KM estimates          |         |
|  | 6.6500E-4     | Mean  | 0.015   |
| Maximum                                  | 0.11          | Median  | 0.01    |
| SD                                       | 0.0176        | CV  | 1.171   |
| k hat (MLE)                              | 1.379         | k star (bias corrected MLE)                                     | 1.294   |
| Theta hat (MLE)                          | 0.0109        | Theta star (bias corrected MLE)                                 | 0.0116  |
| nu hat (MLE)                             | 113.1         | nu star (bias corrected)  | 106.1   |
| Adjusted Level of Significance (β)       | 0.0441        |   |         |
| Approximate Chi Square Value (106.12, α) | 83.34         | Adjusted Chi Square Value (106.12, β)                           | 82.61   |
| 95% Gamma Approximate UCL                | 0.0192        | 95% Gamma Adjusted UCL  | 0.0193  |
|  |               |   |         |
|  |               | meters using KM Estimates                                       |         |
| Mean (KM)                                | 0.0112        | SD (KM)   | 0.0181  |
| Variance (KM)                            | 3.2763E-4     | SE of Mean (KM)   | 0.00317 |
| k hat (KM)                               | 0.386         | k star (KM)   | 0.374   |
| nu hat (KM)                              | 31.62         | nu star (KM)  | 30.64   |
| theta hat (KM)                           | 0.0291        | theta star (KM)   | 0.0301  |
| 80% gamma percentile (KM)                | 0.018         | 90% gamma percentile (KM)                                       | 0.0321  |
| 95% gamma percentile (KM)                | 0.0478        | 99% gamma percentile (KM)                                       | 0.0875  |
|  |               |   |         |
|  |               | eier (KM) Statistics  | 10.00   |
| Approximate Chi Square Value (30.64, α)  |               | Adjusted Chi Square Value (30.64, β)                            | 18.66   |
| 95% KM Approximate Gamma UCL             | 0.0181        | 95% KM Adjusted Gamma UCL                                       | 0.0185  |
| Lognormal GC                             | OF Test on D  | etected Observations Only                                       |         |
| Shapiro Wilk Test Statistic              | 0.963         | Shapiro Wilk GOF Test   |         |
| 10% Shapiro Wilk Critical Value          | 0.906         | Detected Data appear Lognormal at 10% Significance L            | evel    |
| Lilliefors Test Statistic                | 0.16          | Lilliefors GOF Test   |         |
| 10% Lilliefors Critical Value            | 0.196         | Detected Data appear Lognormal at 10% Significance L            | evel    |
| Detected Data ap                         | pear Lognor   | mal at 10% Significance Level                                   |         |
|  | -             |   |         |

| Lognormal RO   |  |  |  |
|--|--|--|--|
|  |  | Jsing Imputed Non-Detects  |  |
| Mean in Original Scale   |  | Mean in Log Scale  | -5.276   |
| SD in Original Scale   | 0.0184   | SD in Log Scale  | 1.254  |
| 95% t UCL (assumes normality of ROS data)  | 0.0159   | 95% Percentile Bootstrap UCL   | 0.0163   |
| 95% BCA Bootstrap UCL  |  | 95% Bootstrap t UCL  | 0.0206   |
| 95% H-UCL (Log ROS)  | 0.019  |  |  |
| Statistics using KM estimates  | on Logged D  | Data and Assuming Lognormal Distribution   |  |
| KM Mean (logged)   | -5.252   | KM Geo Mean  | 0.0052   |
| KM SD (logged)   | 1.236  | 95% Critical H Value (KM-Log)  | 2.624  |
| KM Standard Error of Mean (logged)   | 0.305  | 95% H-UCL (KM -Log)  | 0.018  |
| KM SD (logged)   | 1.236  | 95% Critical H Value (KM-Log)  | 2.624  |
| KM Standard Error of Mean (logged)   | 0.305  |  |  |
|  | DL/2 St  | atistics   |  |
| DL/2 Normal  |  | DL/2 Log-Transformed   |  |
| Mean in Original Scale   | 0.0133   | Mean in Log Scale  | -4.714   |
| SD in Original Scale   | 0.0173   | SD in Log Scale  | 0.901  |
| 95% t UCL (Assumes normality)  | 0.0178   | 95% H-Stat UCL   | 0.018  |
| -  |  | tion Free UCL Statistics   |  |
| Detected Data appea  | r Gamma Dis  | stributed at 5% Significance Level   |  |
|  | Suggested  | UCL to Use   |  |
| 95% KM Adjusted Gamma UCL  | 0.0185   |  |  |
| -  | 0.0105   |  |  |
| The calculated UCLs are based on assumpt   |  | data were collected in a random and unbiased manner.   |  |
|  | tions that the   | e data were collected in a random and unbiased manner.<br>Ilected from random locations.   |  |
| Please verify the o  | tions that the<br>data were co   |  |  |
| Please verify the o<br>If the data were collected  | tions that the<br>data were co<br>d using judgn  | llected from random locations.   |  |
| Please verify the of the data were collected then contact a  | tions that the<br>data were co<br>I using judgn<br>statistician to   | llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.   |  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%   | tions that the<br>data were co<br>d using judgn<br>statistician to<br>6 UCL are pro  | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.  |  |
| Please verify the of If the data were collected then contact a then contact a Note: Suggestions regarding the selection of a 95% Recommendations are based upon data size  | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribu  | llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.   |  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribu  | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.  |  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribu  | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.  |  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribu  | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>rs; for additional insight the user may want to consult a statisticia   |  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations   | tions that the<br>data were co<br>d using judgn<br>statistician to<br>6 UCL are pro<br>, data distribu<br>/orld data set<br>General 3<br>36  | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>rs; for additional insight the user may want to consult a statistician<br>Statistics<br>Number of Distinct Observations   | an.<br>7   |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects  | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro<br>data distribu<br>/orld data set<br>General S<br>36<br>5   | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>rs; for additional insight the user may want to consult a statistician<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | an.<br>7<br>31                                       |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | tions that the<br>data were co<br>d using judgn<br>statistician to<br>6 UCL are pro<br>, data distribu<br>/orld data set<br>General 3<br>36<br>5<br>4                                    | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>by ided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>is; for additional insight the user may want to consult a statistician<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects   | an.<br>7<br>31<br>4                                  |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect                    | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>data distribu<br>/orld data set<br>36<br>5<br>4<br>4.0000E-4                                     | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>povided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>as; for additional insight the user may want to consult a statistician<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detects  | an.<br>7<br>31<br>4<br>0.001                         |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect                    | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribut<br>/orld data set<br>36<br>5<br>4<br>4.0000E-4<br>0.002                         | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>by ided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>is; for additional insight the user may want to consult a statistician<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect   | an.<br>7<br>31<br>4<br>0.001<br>0.025                |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detects | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>data distribu<br>/orld data set<br>36<br>5<br>4<br>4.0000E-4<br>0.002<br>3.4800E-7               | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>Divided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>(s; for additional insight the user may want to consult a statistician<br>(s; for additional insight the user may want to consult a statistician<br>(s) Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>(s) Percent Non-Detec | 7<br>31<br>4<br>0.001<br>0.025<br>86.11 <sup>4</sup> |
| Please verify the of<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>(groundwater   cumene   98-82-8)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | tions that the<br>data were co<br>d using judgn<br>statistician to<br>b UCL are pro-<br>d data distribut<br>/orld data set<br>36<br>5<br>4<br>4.0000E-4<br>0.002<br>3.4800E-7<br>0.00104 | Ilected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>by ided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>is; for additional insight the user may want to consult a statistician<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect   | 7<br>31<br>4<br>0.001<br>0.025<br>86.11              |

|  | 1.005         |   | 0 500     |
|--|---------------|---|-----------|
| Skewness Detects                         |               | Kurtosis Detects  | 2.533     |
| Mean of Logged Detects                   | -6.997        | SD of Logged Detects  | 0.577     |
| Nom                                      |               | t on Detects Only   |           |
| Shapiro Wilk Test Statistic              |               | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value           |               | Detected Data appear Normal at 1% Significance Lev              | vol       |
| Lilliefors Test Statistic                |               | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value             |               |   | (al       |
|  |               | Detected Data appear Normal at 1% Significance Lev              | /ei       |
|  |               | nal at 1% Significance Level                                    |           |
|  | may be unre   | eliable for small sample sizes                                  |           |
| Konlan Majar (KM) Statiation usi         |               | witige Voluce and other Nonnersmatric LICLs                     |           |
|  | 7.2941E-4     | ritical Values and other Nonparametric UCLs                     | 1 50055 4 |
|  |               | KM Standard Error of Mean                                       |           |
|  | 3.8770E-4     | 95% KM (BCA) UCL  | N/A       |
| 95% KM (t) UCL                           |               | 95% KM (Percentile Bootstrap) UCL                               | N/A       |
| 95% KM (z) UCL                           |               | 95% KM Bootstrap t UCL  | N/A       |
| 90% KM Chebyshev UCL                     | 0.00121       | 95% KM Chebyshev UCL  | 0.00143   |
| 97.5% KM Chebyshev UCL                   | 0.00173       | 99% KM Chebyshev UCL  | 0.00232   |
| Gamma GOE                                | Tests on De   | etected Observations Only                                       |           |
| A-D Test Statistic                       |               | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                    |               | Detected data appear Gamma Distributed at 5% Significant        |           |
|  |               |   |           |
| K-S Test Statistic                       |               | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                    |               | Detected data appear Gamma Distributed at 5% Significant        | ce Level  |
|  |               | stributed at 5% Significance Level                              |           |
| Note GOF tests                           | may be unre   | eliable for small sample sizes                                  |           |
| Gamma                                    | Statistics or | n Detected Data Only  |           |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 1.754     |
| Theta hat (MLE)                          |               | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                             |               | nu star (bias corrected)  | 17.54     |
| Mean (detects)                           |               |   | 17.04     |
|  | 0.00104       |   |           |
| Gamma ROS                                | Statistics u  | sing Imputed Non-Detects  |           |
|  |               | 6 NDs with many tied observations at multiple DLs               |           |
| •  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|  |               | yield incorrect values of UCLs and BTVs                         |           |
|  |               | en the sample size is small.                                    |           |
|  | -             | be computed using gamma distribution on KM estimates            |           |
|  | 4.0000E-4     | Mean  | 0.00876   |
| Maximum                                  |               | Median  | 0.00876   |
| SD                                       | 0.001         | CV  | 0.01      |
|  |               |   |           |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 2.46      |
| Theta hat (MLE)                          | 0.00329       | Theta star (bias corrected MLE)                                 | 0.00356   |
| nu hat (MLE)                             |               | nu star (bias corrected)  | 177.1     |
| Adjusted Level of Significance (β)       | 0.0428        |   |           |
| Approximate Chi Square Value (177.13, α) |               | Adjusted Chi Square Value (177.13, β)                           | 146.1     |
| 95% Gamma Approximate UCL                | 0.0105        | 95% Gamma Adjusted UCL  | 0.0106    |
|  |               |   |           |

|  |                        | neters using KM Estimates                               | 0.07705 4          |
|--|------------------------|---|--------------------|
| Mean (KM)  |                        | SD (KM)<br>SE of Mean (KM)                              | 3.8770E-4          |
| Variance (KM)<br>k hat (KM)                      | 3.54                   |   | 1.5995E-4<br>3.263 |
| nu hat (KM)                                      | 254.9                  | k star (KM)<br>nu star (KM)                             | 234.9              |
| theta hat (KM)                                   |                        | theta star (KM)   |                    |
| 80% gamma percentile (KM)                        | 0.00103                | 90% gamma percentile (KM)                               | 0.00127            |
| 95% gamma percentile (KM)                        | 0.00103                | 99% gamma percentile (KM)                               | 0.00127            |
|  | 0.00143                |   | 0.00130            |
| Gamm   | na Kaplan-Me           | eier (KM) Statistics                                    |                    |
| Approximate Chi Square Value (234.95, $\alpha$ ) | 200.5                  | Adjusted Chi Square Value (234.95, $\beta$ )            | 199                |
| 95% KM Approximate Gamma UCL                     | 8.5488E-4              | 95% KM Adjusted Gamma UCL                               | 8.6108E-4          |
| Lognormal GC                                     | DF Test on D           | etected Observations Only                               |                    |
| Shapiro Wilk Test Statistic                      |                        | Shapiro Wilk GOF Test                                   |                    |
| 10% Shapiro Wilk Critical Value                  | 0.806                  | Detected Data appear Lognormal at 10% Significance I    | Level              |
| Lilliefors Test Statistic                        | 0.238                  | Lilliefors GOF Test                                     |                    |
| 10% Lilliefors Critical Value                    | 0.319                  | Detected Data appear Lognormal at 10% Significance I    | Level              |
| Detected Data ap                                 | pear Lognori           | nal at 10% Significance Level                           |                    |
|  | -                      | liable for small sample sizes Jsing Imputed Non-Detects |                    |
| Mean in Original Scale                           |                        | Mean in Log Scale                                       | -7.407             |
| SD in Original Scale                             |                        | SD in Log Scale   | 0.468              |
| 95% t UCL (assumes normality of ROS data)        |                        | 95% Percentile Bootstrap UCL                            |                    |
| 95% BCA Bootstrap UCL                            |                        | 95% Bootstrap t UCL                                     |                    |
| 95% H-UCL (Log ROS)                              |                        |   | 0.00772 1          |
|  |                        |   |                    |
| Statistics using KM estimates                    | on Logged D            | Data and Assuming Lognormal Distribution                |                    |
| KM Mean (logged)                                 | -7.336                 | KM Geo Mean   | 6.5155E-4          |
| KM SD (logged)                                   | 0.459                  | 95% Critical H Value (KM-Log)                           | 1.881              |
| KM Standard Error of Mean (logged)               | 0.243                  | 95% H-UCL (KM -Log)                                     | 8.3783E-4          |
| KM SD (logged)                                   | 0.459                  | 95% Critical H Value (KM-Log)                           | 1.881              |
| KM Standard Error of Mean (logged)               | 0.243                  |   |                    |
| Note: KM UCLs may be biased low                  | <i>v</i> with this dat | taset. Other substitution method recommended            |                    |
|  | DL/2 St                | atistics  |                    |
| DL/2 Normal                                      |                        | DL/2 Log-Transformed                                    |                    |
| Mean in Original Scale                           | 0.00272                | Mean in Log Scale                                       | -6.499             |
| SD in Original Scale                             | 0.00362                | SD in Log Scale   | 1.051              |
| 95% t UCL (Assumes normality)                    | 0.00374                | 95% H-Stat UCL  | 0.00404            |
| DL/2 is not a recommended m                      | ethod, provid          | led for comparisons and historical reasons              |                    |
| Nonparame  | etric Distribut        | ion Free UCL Statistics                                 |                    |
|  |                        | tributed at 1% Significance Level                       |                    |
|  |                        |   |                    |
|  | Suggested              | UCL to Use  |                    |
|  |                        |   |                    |

| 55% KW (t) OCE   | 9.9967E-4  |  |
|--|--|--|
|  | 5.5507L-4  |  |
| Note: Suggestions regarding the selection of a 95%   |  | vided to help the user to select the most appropriate 95% UCL.   |
|  |  | tion, and skewness using results from simulation studies.  |
|  |  | s; for additional insight the user may want to consult a statistician.   |
|  |  | s, for additional insight the user may want to consult a statistician.   |
| (groundwater   cyclohexane   110-82-7)   |  |  |
|  |  |  |
|  | General S  | Statistics   |
| Total Number of Observations   | 24   | Number of Distinct Observations 2  |
| Number of Detects  | 0  | Number of Non-Detects 24   |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects 2   |
| Warning: All observations are Non-Detect   | s (NDs), ther  | efore all statistics and estimates should also be NDs!   |
| -  |  | tics are also NDs lying below the largest detection limit!   |
|  |  | alues to estimate environmental parameters (e.g., EPC, BTV).   |
|  |  | (  |
| The data set for variable C (gro   | undwater   cy  | /clohexane   110-82-7) was not processed!  |
|  |  |  |
| (groundwater   dibenz(a,h)anthracene   53-70-3)  |  |  |
| (3   |  |  |
|  | General S  | Statistics   |
| Total Number of Observations   | 43   |  |
|  |  | Number of Distinct Observations 18   |
| Number of Detects  | 5  | Number of Distinct Observations         18           Number of Non-Detects         38  |
|  |  |  |
| Number of Detects  | 5<br>5   | Number of Non-Detects         38           Number of Distinct Non-Detects         13   |
| Number of Detects<br>Number of Distinct Detects  | 5<br>5<br>2.4000E-5  | Number of Non-Detects         38           Number of Distinct Non-Detects         13           Minimum Non-Detect         1.0620E  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | 5<br>5<br>2.4000E-5<br>5.2500E-5   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10  | Number of Non-Detects     38       Number of Distinct Non-Detects     13       Minimum Non-Detect     1.0620E       Maximum Non-Detect     0.0056       Percent Non-Detects     88.37  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5   | Number of Non-Detects     38       Number of Distinct Non-Detects     13       Minimum Non-Detect     1.0620E       Maximum Non-Detect     0.0056       Percent Non-Detects     88.37  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5  | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A  |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5   | Number of Non-Detects38Number of Distinct Non-Detects13Minimum Non-Detect1.0620EMaximum Non-Detect0.0056Percent Non-Detects88.37SD Detects1.1520ECV DetectsN/AKurtosis Detects-1.275   |
| Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects<br>Mean of Logged Detects  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314   |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Mean Detects Median Detects Skewness Detects Mean of Logged Detects Norm   | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>nal GOF Test   | Number of Non-Detects     38       Number of Distinct Non-Detects     13       Minimum Non-Detect     1.0620E       Maximum Non-Detect     0.0056       Percent Non-Detects     88.37       SD Detects     1.1520E       CV Detects     N/A       Kurtosis Detects     -1.275       SD of Logged Detects     0.314   |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Mean Detects Median Detects Skewness Detects Mean of Logged Detects Norm Shapiro Wilk Test Statistic   | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>al GOF Test<br>0.959   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detects       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only       Shapiro Wilk GOF Test  |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Mean Detects Median Detects Skewness Detects Mean of Logged Detects Norm Shapiro Wilk Test Statistic 1% Shapiro Wilk Critical Value  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>mal GOF Test<br>0.959<br>0.686   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         On Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Level  |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Mean Detects Median Detects Skewness Detects Mean of Logged Detects Norm Shapiro Wilk Test Statistic 1% Shapiro Wilk Critical Value Lilliefors Test Statistic  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br><b>nal GOF Test</b><br>0.959<br>0.686<br>0.193   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detects       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test   |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Scritical Value         1% Lilliefors Critical Value   | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>mal GOF Test<br>0.959<br>0.686<br>0.193<br>0.396   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detects       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br><b>nal GOF Test</b><br>0.959<br>0.686<br>0.193<br>0.396<br><b>appear Norm</b>  | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detects       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level   |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data         Note GOF tests  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>mal GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Norma   | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Shapiro Wilk GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level       al at 1% Significance Level         iable for small sample sizes  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at Note GOF tests         Kaplan-Meier (KM) Statistics using  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>al GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Norma<br>may be unrel  | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test       Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level       iable for small sample sizes         itical Values and other Nonparametric UCLs       UCLs  |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at Note GOF tests         Kaplan-Meier (KM) Statistics usin                  | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>nal GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Normal<br>may be unrel<br>may be unrel<br>3.6700E-5                           | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test       Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level       iable for small sample sizes         itical Values and other Nonparametric UCLs       KM Standard Error of Mean         KM Standard Error of Mean       5.1517E   |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at         Note GOF tests         Kaplan-Meier (KM) Statistics usin         KM Mean         90KM SD | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>al GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Norma<br>may be unrel<br>mg Normal Cr<br>3.6700E-5<br>1.0303E-5                | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level       iable for small sample sizes         itical Values and other Nonparametric UCLs         KM Standard Error of Mean       5.1517E         95% KM (BCA) UCL       4.5750E  |
| Number of Detects Number of Distinct Detects Minimum Detect Maximum Detect Variance Detects Median Detects Median Detects Skewness Detects Mean of Logged Detects Norm Shapiro Wilk Test Statistic 1% Shapiro Wilk Critical Value Lilliefors Test Statistic 1% Lilliefors Critical Value Detected Data a Note GOF tests Kaplan-Meier (KM) Statistics usin KM Mean 90KM SD 95% KM (t) UCL   | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>mal GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Normal<br>may be unrel<br>ng Normal Cr<br>3.6700E-5<br>1.0303E-5<br>4.5365E-5 | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only       -1.275         SD of Logged Detects       0.314         Detected Data appear Normal at 1% Significance Level       -1.275         Detected Data appear Normal at 1% Significance Level       -1.275         Detected Data appear Normal at 1% Significance Level       -1.275         at 1% Significance Level       -1.275         iable for small sample sizes       -1.275         Stapiro Wilk GOF Test       -1.275         Detected Data appear Normal at 1% Significance Level       -1.275         at 1% Significance Level |
| Number of Detects         Number of Distinct Detects         Minimum Detect         Maximum Detect         Variance Detects         Mean Detects         Median Detects         Skewness Detects         Mean of Logged Detects         Norm         Shapiro Wilk Test Statistic         1% Shapiro Wilk Critical Value         Lilliefors Test Statistic         1% Lilliefors Critical Value         Detected Data at         Note GOF tests         Kaplan-Meier (KM) Statistics usin         KM Mean         90KM SD | 5<br>5<br>2.4000E-5<br>5.2500E-5<br>1.327E-10<br>3.6700E-5<br>3.4000E-5<br>0.493<br>-10.25<br>mal GOF Test<br>0.959<br>0.686<br>0.193<br>0.396<br>appear Normal<br>may be unrel<br>ng Normal Cr<br>3.6700E-5<br>1.0303E-5<br>4.5365E-5 | Number of Non-Detects       38         Number of Distinct Non-Detects       13         Minimum Non-Detect       1.0620E         Maximum Non-Detect       0.0056         Percent Non-Detects       88.37         SD Detects       1.1520E         CV Detects       N/A         Kurtosis Detects       -1.275         SD of Logged Detects       0.314         on Detects Only         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         Lilliefors GOF Test         Detected Data appear Normal at 1% Significance Level         al at 1% Significance Level       iable for small sample sizes         itical Values and other Nonparametric UCLs         KM Standard Error of Mean       5.1517E         95% KM (BCA) UCL       4.5750E  |

| 97.5% KM Chebyshev UCL                          | 6.8872E-5      | 99% KM Chebyshev UCL  | 8.7959E-5 |
|---|----------------|---|-----------|
| Note: KM UCLs may be biased low                 | v with this da | taset. Other substitution method recommended                    |           |
|   |                |   |           |
| Gamma GOF                                       | Tests on De    | etected Observations Only                                       |           |
| A-D Test Statistic                              | 0.213          | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                           | 0.679          | Detected data appear Gamma Distributed at 5% Significan         | ice Level |
| K-S Test Statistic                              | 0.177          | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                           | 0.357          | Detected data appear Gamma Distributed at 5% Significan         | ice Level |
| Detected data appea                             | r Gamma Dis    | stributed at 5% Significance Level                              |           |
| Note GOF tests                                  | may be unre    | eliable for small sample sizes                                  |           |
|   |                |   |           |
| Gamma   | Statistics or  | n Detected Data Only  |           |
| k hat (MLE)                                     | 12.84          | k star (bias corrected MLE)                                     | 5.271     |
| Theta hat (MLE)                                 | 2.8574E-6      | Theta star (bias corrected MLE)                                 | 6.9628E-6 |
| nu hat (MLE)                                    | 128.4          | nu star (bias corrected)  | 52.71     |
| Mean (detects)                                  | 3.6700E-5      |   |           |
|   |                |   |           |
| Gamma ROS                                       | Statistics u   | sing Imputed Non-Detects  |           |
| GROS may not be used when data s                | et has > 50%   | NDs with many tied observations at multiple DLs                 |           |
|   |                | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|   |                | yield incorrect values of UCLs and BTVs                         |           |
|   |                | en the sample size is small.                                    |           |
|   |                | y be computed using gamma distribution on KM estimates          |           |
| Minimum   | 2.4000E-5      | Mean  | 0.00884   |
| Maximum   | 0.01           | Median  | 0.01      |
| SD  | 0.00323        | CV  | 0.366     |
| k hat (MLE)                                     | 1.073          | k star (bias corrected MLE)                                     | 1.014     |
| Theta hat (MLE)                                 | 0.00824        | Theta star (bias corrected MLE)                                 | 0.00872   |
| nu hat (MLE)                                    | 92.3           | nu star (bias corrected)  | 87.19     |
| Adjusted Level of Significance (β)              | 0.0444         |   |           |
| Approximate Chi Square Value (87.19, $\alpha$ ) | 66.66          | Adjusted Chi Square Value (87.19, β)                            | 66.04     |
| 95% Gamma Approximate UCL                       | 0.0116         | 95% Gamma Adjusted UCL  | 0.0117    |
|   |                | ·   |           |
| Estimates of G                                  | iamma Parai    | meters using KM Estimates                                       |           |
| Mean (KM)                                       |                | SD (KM)   | 1.0303E-5 |
| Variance (KM)                                   | 1.062E-10      | SE of Mean (KM)   | 5.1517E-6 |
| k hat (KM)                                      | 12.69          | k star (KM)   | 11.82     |
| nu hat (KM)                                     | 1091           | nu star (KM)  | 1016      |
| theta hat (KM)                                  |                | theta star (KM)   | 3.1055E-6 |
| 80% gamma percentile (KM)                       | 4.5253E-5      | 90% gamma percentile (KM)                                       | 5.0873E-5 |
| 95% gamma percentile (KM)                       | 5.5841E-5      | 99% gamma percentile (KM)                                       | 6.5979E-5 |
|   |                |   |           |
|   |                | eier (KM) Statistics  |           |
| Approximate Chi Square Value (N/A, $\alpha$ )   | 943.3          | Adjusted Chi Square Value (N/A, β)                              | 940.9     |
| 95% KM Approximate Gamma UCL                    | 3.9540E-5      | 95% KM Adjusted Gamma UCL                                       | 3.9642E-5 |
| Note: KM UCLs may be biased low                 | with this da   | taset. Other substitution method recommended                    | <u>.</u>  |
|   |                |   |           |
| Lognormal GC                                    | F Test on D    | etected Observations Only                                       |           |

| Shapiro Wilk Test Statistic                            | 0.976          | Shapiro Wilk GOF Test  |           |
|--|----------------|--|-----------|
| 10% Shapiro Wilk Critical Value                        | 0.806          | Detected Data appear Lognormal at 10% Significance I                 | _evel     |
| Lilliefors Test Statistic                              | 0.159          | Lilliefors GOF Test  |           |
| 10% Lilliefors Critical Value                          | 0.319          | Detected Data appear Lognormal at 10% Significance I                 | _evel     |
| Detected Data ap                                       | pear Lognor    | mal at 10% Significance Level  |           |
| Note GOF tests   | may be unre    | eliable for small sample sizes                                       |           |
|  |                |  |           |
| Lognormal RO   | S Statistics   | Using Imputed Non-Detects  |           |
| Mean in Original Scale                                 | 3.6786E-5      | Mean in Log Scale  | -10.25    |
| SD in Original Scale                                   | 1.1018E-5      | SD in Log Scale  | 0.292     |
| 95% t UCL (assumes normality of ROS data)              | 3.9612E-5      | 95% Percentile Bootstrap UCL   | 3.9575E-5 |
| 95% BCA Bootstrap UCL                                  | 3.9894E-5      | 95% Bootstrap t UCL  | 3.9899E-5 |
| 95% H-UCL (Log ROS)                                    | 3.9878E-5      |  |           |
|  |                |  |           |
| Statistics using KM estimates                          | on Logged I    | Data and Assuming Lognormal Distribution                             |           |
| KM Mean (logged)                                       | -10.25         | KM Geo Mean  | 3.5281E-5 |
| KM SD (logged)   | 0.281          | 95% Critical H Value (KM-Log)  | 1.759     |
| KM Standard Error of Mean (logged)                     | 0.141          | 95% H-UCL (KM -Log)  | 3.9613E-5 |
| KM SD (logged)   | 0.281          | 95% Critical H Value (KM-Log)  | 1.759     |
| KM Standard Error of Mean (logged)                     | 0.141          |  |           |
| Note: KM UCLs may be biased low                        | v with this da | taset. Other substitution method recommended                         |           |
|  |                |  |           |
|  | DL/2 S         | tatistics  |           |
| DL/2 Normal  |                | DL/2 Log-Transformed   |           |
| Mean in Original Scale                                 | 9.2086E-4      | Mean in Log Scale  | -7.837    |
| SD in Original Scale                                   | 0.00106        | SD in Log Scale  | 1.427     |
| 95% t UCL (Assumes normality)                          | 0.00119        | 95% H-Stat UCL   | 0.00206   |
| DL/2 is not a recommended m                            | ethod, provi   | ded for comparisons and historical reasons                           |           |
|  |                |  |           |
| Nonparamo  | etric Distribu | tion Free UCL Statistics   |           |
| Detected Data appea                                    | ar Normal Dis  | stributed at 1% Significance Level                                   |           |
|  |                |  |           |
|  | Suggested      | UCL to Use   |           |
| 95% KM (t) UCL   | 4.5365E-5      |  |           |
|  |                |  |           |
| Note: Suggestions regarding the selection of a 95%     | 6 UCL are pr   | ovided to help the user to select the most appropriate 95% UCL       |           |
| Recommendations are based upon data size               | , data distrib | ution, and skewness using results from simulation studies.           |           |
| However, simulations results will not cover all Real V | Vorld data se  | ts; for additional insight the user may want to consult a statistici | an.       |
|  |                |  |           |
| C (groundwater   dibenzofuran   132-64-9)              |                |  |           |
|  |                |  |           |
|  | General        | Statistics   |           |
| Total Number of Observations                           | 43             | Number of Distinct Observations                                      | 18        |
| Number of Detects                                      | 5              | Number of Non-Detects  | 38        |
| Number of Distinct Detects                             | 5              | Number of Distinct Non-Detects                                       | 13        |
| Minimum Detect   | 2.0000E-5      | Minimum Non-Detect   | 9.2167E-5 |
| Maximum Detect   |                | Maximum Non-Detect   | 0.01      |
| Variance Detects                                       |                | Percent Non-Detects  | 88.37%    |
|  |                |  |           |

| Mean Detects  | 1 3013F-4  | SD Detects 1  | 6733E-4                |
|---|--|---|------------------------|
| Median Detects  |  | CV Detects  | 1.203                  |
| Skewness Detects  |  | Kurtosis Detects  | 4.185                  |
| Mean of Logged Detects  |  | SD of Logged Detects  | 1.139                  |
| Mean of Logged Delects  | -9.402   | SD of Logged Delects  | 1.139                  |
| Norn  | nal GOF Tes  | t on Detects Only   |                        |
| Shapiro Wilk Test Statistic   |  | Shapiro Wilk GOF Test   |                        |
| 1% Shapiro Wilk Critical Value  |  | Detected Data appear Normal at 1% Significance Leve   | <u>ə</u> ]             |
| Lilliefors Test Statistic   |  | Lilliefors GOF Test   | 51                     |
| 1% Lilliefors Critical Value  |  | Detected Data appear Normal at 1% Significance Leve   |                        |
|   |  | nal at 1% Significance Level  | 51                     |
|   |  | liable for small sample sizes   |                        |
|   |  |   |                        |
| Kaplan-Meier (KM) Statistics usi  | ng Normal C  | ritical Values and other Nonparametric UCLs   |                        |
|   | 1.1249E-4  | KM Standard Error of Mean 5   | 7106E-5                |
|   | 1.3422E-4  | 95% KM (BCA) UCL 2  |                        |
| 95% KM (t) UCL  |  | 95% KM (Percentile Bootstrap) UCL 2   |                        |
| 95% KM (z) UCL  |  | 95% KM Bootstrap t UCL 4  |                        |
| 90% KM Chebyshev UCL  |  |   |                        |
| -   |  | 95% KM Chebyshev UCL 3  |                        |
| 97.5% KM Chebyshev UCL  |  | 99% KM Chebyshev UCL 6  | 0.8069E-4              |
| Note: KM UCLS may be blased low   | v with this da   | taset. Other substitution method recommended  |                        |
| Commo COE   | Tooto on Do  | etected Observations Only   |                        |
| A-D Test Statistic  |  | -   |                        |
| 5% A-D Critical Value   |  | Anderson-Darling GOF Test Detected data appear Gamma Distributed at 5% Significance                     |                        |
|   |  |   | e Levei                |
| K-S Test Statistic<br>5% K-S Critical Value   |  | Kolmogorov-Smirnov GOF  | <u> </u>               |
|   |  | Detected data appear Gamma Distributed at 5% Significance   | e Level                |
|   |  | stributed at 5% Significance Level  |                        |
|   | may be unre  |   |                        |
| Gamma   | Statistics on  | Detected Data Only  |                        |
| k hat (MLE)   |  | k star (bias corrected MLE)   | 0.571                  |
| Theta hat (MLE)   |  | Theta star (bias corrected MLE) 2   |                        |
| nu hat (MLE)  |  | nu star (bias corrected)  | 5.712                  |
| Mean (detects)  |  |   | 0.712                  |
|   | 1.53156-4  |   |                        |
| Gamma POS   | Statistics u   | sing Imputed Non-Detects  |                        |
|   |  | NDs with many tied observations at multiple DLs   |                        |
|   |  | s <1.0, especially when the sample size is small (e.g., <15-20)   |                        |
| GROS fildy flot be used when ksidi of delects is  | Sinali Such a  | s < 1.0, especially when the sample size is small (e.g., < 15-20)                                       |                        |
| For such situations, CDOS   | mothed mov   | viold incorrect volume of UCLs and PTVs   |                        |
|   | -  | yield incorrect values of UCLs and BTVs   |                        |
| This is espec   | ially true whe   | n the sample size is small.   |                        |
| This is espec<br>For gamma distributed detected data, BTVs a  | ially true whe   | n the sample size is small.<br>y be computed using gamma distribution on KM estimates                   | 0.0000=                |
| This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum                                 | and UCLs ma  | n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean           | 0.00885                |
| This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum                      | and UCLs ma<br>2.0000E-5<br>0.01   | n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median | 0.01                   |
| This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD                | ially true whe<br>and UCLs ma<br>2.0000E-5<br>0.01<br>0.0032                     | y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV                          | 0.01<br>0.361          |
| This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE) | ially true whe<br>and UCLs ma<br>2.0000E-5<br>0.01<br>0.0032<br>1.288            | y be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE)       | 0.01<br>0.361<br>1.214 |
| This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD                | ially true whe<br>and UCLs ma<br>2.0000E-5<br>0.01<br>0.0032<br>1.288<br>0.00687 | y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV                          | 0.01<br>0.361          |

| Adjusted Level of Significance (β)   | 0.0444        |  |            |
|--|---------------|--|------------|
| Aujusted Level of Significance (β)<br>Approximate Chi Square Value (104.37, α) | 81.8          | Adjusted Chi Square Value (104.37, β)                | 81.1       |
|  | 0.0113        | 95% Gamma Adjusted UCL                               | 0.0114     |
| 95% Gamma Approximate UCL  | 0.0113        | 95% Gamma Adjusted UCL                               | 0.0114     |
| Estimatos of O   | ommo Doror    | neters using KM Estimates                            |            |
| Mean (KM)  |               |  | 1 24225 4  |
|  |               |  | 1.3422E-4  |
| Variance (KM)  |               | SE of Mean (KM)                                      |            |
| k hat (KM)   | 0.702         | k star (KM)  | 0.669      |
| nu hat (KM)  | 60.41         | nu star (KM)   | 57.52      |
| theta hat (KM)   |               | theta star (KM)                                      |            |
| 80% gamma percentile (KM)  |               | 90% gamma percentile (KM)                            |            |
| 95% gamma percentile (KM)  | 3.8920E-4     | 99% gamma percentile (KM)                            | 6.3800E-4  |
|  |               |  |            |
|  | -             | eier (KM) Statistics                                 | 40.01      |
| Approximate Chi Square Value (57.52, α)  | 41.09         | Adjusted Chi Square Value (57.52, β)                 | 40.61      |
| 95% KM Approximate Gamma UCL   |               | 95% KM Adjusted Gamma UCL                            | 1.5935E-4  |
| Note: KM UCLs may be blased low  | with this da  | taset. Other substitution method recommended         |            |
|  |               |  |            |
|  |               | etected Observations Only                            |            |
| Shapiro Wilk Test Statistic  |               | Shapiro Wilk GOF Test                                |            |
| 10% Shapiro Wilk Critical Value  | 0.806         | Detected Data appear Lognormal at 10% Significance I | _evel      |
| Lilliefors Test Statistic  | 0.233         | Lilliefors GOF Test                                  |            |
| 10% Lilliefors Critical Value  | 0.319         | Detected Data appear Lognormal at 10% Significance I | _evel      |
|  |               | mal at 10% Significance Level                        |            |
| Note GOF tests   | may be unre   | liable for small sample sizes                        |            |
|  | 0.04444444    | Ising Inserted New Detecto                           |            |
|  |               | Jsing Imputed Non-Detects<br>Mean in Log Scale       | 0.656      |
| Mean in Original Scale   |               | 0  | -9.656     |
| SD in Original Scale   |               | SD in Log Scale                                      | 0.879      |
| 95% t UCL (assumes normality of ROS data)                                      |               | 95% Percentile Bootstrap UCL                         |            |
| 95% BCA Bootstrap UCL  |               | 95% Bootstrap t UCL                                  | 1.3298E-4  |
| 95% H-UCL (Log ROS)  | 1.2749E-4     |  |            |
|  |               |  |            |
|  |               | Data and Assuming Lognormal Distribution             | 0 0000 5 5 |
| KM Mean (logged)   | -9.623        | KM Geo Mean  |            |
| KM SD (logged)   | 0.983         | 95% Critical H Value (KM-Log)                        | 2.343      |
| KM Standard Error of Mean (logged)   | 0.442         | 95% H-UCL (KM -Log)                                  |            |
| KM SD (logged)   | 0.983         | 95% Critical H Value (KM-Log)                        | 2.343      |
| KM Standard Error of Mean (logged)   | 0.442         |  |            |
| Note: KM UCLs may be biased low  | with this da  | taset. Other substitution method recommended         |            |
|  |               |  |            |
|  | DL/2 St       |  |            |
| DL/2 Normal  |               | DL/2 Log-Transformed                                 |            |
| Mean in Original Scale   | 0.00142       | Mean in Log Scale                                    | -7.01      |
| SD in Original Scale   | 0.00103       | SD in Log Scale                                      | 1.271      |
| 95% t UCL (Assumes normality)  | 0.00169       | 95% H-Stat UCL                                       | 0.00343    |
| DL/2 is not a recommended m  | ethod, provid | led for comparisons and historical reasons           |            |
|  |               |  |            |

| Nonparamet   | tric Distribu  | tion Free UCL Statistics  |        |
|--|--|---|--------|
| Detected Data appear   | Normal Di  | stributed at 1% Significance Level  |        |
|  | Suggested  | UCL to Use  |        |
| 95% KM (t) UCL   |  |   |        |
| I  |  |   |        |
| -  |  | e data were collected in a random and unbiased manner.  |        |
|  |  | llected from random locations.  |        |
|  |  | nental or other non-random methods,   |        |
| then contact a s   | statistician   | to correctly calculate UCLs.  |        |
| Note: Suggestions regarding the selection of a 05%   |  | ovided to help the user to select the most appropriate 95% UCL.   |        |
|  |  | ution, and skewness using results from simulation studies.  |        |
|  |  | ts; for additional insight the user may want to consult a statisticial  | n      |
|  |  |   |        |
| (groundwater   dibenzothiophene   132-65-0)  |  |   |        |
|  |  |   |        |
|  | General  | Statistics  |        |
| Total Number of Observations   | 3  | Number of Distinct Observations   | 2      |
| Number of Detects  | 0  | Number of Non-Detects   | 3      |
| Number of Distinct Detects   | 0  | Number of Distinct Non-Detects  | 2      |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | te specific v  | erefore all statistics and estimates should also be NDs!<br>stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>enzothiophene   132-65-0) was not processed!  |        |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | te specific v  | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).  |        |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground  | d other stati<br>te specific v<br>dwater   dib   | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>enzothiophene   132-65-0) was not processed!  |        |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)   | d other stati<br>te specific v<br>dwater   dib<br>General  | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>enzothiophene   132-65-0) was not processed!<br>Statistics  |        |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations   | d other stati<br>te specific v<br>dwater   dib<br>General<br>36  | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>enzothiophene   132-65-0) was not processed!<br>Statistics  | 4      |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects  | d other stati<br>te specific v<br>dwater   dib<br>General  | stics are also NDs lying below the largest detection limit! ralues to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed! Statistics Number of Distinct Observations Number of Non-Detects   |        |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations   | d other stati<br>te specific v<br>dwater   dib<br>General<br>36<br>0   | stics are also NDs lying below the largest detection limit!<br>values to estimate environmental parameters (e.g., EPC, BTV).<br>enzothiophene   132-65-0) was not processed!<br>Statistics  | 4 36   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | d other stati<br>te specific v<br>dwater   dib<br>General<br>36<br>0<br>0  | stics are also NDs lying below the largest detection limit! ralues to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed! Statistics Number of Distinct Observations Number of Non-Detects   | 4 36   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>s (NDs), the  | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects  | 4 36   |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati                                  | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects Prefore all statistics and estimates should also be NDs!   | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati                                  | stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).         enzothiophene   132-65-0) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         refore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!  | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v | stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV).         enzothiophene   132-65-0) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         refore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!  | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects erefore all statistics and estimates should also be NDs! stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV).   | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit   | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects erefore all statistics and estimates should also be NDs! stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV).   | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwa                                | d other stati<br>te specific v<br>dwater   dib<br>dwater   dib<br>dwater   dib<br>General<br>36<br>0<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects erefore all statistics and estimates should also be NDs! stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV).   | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwater   dibromomethane   74-95-3) | d other stati<br>te specific v<br>dwater   dib<br>General<br>36<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v<br>ater   dibror                     | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects  refore all statistics and estimates should also be NDs! stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV).  nochloromethane   124-48-1) was not processed!  Statistics | 4 36 4 |
| Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (ground<br>(groundwater   dibromochloromethane   124-48-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detects<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative sit<br>The data set for variable C (groundwa                                | d other stati<br>te specific v<br>dwater   dib<br>General<br>36<br>0<br>0<br>s (NDs), the<br>d other stati<br>te specific v<br>ater   dibror                     | stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV). enzothiophene   132-65-0) was not processed!  Statistics  Statistics  Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects  refore all statistics and estimates should also be NDs! stics are also NDs lying below the largest detection limit! values to estimate environmental parameters (e.g., EPC, BTV).  nochloromethane   124-48-1) was not processed!             | 4 36 4 |

| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 3  |
|---|--------------|---|----|
|   | (15.)        |   |    |
|   |              | erefore all statistics and estimates should also be NDs!      |    |
|   |              | tistics are also NDs lying below the largest detection limit! |    |
| The Project Team may decide to use alternative si | te specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data set for variable C (grour                | ndwater   c  | libromomethane   74-95-3) was not processed!                  |    |
|   |              |   |    |
|   |              |   |    |
| groundwater   dichlorodifluoromethane   75-71-8)  |              |   |    |
|   | Genera       | I Statistics  |    |
| Total Number of Observations                      | 36           | Number of Distinct Observations                               | 5  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 36 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 5  |
|   |              |   |    |
| _   |              | erefore all statistics and estimates should also be NDs!      |    |
|   |              | tistics are also NDs lying below the largest detection limit! |    |
| The Project Team may decide to use alternative si | te specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The data act for verichin O (group du             | eter I diebi | orodifluoromethane   75-71-8) was not processed!              |    |
| I në data sët for variable C (groundw             | ater   dichi | orodinuorometnane   /5-/1-8) was not processed!               |    |
|   |              |   |    |
|   |              |   |    |
| groundwater   diethyl ether   60-29-7)            |              |   |    |
|   | Conoro       | I Statistics  |    |
| Total Number of Observations                      | 13           | Number of Distinct Observations                               | 2  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 13 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 2  |
|   | -            |   |    |
| Warning: All observations are Non-Detects         | s (NDs), th  | erefore all statistics and estimates should also be NDs!      |    |
| Specifically, sample mean, UCLs, UPLs, and        | d other sta  | tistics are also NDs lying below the largest detection limit! |    |
| The Project Team may decide to use alternative si | te specific  | values to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |              |   |    |
| The data set for variable C (gro                  | oundwater    | diethyl ether   60-29-7) was not processed!                   |    |
|   |              |   |    |
|   |              |   |    |
| groundwater   diethylphthalate   84-66-2)         |              |   |    |
|   |              |   |    |
|   | Genera       | I Statistics  |    |
| Total Number of Observations                      | 42           | Number of Distinct Observations                               | 9  |
| Number of Detects                                 | 0            | Number of Non-Detects   | 42 |
| Number of Distinct Detects                        | 0            | Number of Distinct Non-Detects                                | 9  |
| Woming All choosystians are blas. Detect          |              | erefore all statistics and estimates should also be NDs!      |    |
|   | a unus), ff  | iciciole all statistics and estimates should also de INUS!    |    |
| -   |              | tistics are also NDs lying below the largest detection limit! |    |

# The data set for variable C (groundwater | diethylphthalate | 84-66-2) was not processed!

Г

| The data set for variable C (grou              | undwater   di | ethylphthalate   84-66-2) was not processed! |           |
|--|---------------|--|-----------|
|  |               |  |           |
|  |               |  |           |
| C (groundwater   diisopropyl ether   108-20-3) |               |  |           |
|  | Canaral       | Statistics                                   |           |
| Total Number of Observations                   |               | Number of Distinct Observations              | 5         |
| Number of Detects                              |               | Number of Distinct Observations              | 11        |
| Number of Distinct Detects                     |               | Number of Distinct Non-Detects               | 3         |
| Minimum Detect                                 |               | Minimum Non-Detect                           |           |
| Maximum Detect                                 |               | Maximum Non-Detect                           | 0.001     |
| Variance Detects                               |               | Percent Non-Detects                          | 84.62%    |
| Mean Detects                                   |               | SD Detects                                   | 0.00165   |
| Median Detects                                 |               | CV Detects                                   | 1.015     |
| Skewness Detects                               |               | Kurtosis Detects                             | N/A       |
| Mean of Logged Detects                         | -6.781        | SD of Logged Detects                         | 1.277     |
|  |               |  |           |
| Warning: D                                     | ata set has   | only 2 Detected Values.                      |           |
| -  |               | gful or reliable statistics and estimates.   |           |
| · · · · · ·                                    |               | -  |           |
|  |               |  |           |
| Norn   | nal GOF Tes   | t on Detects Only                            |           |
|  |               | Perform GOF Test                             |           |
|  | -             |  |           |
| Kaplan-Meier (KM) Statistics usi               | ng Normal C   | ritical Values and other Nonparametric UCLs  |           |
|  | 6.1462E-4     | KM Standard Error of Mean                    | 2.4874E-4 |
| 90KM SD  | 6.3142E-4     | 95% KM (BCA) UCL                             | N/A       |
| 95% KM (t) UCL                                 | 0.00106       | 95% KM (Percentile Bootstrap) UCL            | N/A       |
| 95% KM (z) UCL                                 | 0.00102       | 95% KM Bootstrap t UCL                       | N/A       |
| 90% KM Chebyshev UCL                           | 0.00136       | 95% KM Chebyshev UCL                         | 0.0017    |
| 97.5% KM Chebyshev UCL                         | 0.00217       | 99% KM Chebyshev UCL                         | 0.00309   |
|  |               |  |           |
| Gamma GOF                                      | Tests on De   | etected Observations Only                    |           |
| Not En   | ough Data to  | Perform GOF Test                             |           |
|  |               |  |           |
| Gamma  | Statistics or | n Detected Data Only                         |           |
| k hat (MLE)                                    | 1.526         | k star (bias corrected MLE)                  | N/A       |
| Theta hat (MLE)                                | 0.00107       | Theta star (bias corrected MLE)              | N/A       |
| nu hat (MLE)                                   | 6.105         | nu star (bias corrected)                     | N/A       |
| Mean (detects)                                 | 0.00163       |  |           |
|  | 1             | 1  | <u> </u>  |
| Estimates of G                                 | amma Para     | meters using KM Estimates                    |           |
| Mean (KM)                                      | 6.1462E-4     | SD (KM)                                      | 6.3142E-4 |
| Variance (KM)                                  | 3.9869E-7     | SE of Mean (KM)                              | 2.4874E-4 |
| k hat (KM)                                     | 0.947         | k star (KM)                                  | 0.78      |
| nu hat (KM)                                    | 24.63         | nu star (KM)                                 | 20.28     |
| theta hat (KM)                                 | 6.4868E-4     | theta star (KM)                              | 7.8785E-4 |
| 80% gamma percentile (KM)                      | 0.00101       | 90% gamma percentile (KM)                    | 0.0015    |
| ,  | 1             | ,  | 1         |

| 95% gamma percentile (KM)   | 0.00201   | 99% gamma percentile (KM)  | 0.0032  |
|---|---|--|---------|
|   |   |  |         |
| Gamm  | a Kaplan-Mei  | Adjusted Level of Significance (β)   | 0.030   |
| Approximate Chi Square Value (20.28, $\alpha$ )   | 11.06   | Adjusted Level of Significance (β)<br>Adjusted Chi Square Value (20.28, β)   | 10.1    |
| 95% KM Approximate Gamma UCL  | 0.00113   | 95% KM Adjusted Gamma UCL  | 0.001   |
|   | 0.00113   |  | 0.001   |
| -   |   | tected Observations Only   |         |
| Not End   | ough Data to I  | Perform GOF Test   |         |
| Lognormal ROS   | S Statistics U  | sing Imputed Non-Detects   |         |
| Mean in Original Scale  |   | Mean in Log Scale  | -8.36   |
| SD in Original Scale  | 7.3935E-4   | SD in Log Scale  | 1.19    |
| 95% t UCL (assumes normality of ROS data)   | 8.3911E-4   | 95% Percentile Bootstrap UCL   | 8.3957E |
| 95% BCA Bootstrap UCL   | 0.00105   | 95% Bootstrap t UCL  | 0.001   |
| 95% H-UCL (Log ROS)   | 0.00143   |  |         |
|   |   |  |         |
|   |   | ata and Assuming Lognormal Distribution  | 4 00205 |
| KM Mean (logged)  | -7.604  | KM Geo Mean  |         |
| KM SD (logged)  | 0.502   | 95% Critical H Value (KM-Log)  | 2.11    |
| KM Standard Error of Mean (logged)  | 0.204   | 95% H-UCL (KM -Log)  |         |
| KM SD (logged)  | 0.502   | 95% Critical H Value (KM-Log)  | 2.11    |
| KM Standard Error of Mean (logged)  | 0.204   |  |         |
|   | DL/2 Sta  | itistics   |         |
| DL/2 Normal   |   | DL/2 Log-Transformed   |         |
| Mean in Original Scale  | 4.7788E-4   | Mean in Log Scale  | -8.024  |
| SD in Original Scale  | 7.0334E-4   | SD in Log Scale  | 0.69    |
| 95% t UCL (Assumes normality)   |   | 95% H-Stat UCL   | 5.6923E |
| DL/2 is not a recommended me  | ethod, provide  | ed for comparisons and historical reasons  |         |
| Nonparame   | trio Distributio  | on Free UCL Statistics   |         |
|   |   |  |         |
|   |   | scernible Distribution   |         |
|   | ot follow a Dis   | scernible Distribution   |         |
| Data do n   | ot follow a Dis<br>Suggested U  | scernible Distribution   |         |
|   | ot follow a Dis   | scernible Distribution   |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt   | Suggested U<br>0.00106  | ICL to Use   |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c  | Suggested U<br>0.00106<br>ions that the o   | ICL to Use<br>data were collected in a random and unbiased manner.<br>ected from random locations.   |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected  | Suggested U<br>0.00106<br>ions that the o<br>lata were collo  | Access Second Se |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected  | Suggested U<br>0.00106<br>ions that the o<br>lata were collo  | ICL to Use<br>data were collected in a random and unbiased manner.<br>ected from random locations.   |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the o<br>If the data were collected<br>then contact a  | Suggested U<br>0.00106<br>ions that the o<br>lata were collo<br>using judgmo<br>statistician to                                   | Access Second Se |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%  | Suggested U<br>0.00106<br>ions that the o<br>lata were collo<br>using judgmo<br>statistician to                                   | Scernible Distribution         ICL to Use         data were collected in a random and unbiased manner.         ected from random locations.         ental or other non-random methods,         correctly calculate UCLs.   |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size, | Suggested U<br>0.00106<br>ions that the o<br>lata were collo<br>using judgmo<br>statistician to<br>UCL are prov<br>data distribut | Access of the second se |         |
| Data do n<br>95% KM (t) UCL<br>The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size, | Suggested U<br>0.00106<br>ions that the o<br>lata were collo<br>using judgmo<br>statistician to<br>UCL are prov<br>data distribut | ICL to Use<br>data were collected in a random and unbiased manner.<br>ected from random locations.<br>ental or other non-random methods,<br>correctly calculate UCLs.  |         |

|  | General           | Statistics   |     |
|--|-------------------|--|-----|
| Total Number of Observations                       | 42                | Number of Distinct Observations                                | 9   |
| Number of Detects                                  | 0                 | Number of Non-Detects  | 42  |
| Number of Distinct Detects                         | 0                 | Number of Distinct Non-Detects                                 | 9   |
|  |                   |  |     |
| _  |                   | refore all statistics and estimates should also be NDs!        |     |
|  |                   | stics are also NDs lying below the largest detection limit!    |     |
| The Project Team may decide to use alternative si  | te specific v     | alues to estimate environmental parameters (e.g., EPC, BTV).   |     |
|  |                   |  |     |
| The data set for variable C (ground                | dwater   dim      | ethylphthalate   131-11-3) was not processed!                  |     |
|  |                   |  |     |
|  |                   |  |     |
| C (groundwater   di-n-butylphthalate   84-74-2)    |                   |  |     |
|  | General           | Statistica   |     |
| Total Number of Observations                       | 42                | Number of Distinct Observations                                | 10  |
| Number of Detects                                  | 1                 | Number of Distinct Observations                                | 41  |
| Number of Distinct Detects                         | 1                 | Number of Distinct Non-Detects                                 | 9   |
|  | I                 |  | 9   |
| Warning: Only one distinct data value was detected |                   | (or any other software) should not be used on such a data set! |     |
|  |                   | Project Team to estimate environmental parameters (e.g., EP    |     |
|  |                   |  |     |
| The data set for variable C (group                 | dwater I di-r     | -butylphthalate   84-74-2) was not processed!                  |     |
|  |                   |  |     |
|  |                   |  |     |
| C (groundwater   di-n-octylphthalate   117-84-0)   |                   |  |     |
|  |                   |  |     |
|  | General           | Statistics   |     |
| Total Number of Observations                       | 42                | Number of Distinct Observations                                | 10  |
| Number of Detects                                  | 0                 | Number of Non-Detects  | 42  |
| Number of Distinct Detects                         | 0                 | Number of Distinct Non-Detects                                 | 10  |
|  |                   |  |     |
| Warning: All observations are Non-Detects          | s (NDs), the      | refore all statistics and estimates should also be NDs!        |     |
| Specifically, sample mean, UCLs, UPLs, and         | d other statis    | stics are also NDs lying below the largest detection limit!    |     |
| The Project Team may decide to use alternative si  | te specific v     | alues to estimate environmental parameters (e.g., EPC, BTV).   |     |
|  |                   |  |     |
| The data set for variable C (ground                | Jwater   di-n     | -octylphthalate   117-84-0) was not processed!                 |     |
|  |                   |  |     |
|  |                   |  |     |
| C (groundwater   ethanol   64-17-5)                |                   |  |     |
|  |                   |  |     |
|  | General           | Statistics   |     |
| Total Number of Observations                       | 6                 |  |     |
| Number of Detects                                  | 1                 | Number of Distinct Observations                                | 1   |
|  | 0                 | Number of Distinct Observations<br>Number of Non-Detects       | 1 6 |
| Number of Distinct Detects                         | 0                 |  |     |
|  | 0                 | Number of Non-Detects<br>Number of Distinct Non-Detects        | 6   |
| Warning: All observations are Non-Detect           | 0<br>s (NDs), the | Number of Non-Detects  | 6   |

#### The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

### The data set for variable C (groundwater | ethanol | 64-17-5) was not processed!

## C (groundwater | ethyl benzene | 100-41-4)

|  | General S  | tatistics  |
|--|--|--|
| Total Number of Observations   | 43   | Number of Distinct Observations 10   |
| Number of Detects  | 4  | Number of Non-Detects 39   |
| Number of Distinct Detects   | 2  | Number of Distinct Non-Detects 9   |
| Minimum Detect   | 0.001  | Minimum Non-Detect 6.5000  |
| Maximum Detect   | 0.002  | Maximum Non-Detect 0.00  |
| Variance Detects   | 2.5000E-7  | Percent Non-Detects 90.  |
| Mean Detects   | 0.00175  | SD Detects 5.000   |
| Median Detects   | 0.002  | CV Detects 0.2   |
| Skewness Detects   | -2   | Kurtosis Detects 4   |
| Mean of Logged Detects   | -6.388   | SD of Logged Detects 0.3   |
| Norn   | nal GOF Test   | on Detects Only  |
| Shapiro Wilk Test Statistic  | 0.63   | Shapiro Wilk GOF Test  |
| 1% Shapiro Wilk Critical Value   | 0.687  | Detected Data Not Normal at 1% Significance Level  |
| Lilliefors Test Statistic  | 0.441  | Lilliefors GOF Test  |
| 1% Lilliefors Critical Value   | 0.413  | Detected Data Not Normal at 1% Significance Level  |
| Detected Dat   | a Not Normal   | at 1% Significance Level   |
|  |  |  |
| Kaplan-Meier (KM) Statistics usi   | ng Normal Cr   | itical Values and other Nonparametric UCLs   |
| KM Mean  | 7.6308E-4  | KM Standard Error of Mean 6.6853   |
| 90KM SD  | 3.6144E-4  | 95% KM (BCA) UCL N/A   |
| 95% KM (t) UCL   |  | 95% KM (Percentile Bootstrap) UCL N/A  |
| 95% KM (z) UCL   | 8.7304E-4  | 95% KM Bootstrap t UCL N/A   |
| 90% KM Chebyshev UCL   | 9.6363E-4  | 95% KM Chebyshev UCL 0.00  |
| 97.5% KM Chebyshev UCL   | 0.00118  | 99% KM Chebyshev UCL 0.00  |
|  | Tests on Det   | ected Observations Only  |
| Gamma GOF  |  | Anderson Darling COE Test  |
| Gamma GOF<br>A-D Test Statistic  | 0.962  | Anderson-Darling GOF Test  |
|  |  | Detected Data Not Gamma Distributed at 5% Significance Leve  |
| A-D Test Statistic   | 0.657  | -  |
| A-D Test Statistic<br>5% A-D Critical Value  | 0.657<br>0.469   | Detected Data Not Gamma Distributed at 5% Significance Leve  |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value   | 0.657<br>0.469<br>0.395  | Detected Data Not Gamma Distributed at 5% Significance Leve<br>Kolmogorov-Smirnov GOF  |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected Data Not  | 0.657<br>0.469<br>0.395<br>Gamma Distri  | Detected Data Not Gamma Distributed at 5% Significance Leve<br>Kolmogorov-Smirnov GOF<br>Detected Data Not Gamma Distributed at 5% Significance Leve<br>buted at 5% Significance Level   |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected Data Not<br>Gamma                                   | 0.657<br>0.469<br>0.395<br>Gamma Distri<br>Statistics on                       | Detected Data Not Gamma Distributed at 5% Significance Leve<br>Kolmogorov-Smirnov GOF<br>Detected Data Not Gamma Distributed at 5% Significance Leve<br>buted at 5% Significance Level<br>Detected Data Only   |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected Data Not<br>Gamma<br>k hat (MLE)                    | 0.657<br>0.469<br>0.395<br>Gamma Distri<br>Statistics on<br>12.74              | Detected Data Not Gamma Distributed at 5% Significance Leve<br>Kolmogorov-Smirnov GOF<br>Detected Data Not Gamma Distributed at 5% Significance Leve<br>buted at 5% Significance Level<br>Detected Data Only<br>k star (bias corrected MLE) 3.3  |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected Data Not<br>Gamma<br>k hat (MLE)<br>Theta hat (MLE) | 0.657<br>0.469<br>0.395<br>Gamma Distri<br>Statistics on<br>12.74<br>1.3735E-4 | Detected Data Not Gamma Distributed at 5% Significance Level         Kolmogorov-Smirnov GOF         Detected Data Not Gamma Distributed at 5% Significance Level         buted at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         3.3         Theta star (bias corrected MLE) |
| A-D Test Statistic<br>5% A-D Critical Value<br>K-S Test Statistic<br>5% K-S Critical Value<br>Detected Data Not<br>Gamma<br>k hat (MLE)                    | 0.657<br>0.469<br>0.395<br>Gamma Distri<br>Statistics on<br>12.74<br>1.3735E-4 | Detected Data Not Gamma Distributed at 5% Significance Leve<br>Kolmogorov-Smirnov GOF<br>Detected Data Not Gamma Distributed at 5% Significance Leve<br>buted at 5% Significance Level<br>Detected Data Only<br>k star (bias corrected MLE) 3.3  |

### Gamma ROS Statistics using Imputed Non-Detects

| GROS may not be used when data s                             | et has > 50%   | 6 NDs with many tied observations at multiple DLs                        |           |
|--|----------------|--|-----------|
| GROS may not be used when kstar of detects is                | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20)          |           |
| For such situations, GROS                                    | method may     | yield incorrect values of UCLs and BTVs                                  |           |
| This is espec  | ially true whe | en the sample size is small.   |           |
| For gamma distributed detected data, BTVs a                  | and UCLs ma    | ay be computed using gamma distribution on KM estimates                  |           |
| Minimum  | 0.001          | Mean   | 0.00923   |
| Maximum  | 0.01           | Median   | 0.01      |
| SD   | 0.00243        | CV   | 0.263     |
| k hat (MLE)  | 5.977          | k star (bias corrected MLE)  | 5.575     |
| Theta hat (MLE)  | 0.00154        | Theta star (bias corrected MLE)  | 0.00166   |
| nu hat (MLE)   |                | nu star (bias corrected)   | 479.5     |
| Adjusted Level of Significance (β)                           |                |  |           |
| Approximate Chi Square Value (479.46, α)                     |                | Adjusted Chi Square Value (479.46, β)                                    | 428.1     |
| 95% Gamma Approximate UCL                                    | 0.0103         | 95% Gamma Adjusted UCL   | N/A       |
| Estimates of G   | amma Para      | meters using KM Estimates  |           |
| Mean (KM)  | 7.6308E-4      | SD (KM)  | 3.6144E-4 |
| Variance (KM)  | 1.3064E-7      | SE of Mean (KM)  | 6.6853E-5 |
| k hat (KM)   | 4.457          | k star (KM)  | 4.162     |
| nu hat (KM)  | 383.3          | nu star (KM)   | 357.9     |
| theta hat (KM)   |                |  | 1.8335E-4 |
| 80% gamma percentile (KM)                                    | 0.00105        | 90% gamma percentile (KM)  | 0.00126   |
| 95% gamma percentile (KM)                                    | 0.00146        | 99% gamma percentile (KM)  | 0.00189   |
|  |                |  |           |
|  | -              | eier (KM) Statistics   |           |
| Approximate Chi Square Value (357.92, α)                     |                | Adjusted Chi Square Value (357.92, β)                                    | 313.7     |
| 95% KM Approximate Gamma UCL                                 | 8.6684E-4      | 95% KM Adjusted Gamma UCL  | 8.7068E-4 |
|  |                |  |           |
|  |                | etected Observations Only  |           |
| Shapiro Wilk Test Statistic                                  |                | Shapiro Wilk GOF Test Detected Data Not Lognormal at 10% Significance Le |           |
| 10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic |                | Lilliefors GOF Test  | ivei      |
| 10% Lilliefors Critical Value                                |                | Detected Data Not Lognormal at 10% Significance Le                       | wol       |
|  |                | al at 10% Significance Level   |           |
|  |                |  |           |
|  | S Statistics   | Using Imputed Non-Detects  |           |
| Mean in Original Scale                                       |                | Mean in Log Scale  | -7.795    |
| SD in Original Scale   |                | SD in Log Scale  | 0.718     |
| 95% t UCL (assumes normality of ROS data)                    |                | 95% Percentile Bootstrap UCL   |           |
| 95% BCA Bootstrap UCL  |                | 95% Bootstrap t UCL  |           |
| 95% H-UCL (Log ROS)  |                | ······································                                   |           |
| , , , , , , , , , , , , , , , , , , ,                        |                |  | <u> </u>  |
| Statistics using KM estimates                                | on Logged I    | Data and Assuming Lognormal Distribution                                 |           |
| KM Mean (logged)   |                | KM Geo Mean  | 7.1679E-4 |
| KM SD (logged)   | 0.304          | 95% Critical H Value (KM-Log)  | 1.778     |
| KM Standard Error of Mean (logged)                           | 0.0563         | 95% H-UCL (KM -Log)  | 8.1607E-4 |
| KM SD (logged)   | 0.304          | 95% Critical H Value (KM-Log)  | 1.778     |
| KM Standard Error of Mean (logged)                           | 0.0563         |  |           |
| Ļ  | 1              |  |           |

| DI /O Normal   | DL/2 5         | tatistics  |           |
|--|----------------|--|-----------|
| DL/2 Normal  |                | DL/2 Log-Transformed   | 7 077     |
| Mean in Original Scale                                 |                | Mean in Log Scale  | -7.377    |
| SD in Original Scale                                   |                | SD in Log Scale  | 0.602     |
| 95% t UCL (Assumes normality)                          |                | 95% H-Stat UCL   | 9.0124E-4 |
| DL/2 is not a recommended m                            | ethod, provid  | ded for comparisons and historical reasons                           |           |
| N  |                |  |           |
|  |                | tion Free UCL Statistics   |           |
| Data do n  | ot follow a D  | iscernible Distribution  |           |
|  | <u> </u>       |  |           |
|  |                | UCL to Use   |           |
| 95% KM (t) UCL   | 8.7552E-4      |  |           |
|  |                |  |           |
|  |                | ovided to help the user to select the most appropriate 95% UCL       |           |
| · · ·  |                | ution, and skewness using results from simulation studies.           |           |
| However, simulations results will not cover all Real W | /orld data set | ts; for additional insight the user may want to consult a statistici | an.       |
|  |                |  |           |
| C (groundwater   ethyl tert-butyl ether   637-92-3)    |                |  |           |
|  |                |  |           |
|  |                | Statistics   |           |
| Total Number of Observations                           | 13             | Number of Distinct Observations                                      | 2         |
| Number of Detects                                      | 0              | Number of Non-Detects  | 13        |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects                                       | 2         |
|  |                |  |           |
|  |                | refore all statistics and estimates should also be NDs!              |           |
|  |                | stics are also NDs lying below the largest detection limit!          |           |
| The Project Team may decide to use alternative s       | ite specific v | values to estimate environmental parameters (e.g., EPC, BTV)         | ).        |
|  |                |  |           |
| The data set for variable C (ground                    | lwater   ethy  | tert-butyl ether   637-92-3) was not processed!                      |           |
|  |                |  |           |
|  |                |  |           |
| C (groundwater   ethylene glycol   107-21-1)           |                |  |           |
|  |                |  |           |
|  | General        | Statistics   |           |
| Total Number of Observations                           | 6              | Number of Distinct Observations                                      | 1         |
| Number of Detects                                      | 0              | Number of Non-Detects  | 6         |
| Number of Distinct Detects                             | 0              | Number of Distinct Non-Detects                                       | 1         |
|  |                |  |           |
| Warning: All observations are Non-Detect               | ts (NDs), the  | refore all statistics and estimates should also be NDs!              |           |
| Specifically, sample mean, UCLs, UPLs, an              | d other statis | stics are also NDs lying below the largest detection limit!          |           |
| The Project Team may decide to use alternative s       | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV)          | ).        |
|  |                |  |           |
| The data set for variable C (grou                      | indwater   et  | hylene glycol   107-21-1) was not processed!                         |           |
|  |                |  |           |
|  |                |  |           |
| C (groundwater   fluoranthene   206-44-0)              |                |  |           |
|  |                |  |           |

|                                  | General        | Statistics  |           |
|----------------------------------|----------------|---|-----------|
| Total Number of Observations     | 43             | Number of Distinct Observations                                 | 19        |
| Number of Detects                | 7              | Number of Non-Detects   | 36        |
| Number of Distinct Detects       | 7              | Number of Distinct Non-Detects                                  | 12        |
| Minimum Detect                   | 5.4000E-5      | Minimum Non-Detect  | 9.2167E-5 |
| Maximum Detect                   | 2.0000E-4      | Maximum Non-Detect  | 0.0056    |
| Variance Detects                 | 2.9294E-9      | Percent Non-Detects   | 83.72%    |
| Mean Detects                     |                | SD Detects  | 5.4124E-5 |
| Median Detects                   |                | CV Detects  | 0.518     |
| Skewness Detects                 |                | Kurtosis Detects  | 0.0106    |
| Mean of Logged Detects           |                | SD of Logged Detects  | 0.506     |
| Nor                              |                | t on Detects Only   |           |
| Shapiro Wilk Test Statistic      |                | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value   |                | Detected Data appear Normal at 1% Significance Lev              |           |
| Lilliefors Test Statistic        |                | Lilliefors GOF Test   | vei       |
| 1% Lilliefors Critical Value     |                | Detected Data appear Normal at 1% Significance Lev              |           |
|                                  |                | nal at 1% Significance Level                                    | vei       |
|                                  |                | eliable for small sample sizes                                  |           |
|                                  |                |   |           |
| Kaplan-Meier (KM) Statistics us  | ing Normal C   | ritical Values and other Nonparametric UCLs                     |           |
|                                  | 9.8736E-5      | KM Standard Error of Mean                                       | 1 8857E-5 |
|                                  | 4.9366E-5      | 95% KM (BCA) UCL  |           |
| 95% KM (t) UCL                   |                | 95% KM (Percentile Bootstrap) UCL                               |           |
| 95% KM (z) UCL                   |                | 95% KM Bootstrap t UCL  |           |
| 90% KM Chebyshev UCL             |                | 95% KM Chebyshev UCL  |           |
| 97.5% KM Chebyshev UCL           |                | 99% KM Chebyshev UCL  |           |
| -                                |                | taset. Other substitution method recommended                    | 2.0030L-4 |
| Note. Nel OOLS may be blased for | v with this da |   |           |
| Gamma GOF                        | Tests on De    | etected Observations Only                                       |           |
| A-D Test Statistic               |                | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value            |                | Detected data appear Gamma Distributed at 5% Significan         | ce l evel |
| K-S Test Statistic               |                | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value            |                | Detected data appear Gamma Distributed at 5% Significan         |           |
|                                  |                | stributed at 5% Significance Level                              |           |
|                                  |                | eliable for small sample sizes                                  |           |
|                                  |                |   |           |
| Gamma                            | Statistics or  | n Detected Data Only  |           |
| k hat (MLE)                      |                | k star (bias corrected MLE)                                     | 2.76      |
| Theta hat (MLE)                  |                | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                     |                | nu star (bias corrected MLL)                                    | 38.64     |
| Mean (detects)                   |                |   | 50.04     |
|                                  | 1.0-1002-4     |   |           |
| Gamma ROS                        | Statistics u   | sing Imputed Non-Detects  |           |
|                                  |                | 6 NDs with many tied observations at multiple DLs               |           |
| -                                |                | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|                                  |                | yield incorrect values of UCLs and BTVs                         |           |
|                                  |                | en the sample size is small.                                    |           |
| This is espec                    | any nue whe    | สา เมษ อิสที่มีมีษ อเรีย เอ อิทีได้มี.                          |           |

| <b>• •</b> * •   | -  | y be computed using gamma distribution on KM estimates   |  |
|--|--|--|--|
| Minimum  | 5.4000E-5  | Mean   | 0.00839  |
| Maximum  | 0.01   | Median   | 0.01   |
| SD   | 0.0037   | CV   | 0.441  |
| k hat (MLE)  | 0.988  | k star (bias corrected MLE)  | 0.935  |
| Theta hat (MLE)  | 0.00849  | Theta star (bias corrected MLE)  | 0.00897  |
| nu hat (MLE)   | 85   | nu star (bias corrected)   | 80.4   |
| Adjusted Level of Significance (β)   | 0.0444   |  |  |
| Approximate Chi Square Value (80.40, $\alpha$ )  | 60.74  | Adjusted Chi Square Value (80.40, $\beta$ )  | 60.15  |
| 95% Gamma Approximate UCL  | 0.0111   | 95% Gamma Adjusted UCL   | 0.0112   |
| Estimates of G   | amma Paran   | neters using KM Estimates  |  |
| Mean (KM)  |  | -  | 4.9366E-5  |
| Variance (KM)  |  | SE of Mean (KM)  |  |
| k hat (KM)   | 4  | k star (KM)  | 3.737  |
| nu hat (KM)  | 344  | nu star (KM)   | 321.4  |
| theta hat (KM)   | -  | theta star (KM)  |  |
| 80% gamma percentile (KM)  |  | 90% gamma percentile (KM)  |  |
| 95% gamma percentile (KM)  |  | 99% gamma percentile (KM)  |  |
|  |  |  |  |
|  | -  | er (KM) Statistics   |  |
| Approximate Chi Square Value (321.37, $\alpha$ )   | 280.8  | Adjusted Chi Square Value (321.37, $\beta$ )   | 279.5  |
| 95% KM Approximate Gamma UCL   | 1.1299E-4  | 95% KM Adjusted Gamma UCL  | 1.1352E-4  |
| Lognormal GC<br>Shapiro Wilk Test Statistic  | 0F Test on De<br>0.909   | etected Observations Only<br>Shapiro Wilk GOF Test   |  |
| 10% Shapiro Wilk Critical Value  | 0.838  | Detected Data appear Lognormal at 10% Significance L   | evel   |
|  |  | Detected Data appear Lognormal at 10% Orginicance L  |  |
| Lilliefors Test Statistic  | 0.239  | Lilliefors GOF Test  |  |
| Lilliefors Test Statistic  |  | Lilliefors GOF Test  |  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value   | 0.28   |  |  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap   | 0.28<br>pear Lognorr   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L   |  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests   | 0.28<br>pear Lognorr<br>may be unre  | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes   |  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L nal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects   | .evel  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5  | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale   | -9.337   |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale   | -9.337<br>0.417  |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)  | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4  | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL  | -9.337<br>0.417<br>1.0686E-4   |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale   | -9.337<br>0.417<br>1.0686E-4   |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4  | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL  | -9.337<br>0.417<br>1.0686E-4   |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)  | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4  | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL  | -9.337<br>0.417<br>1.0686E-4<br>1.0838E-4                                    |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4<br>on Logged D   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L nal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL  | -9.337<br>0.417<br>1.0686E-4<br>1.0838E-4                                    |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)                                     | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4<br>on Logged D<br>-9.337<br>0.466                            | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Using Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL Data and Assuming Lognormal Distribution KM Geo Mean 95% Critical H Value (KM-Log)                     | -9.337<br>0.417<br>1.0686E-4<br>1.0838E-4<br>8.8110E-5<br>1.877              |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)                                     | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4<br>on Logged D<br>-9.337<br>0.466<br>0.178                   | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 0ata and Assuming Lognormal Distribution KM Geo Mean 95% Critical H Value (KM-Log) 95% H-UCL (KM -Log) | -9.337<br>0.417<br>1.0686E-4<br>1.0838E-4<br>8.8110E-5<br>1.877<br>1.1244E-4 |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)<br>KM SD (logged)                   | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4<br>on Logged D<br>-9.337<br>0.466<br>0.178<br>0.466          | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Using Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL Data and Assuming Lognormal Distribution KM Geo Mean 95% Critical H Value (KM-Log)                     | -9.337<br>0.417<br>1.0686E-4<br>1.0838E-4<br>8.8110E-5<br>1.877              |
| Lilliefors Test Statistic<br>10% Lilliefors Critical Value<br>Detected Data ap<br>Note GOF tests<br>Lognormal RO<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM SD (logged)<br>KM SD (logged)<br>KM SD (logged) | 0.28<br>pear Lognorr<br>may be unrel<br>S Statistics L<br>9.6034E-5<br>4.2248E-5<br>1.0687E-4<br>1.0781E-4<br>1.0823E-4<br>on Logged D<br>-9.337<br>0.466<br>0.178<br>0.466<br>0.178 | Lilliefors GOF Test Detected Data appear Lognormal at 10% Significance L mal at 10% Significance Level liable for small sample sizes Jsing Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 0ata and Assuming Lognormal Distribution KM Geo Mean 95% Critical H Value (KM-Log) 95% H-UCL (KM -Log) | -9.337<br>0.417<br>1.0686E-<br>1.0838E-<br>8.8110E-<br>1.877<br>1.1244E-     |

|   | DL/2 St       | atistics   |           |
|---|---------------|--|-----------|
| DL/2 Normal   |               | DL/2 Log-Transformed   |           |
| Mean in Original Scale                                  | 9.2565E-4     | Mean in Log Scale  | -7.747    |
| SD in Original Scale                                    | 0.00106       | SD in Log Scale  | 1.288     |
| 95% t UCL (Assumes normality)                           | 0.0012        | 95% H-Stat UCL   | 0.00169   |
|   | thod, provid  | led for comparisons and historical reasons                           |           |
|   |               |  |           |
| -   |               | tion Free UCL Statistics   |           |
| Detected Data appear                                    | · Normal Dis  | tributed at 1% Significance Level                                    |           |
|   | Suggested     | UCL to Use   |           |
| 95% KM (t) UCL  |               |  |           |
|   |               |  |           |
| Note: Suggestions regarding the selection of a 95%      | UCL are pro   | ovided to help the user to select the most appropriate 95% UCL.      |           |
| Recommendations are based upon data size,               | data distribu | ution, and skewness using results from simulation studies.           |           |
| However, simulations results will not cover all Real We | orld data set | s; for additional insight the user may want to consult a statisticia | an.       |
|   |               |  |           |
| C (groundwater   fluorene   86-73-7)                    |               |  |           |
|   |               |  |           |
|   | General       |  |           |
| Total Number of Observations                            | 43            | Number of Distinct Observations                                      | 22        |
| Number of Detects                                       | 11            | Number of Non-Detects  | 32        |
| Number of Distinct Detects                              | 9             | Number of Distinct Non-Detects                                       | 13        |
| Minimum Detect  |               | Minimum Non-Detect   |           |
| Maximum Detect  | 0.002         | Maximum Non-Detect   | 0.0056    |
| Variance Detects  |               | Percent Non-Detects  | 74.42%    |
| Mean Detects  |               | SD Detects   |           |
| Median Detects  |               | CV Detects   | 0.874     |
| Skewness Detects  | 1.825         | Kurtosis Detects   | 4.509     |
| Mean of Logged Detects                                  | -7.798        | SD of Logged Detects   | 1.066     |
| Norm  | al GOF Tes    | t on Detects Only  |           |
| Shapiro Wilk Test Statistic                             | 0.828         | Shapiro Wilk GOF Test  |           |
| 1% Shapiro Wilk Critical Value                          | 0.792         | Detected Data appear Normal at 1% Significance Lev                   | el        |
| Lilliefors Test Statistic                               | 0.205         | Lilliefors GOF Test  |           |
| 1% Lilliefors Critical Value                            | 0.291         | Detected Data appear Normal at 1% Significance Lev                   | el        |
|   |               | nal at 1% Significance Level   |           |
|   |               |  |           |
| Kaplan-Meier (KM) Statistics usin                       | g Normal C    | ritical Values and other Nonparametric UCLs                          |           |
| KM Mean   | 3.4217E-4     | KM Standard Error of Mean  | 8.6287E-5 |
| 90KM SD :   | 3.9744E-4     | 95% KM (BCA) UCL   | 4.9845E-4 |
| 95% KM (t) UCL  | 4.8731E-4     | 95% KM (Percentile Bootstrap) UCL                                    | 4.9051E-4 |
| 95% KM (z) UCL  | 4.8410E-4     | 95% KM Bootstrap t UCL   | 5.3413E-4 |
| 90% KM Chebyshev UCL                                    | 6.0104E-4     | 95% KM Chebyshev UCL   | 7.1829E-4 |
| 97.5% KM Chebyshev UCL                                  | 8.8104E-4     | 99% KM Chebyshev UCL   | 0.0012    |
| Note: KM UCLs may be biased low                         | with this da  | taset. Other substitution method recommended                         |           |
|   |               |  |           |
| Gamma GOF   | Tests on De   | tected Observations Only   |           |

| A-D Test Statistic                            | 0.308               | Anderson-Darling GOF Test                                       |           |
|---|---------------------|---|-----------|
| 5% A-D Critical Value                         | 0.744               | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| K-S Test Statistic                            | 0.148               | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                         | 0.26                | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| Detected data appea                           | <b>r Gamma Di</b> s | stributed at 5% Significance Level                              |           |
|   |                     |   |           |
|   |                     | Detected Data Only  |           |
| k hat (MLE)                                   |                     | k star (bias corrected MLE)                                     | 1.071     |
| Theta hat (MLE)                               |                     | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                                  |                     | nu star (bias corrected)  | 23.56     |
| Mean (detects)                                | 6.1312E-4           |   |           |
| Gamma ROS                                     | Statistics us       | sing Imputed Non-Detects  |           |
|   |                     | NDs with many tied observations at multiple DLs                 |           |
| GROS may not be used when kstar of detects is | small such a        | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|   |                     | yield incorrect values of UCLs and BTVs                         |           |
|   |                     | n the sample size is small.                                     |           |
|   |                     | y be computed using gamma distribution on KM estimates          |           |
| -   | 5.0000E-5           | Mean  | 0.0076    |
| Maximum                                       |                     | Median  | 0.01      |
| SD  |                     | CV  | 0.546     |
| k hat (MLE)                                   | 1.058               | k star (bias corrected MLE)                                     | 0.999     |
| Theta hat (MLE)                               |                     | Theta star (bias corrected MLE)                                 | 0.0076    |
| nu hat (MLE)                                  | 90.96               | nu star (bias corrected)  | 85.95     |
| Adjusted Level of Significance (β)            | 0.0444              |   | 00.00     |
| Approximate Chi Square Value (85.95, α)       |                     | Adjusted Chi Square Value (85.95, β)                            | 64.96     |
| 95% Gamma Approximate UCL                     |                     | 95% Gamma Adjusted UCL  | 0.0101    |
|   |                     |   |           |
| Estimates of G                                | iamma Parai         | meters using KM Estimates                                       |           |
| Mean (KM)                                     | 3.4217E-4           | SD (KM)   | 3.9744E-4 |
| Variance (KM)                                 | 1.5796E-7           | SE of Mean (KM)   | 8.6287E-5 |
| k hat (KM)                                    | 0.741               | k star (KM)   | 0.705     |
| nu hat (KM)                                   | 63.75               | nu star (KM)  | 60.63     |
| theta hat (KM)                                | 4.6164E-4           | theta star (KM)   | 4.8535E-4 |
| 80% gamma percentile (KM)                     | 5.6233E-4           | 90% gamma percentile (KM)                                       | 8.5748E-4 |
| 95% gamma percentile (KM)                     | 0.00116             | 99% gamma percentile (KM)                                       | 0.00189   |
| Gamm  | na Kaplan-Me        | eier (KM) Statistics  |           |
| Approximate Chi Square Value (60.63, α)       | •                   | Adjusted Chi Square Value (60.63, $\beta$ )                     | 43.23     |
| 95% KM Approximate Gamma UCL                  |                     | 95% KM Adjusted Gamma UCL                                       |           |
|   |                     | taset. Other substitution method recommended                    |           |
|   |                     |   |           |
| Lognormal GC                                  | DF Test on D        | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic                   | r                   | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value               |                     | Detected Data appear Lognormal at 10% Significance I            | _evel     |
| Lilliefors Test Statistic                     |                     | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value                 |                     | Detected Data appear Lognormal at 10% Significance I            | _evel     |
|   |                     | mal at 10% Significance Level                                   |           |
|   | - •                 | -   |           |

| Logionial RO  | S Statistice Lie   | sing Imputed Non-Detects  |                       |
|---|--|---|-----------------------|
| Mean in Original Scale  |  | Mean in Log Scale   | -8.545                |
| SD in Original Scale  |  | SD in Log Scale   | 0.884                 |
| 95% t UCL (assumes normality of ROS data)   |  | 95% Percentile Bootstrap UCL  |                       |
| 95% BCA Bootstrap UCL   |  | 95% Bootstrap t UCL   |                       |
| 95% H-UCL (Log ROS)   |  |   | 4.3023                |
|   |  |   |                       |
| Statistics using KM estimates   | on Logged Da   | ta and Assuming Lognormal Distribution  |                       |
| KM Mean (logged)  | -8.549   | KM Geo Mean   | 1.9372E               |
| KM SD (logged)  | 1.09   | 95% Critical H Value (KM-Log)   | 2.463                 |
| KM Standard Error of Mean (logged)  | 0.313  | 95% H-UCL (KM -Log)   | 5.3089E·              |
| KM SD (logged)  | 1.09   | 95% Critical H Value (KM-Log)   | 2.463                 |
| KM Standard Error of Mean (logged)  | 0.313  |   |                       |
| Note: KM UCLs may be biased low   | v with this data   | set. Other substitution method recommended  |                       |
|   |  | i-si-a  |                       |
| DL/2 Normal   | DL/2 Stat  | DL/2 Log-Transformed  |                       |
| Mean in Original Scale  | 0.00104  | Mean in Log Scale   | -7.496                |
| _   |  | _   | -7.490                |
| SD in Original Scale<br>95% t UCL (Assumes normality)   |  | SD in Log Scale<br>95% H-Stat UCL   | 0.0019                |
|   |  | d for comparisons and historical reasons  | 0.0019                |
|   | ar Normal Distr  | ibuted at 1% Significance Level   |                       |
|   | Suggested U  | -   |                       |
| 95% KM (t) UCL  | Suggested U  | -   |                       |
| 95% KM (t) UCL  | Suggested U(<br>4.8731E-4  | CL to Use   |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%  | Suggested UG<br>4.8731E-4<br>6 UCL are prov  | CL to Use<br>ided to help the user to select the most appropriate 95% UCL   |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution   | CL to Use   |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.  |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.  |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistici  |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution<br>Vorld data sets;<br>General St   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistici  |                       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>groundwater   hexachlorobenzene   118-74-1)   | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>data distribution<br>Vorld data sets;<br>General St<br>42   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistician<br>ratistics   | an.                   |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations   | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>6, data distributi<br>Vorld data sets;<br>General St<br>42<br>0   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistician<br>ratistics<br>Number of Distinct Observations  | an.<br>10             |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>, data distributi<br>Vorld data sets;<br>General St<br>42<br>0<br>0   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticit<br>ratistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | an.<br>10<br>42       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect  | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>4, data distribution<br>Vorld data sets;<br>General St<br>42<br>0<br>0<br>0<br>ts (NDs), there  | CL to Use ided to help the user to select the most appropriate 95% UCL on, and skewness using results from simulation studies. for additional insight the user may want to consult a statistici atistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects fore all statistics and estimates should also be NDs!   | an.<br>10<br>42       |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detecc<br>Specifically, sample mean, UCLs, UPLs, an   | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>4, data distribution<br>Vorld data sets;<br>General St<br>42<br>0<br>0<br>0<br>ts (NDs), there<br>and other statistic                   | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistician<br>for additional insight the user may want to consult a statistician<br>mumber of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>fore all statistics and estimates should also be NDs!<br>cs are also NDs lying below the largest detection limit!   | an.<br>10<br>42<br>10 |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detecc<br>Specifically, sample mean, UCLs, UPLs, an   | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>4, data distribution<br>Vorld data sets;<br>General St<br>42<br>0<br>0<br>0<br>ts (NDs), there<br>and other statistic                   | CL to Use ided to help the user to select the most appropriate 95% UCL on, and skewness using results from simulation studies. for additional insight the user may want to consult a statistici atistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects fore all statistics and estimates should also be NDs!   | an.<br>10<br>42<br>10 |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detecc<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>, data distribution<br>Vorld data sets;<br>General St<br>42<br>0<br>0<br>0<br>ts (NDs), there<br>id other statistic<br>ite specific val | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statistician<br>for additional insight the user may want to consult a statistician<br>mumber of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>fore all statistics and estimates should also be NDs!<br>cs are also NDs lying below the largest detection limit!   | an.<br>10<br>42<br>10 |
| 95% KM (t) UCL<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>groundwater   hexachlorobenzene   118-74-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detecc<br>Specifically, sample mean, UCLs, UPLs, an<br>The Project Team may decide to use alternative s | Suggested U(<br>4.8731E-4<br>6 UCL are prov<br>, data distribution<br>Vorld data sets;<br>General St<br>42<br>0<br>0<br>0<br>ts (NDs), there<br>id other statistic<br>ite specific val | CL to Use<br>ided to help the user to select the most appropriate 95% UCL<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia<br>for additional insight the user may want to consult a statisticia<br>matistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>fore all statistics and estimates should also be NDs!<br>cs are also NDs lying below the largest detection limit!<br>ues to estimate environmental parameters (e.g., EPC, BTV) | an.<br>10<br>42<br>10 |

|   | General        |  |    |
|---|----------------|--|----|
| Total Number of Observations                          |                | Number of Distinct Observations                              | 6  |
| Number of Detects                                     | -              | Number of Non-Detects  | 42 |
| Number of Distinct Detects                            | 0              | Number of Distinct Non-Detects                               | 6  |
| Warning: All observations are Non-Detect              | ts (NDs). the  | refore all statistics and estimates should also be NDs!      |    |
| -   |                | tics are also NDs lying below the largest detection limit!   |    |
|   |                | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |                |  |    |
| The data set for variable C (ground                   | dwater I hexa  | chlorobutadiene   87-68-3) was not processed!                |    |
|   |                |  |    |
| C (groundwater   hexachlorocyclopentadiene   77-47-4) |                |  |    |
|   | General        | Statistics   |    |
| Total Number of Observations                          | 42             | Number of Distinct Observations                              | 10 |
| Number of Detects                                     |                | Number of Non-Detects  | 42 |
| Number of Distinct Detects                            | -              | Number of Distinct Non-Detects                               | 10 |
|   | -              |  | -  |
| Warning: All observations are Non-Detect              | ts (NDs). the  | refore all statistics and estimates should also be NDs!      |    |
|   |                | stics are also NDs lying below the largest detection limit!  |    |
|   |                | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
| C (groundwater   hexachloroethane   67-72-1)          |                |  |    |
|   | General        | Statistics   |    |
| Total Number of Observations                          | 42             | Number of Distinct Observations                              | 9  |
| Number of Detects                                     | 0              | Number of Non-Detects  | 42 |
| Number of Distinct Detects                            | 0              | Number of Distinct Non-Detects                               | 9  |
|   |                |  |    |
| -   | · · · · ·      | refore all statistics and estimates should also be NDs!      |    |
|   |                | tics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative s      | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV). |    |
|   |                |  |    |
| The data set for variable C (groun                    | ndwater   he>  | achloroethane   67-72-1) was not processed!                  |    |
|   |                |  |    |
|   |                |  |    |
| C (groundwater   indeno(1,2,3-cd)pyrene   193-39-5)   |                |  |    |
|   |                |  |    |
|   | General        |  |    |
| Total Number of Observations                          |                | Number of Distinct Observations                              | 18 |
| Number of Detects                                     | 2              | Number of Non-Detects  |    |
|   |                |  | 41 |
| Number of Distinct Detects                            |                | Number of Distinct Non-Detects Minimum Non-Detect 1          | 16 |

| Maximum Detect                        | 1.1000E-4     | Maximum Non-Detect                          | 0.0056    |
|---------------------------------------|---------------|---|-----------|
| Variance Detects                      | 2.880E-10     | Percent Non-Detects                         | 95.35%    |
| Mean Detects                          | 9.8000E-5     | SD Detects                                  | 1.6971E-5 |
| Median Detects                        | 9.8000E-5     | CV Detects                                  | N/A       |
| Skewness Detects                      | N/A           | Kurtosis Detects                            | N/A       |
| Mean of Logged Detects                | -9.238        | SD of Logged Detects                        | 0.174     |
|                                       |               |   |           |
| Warning: D                            | ata set has o | only 2 Detected Values.                     |           |
| This is not enough to comp            | oute meaning  | gful or reliable statistics and estimates.  |           |
|                                       |               |   |           |
|                                       |               |   |           |
|                                       |               | t on Detects Only Perform GOF Test          |           |
|                                       | Sugn Data to  |   |           |
| Kaplan-Meier (KM) Statistics usir     | na Normal C   | ritical Values and other Nonparametric UCLs |           |
|                                       | 9.8000E-5     | KM Standard Error of Mean                   | 1.2000E-5 |
| 90KM SD                               | 1.2000E-5     | 95% KM (BCA) UCL                            | N/A       |
| 95% KM (t) UCL                        |               | 95% KM (Percentile Bootstrap) UCL           | N/A       |
| 95% KM (z) UCL                        |               | 95% KM Bootstrap t UCL                      | N/A       |
| 90% KM Chebyshev UCL                  |               | 95% KM Chebyshev UCL                        |           |
| 97.5% KM Chebyshev UCL                |               | 99% KM Chebyshev UCL                        |           |
| ,<br>,                                |               | · · · · ·                                   |           |
| Gamma GOF                             | Tests on De   | tected Observations Only                    |           |
| Not End                               | ough Data to  | Perform GOF Test                            |           |
|                                       |               |   |           |
|                                       |               | Detected Data Only                          |           |
| k hat (MLE)                           | 66.36         | k star (bias corrected MLE)                 | N/A       |
| Theta hat (MLE)                       |               | Theta star (bias corrected MLE)             | N/A       |
| nu hat (MLE)                          |               | nu star (bias corrected)                    | N/A       |
| Mean (detects)                        | 9.8000E-5     |   |           |
| Estimates of G                        | amma Darar    | neters using KM Estimates                   |           |
| Mean (KM)                             |               | -   | 1.2000E-5 |
| Variance (KM)                         |               | SD (KM)<br>SE of Mean (KM)                  |           |
| k hat (KM)                            | 66.69         | k star (KM)                                 | 62.06     |
| nu hat (KM)                           | 5736          | nu star (KM)                                | 5337      |
| theta hat (KM)                        |               | theta star (KM)                             |           |
| 80% gamma percentile (KM)             |               | 90% gamma percentile (KM)                   |           |
| 95% gamma percentile (KM)             |               | 99% gamma percentile (KM)                   |           |
|                                       | 1.1952E-4     |   | 1.29246-4 |
| Gamm                                  | a Kaplan-Me   | eier (KM) Statistics                        |           |
|                                       | •             | Adjusted Level of Significance $(\beta)$    | 0.0444    |
| Approximate Chi Square Value (N/A, α) | 5168          | Adjusted Chi Square Value (N/A, β)          | 5162      |
| 95% KM Approximate Gamma UCL          | 1.0120E-4     | 95% KM Adjusted Gamma UCL                   | 1.0131E-4 |
|                                       |               |   |           |
| Lognormal GO                          | F Test on De  | etected Observations Only                   |           |
| Not End                               | ough Data to  | Perform GOF Test                            |           |
|                                       |               |   |           |

|  | S Statistics   | Using Imputed Non-Detects  |                                   |
|--|--|--|-----------------------------------|
| Mean in Original Scale   | 9.9005E-5  | Mean in Log Scale  | -9.238                            |
| SD in Original Scale   | 1.9142E-5  | SD in Log Scale  | 0.19                              |
| 95% t UCL (assumes normality of ROS data)  | 1.0391E-4  | 95% Percentile Bootstrap UCL   | 1.0382E-                          |
| 95% BCA Bootstrap UCL  | 1.0428E-4  | 95% Bootstrap t UCL  | 1.0434E                           |
| 95% H-UCL (Log ROS)  | 1.0413E-4  |  |                                   |
| Statistics using KM estimates  | on Logged  | Data and Assuming Lognormal Distribution   |                                   |
| KM Mean (logged)   | -9.238   | KM Geo Mean  | 9.7263E                           |
| KM SD (logged)   | 0.123  | 95% Critical H Value (KM-Log)  | 1.69                              |
| KM Standard Error of Mean (logged)   | 0.123  | 95% H-UCL (KM -Log)  | 1.0120E                           |
| KM SD (logged)   |  | 95% Critical H Value (KM-Log)  | 1.69                              |
| KM Standard Error of Mean (logged)   |  |  |                                   |
|  |  | taset. Other substitution method recommended   |                                   |
|  |  |  |                                   |
| DL/2 Normal  | DL/2 S   | tatistics DL/2 Log-Transformed   |                                   |
| Mean in Original Scale   | 9 3080F-4  | Mean in Log Scale  | -7.687                            |
| SD in Original Scale   |  | SD in Log Scale  | 1.20                              |
| 95% t UCL (Assumes normality)  | 0.0012   | 95% H-Stat UCL   | 0.001                             |
|  |  | ded for comparisons and historical reasons   | 0.001                             |
|  |  |  |                                   |
|  | <u> </u>   |  |                                   |
|  |  | UCL to Use   |                                   |
| 95% KM (t) UCL<br>Warning: Recommen  | 1.1818E-4  | UCL to Use   |                                   |
| Warning: Recommen  | 1.1818E-4<br>nded UCL ex   | cceeds the maximum observation   |                                   |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%   | 1.1818E-4<br>nded UCL ex   | cceeds the maximum observation ovided to help the user to select the most appropriate 95% UCL  |                                   |
| Warning: Recommendations are based upon data size  | 1.1818E-4<br><b>nded UCL e</b><br>6 UCL are pr<br>, data distrib   | cceeds the maximum observation<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.   |                                   |
| Warning: Recommendations are based upon data size  | 1.1818E-4<br><b>nded UCL e</b><br>6 UCL are pr<br>, data distrib   | cceeds the maximum observation ovided to help the user to select the most appropriate 95% UCL  | ·<br>an.                          |
| Warning: Recomment           Note: Suggestions regarding the selection of a 95%           Recommendations are based upon data size   | 1.1818E-4<br><b>nded UCL e</b><br>6 UCL are pr<br>, data distrib   | cceeds the maximum observation<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.   | an.                               |
| Warning: Recomment           Note: Suggestions regarding the selection of a 95%           Recommendations are based upon data size   | 1.1818E-4<br><b>nded UCL e</b><br>6 UCL are pr<br>, data distrib   | cceeds the maximum observation<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.   | an.                               |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 1.1818E-4<br>add UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se   | covided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia   | an.                               |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General   | xceeds the maximum observation<br>ovided to help the user to select the most appropriate 95% UCL<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia<br>Statistics  |                                   |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 1.1818E-4<br>add UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se   | exceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations   | 28                                |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>nundwater   iron   7439-89-6)<br>Total Number of Observations  | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General<br>28                                     | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statistician         Statistics         Number of Distinct Observations         Number of Missing Observations  | 28<br>0                           |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>nundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum   | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General<br>28<br>0.16                             | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean  | 28<br>0<br>53.54                  |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>pundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | 1.1818E-4<br>add UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General<br>28<br>0.16<br>178.3                     | sceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median   | 28<br>0<br>53.54<br>46.98         |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>bundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General<br>28<br>0.16<br>178.3<br>47.61           | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median         Std. Error of Mean                  | 28<br>0<br>53.54<br>46.98<br>8.99 |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>pundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | 1.1818E-4<br>add UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>General<br>28<br>0.16<br>178.3                     | sceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median   | 28<br>0<br>53.5-<br>46.90<br>8.99 |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>bundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | 1.1818E-4<br><b>inded UCL example</b><br>6 UCL are pr<br>, data distrib<br>/orld data se   | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median         Std. Error of Mean                  | 28<br>0<br>53.54<br>46.98<br>8.99 |
| Warning: Recomment<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>bundwater   iron   7439-89-6)<br>Total Number of Observations<br>Minimum<br>Maximum  | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>28<br>0.16<br>178.3<br>47.61<br>0.889<br>Normal ( | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median         Std. Error of Mean         Skewness | 28                                |
| Warning: Recommendations regarding the selection of a 95%         Recommendations are based upon data size         However, simulations results will not cover all Real W         pundwater   iron   7439-89-6)         Total Number of Observations         Minimum         SD         Coefficient of Variation | 1.1818E-4<br>nded UCL ex<br>6 UCL are pr<br>, data distrib<br>/orld data se<br>28<br>0.16<br>178.3<br>47.61<br>0.889<br>Normal ( | xceeds the maximum observation         ovided to help the user to select the most appropriate 95% UCL         ution, and skewness using results from simulation studies.         ts; for additional insight the user may want to consult a statisticia         Statistics         Number of Distinct Observations         Number of Missing Observations         Mean         Median         Std. Error of Mean         Skewness | 28<br>0<br>53.54<br>46.98<br>8.99 |

| 1% Lilliefors Critical Value    | 0.191         | Data appear Normal at 1% Significance Level              |          |
|---------------------------------|---------------|--|----------|
| Data appea                      | ar Normal at  | 1% Significance Level                                    |          |
|                                 |               |  |          |
| Ass                             | suming Norr   | nal Distribution   |          |
| 95% Normal UCL                  |               | 95% UCLs (Adjusted for Skewness)                         |          |
| 95% Student's-t UCL             | 68.86         | 95% Adjusted-CLT UCL (Chen-1995)                         | 69.78    |
|                                 |               | 95% Modified-t UCL (Johnson-1978)                        | 69.09    |
|                                 | _             |  |          |
|                                 |               | GOF Test   |          |
| A-D Test Statistic              | 0.961         | Anderson-Darling Gamma GOF Test                          |          |
| 5% A-D Critical Value           | 0.795         | Data Not Gamma Distributed at 5% Significance Leve       | el       |
| K-S Test Statistic              | 0.151         | Kolmogorov-Smirnov Gamma GOF Test                        |          |
| 5% K-S Critical Value           | 0.173         | Detected data appear Gamma Distributed at 5% Significand | ce Level |
| Detected data follow App        | or. Gamma I   | Distribution at 5% Significance Level                    |          |
|                                 | Gamma         | Statistics   |          |
| k hat (MLE)                     | 0.648         | k star (bias corrected MLE)                              | 0.603    |
| Theta hat (MLE)                 | 82.56         | Theta star (bias corrected MLE)                          | 88.82    |
| nu hat (MLE)                    | 36.31         | nu star (bias corrected MEL)                             | 33.76    |
| MLE Mean (bias corrected)       | 53.54         | MLE Sd (bias corrected)                                  | 68.96    |
|                                 |               | Approximate Chi Square Value (0.05)                      | 21.47    |
| Adjusted Level of Significance  | 0.0404        | Adjusted Chi Square Value                                | 20.86    |
|                                 |               | · · · · · · · · · · · · · · · · · · ·                    |          |
| Ass                             | uming Gam     | ma Distribution  |          |
| 95% Approximate Gamma UCL       | 84.18         | 95% Adjusted Gamma UCL                                   | 86.63    |
|                                 |               |  |          |
|                                 | Lognormal     | GOF Test   |          |
| Shapiro Wilk Test Statistic     | 0.818         | Shapiro Wilk Lognormal GOF Test                          |          |
| 10% Shapiro Wilk Critical Value | 0.936         | Data Not Lognormal at 10% Significance Level             |          |
| Lilliefors Test Statistic       | 0.234         | Lilliefors Lognormal GOF Test                            |          |
| 10% Lilliefors Critical Value   | 0.151         | Data Not Lognormal at 10% Significance Level             |          |
| Data Not Lo                     | gnormal at    | 10% Significance Level                                   |          |
|                                 |               |  |          |
|                                 |               | I Statistics   | 2.000    |
| Minimum of Logged Data          | -1.833        | Mean of logged Data                                      | 3.038    |
| Maximum of Logged Data          | 5.184         | SD of logged Data  | 2.017    |
| Δεοιι                           | mina Loana    | rmal Distribution  |          |
| 95% H-UCL                       | 728.2         | 90% Chebyshev (MVUE) UCL                                 | 333.1    |
| 95% Chebyshev (MVUE) UCL        | 424.1         | 97.5% Chebyshev (MVUE) UCL                               | 550.3    |
| 99% Chebyshev (MVUE) UCL        | 798.3         |  |          |
|                                 |               |  |          |
| Nonparame                       | tric Distribu | tion Free UCL Statistics                                 |          |
|                                 |               | Discernible Distribution                                 |          |
|                                 |               |  |          |
| Nonpar                          | ametric Dist  | tribution Free UCLs                                      |          |
| 95% CLT UCL                     | 68.34         | 95% BCA Bootstrap UCL                                    | 69.75    |
| 95% Standard Bootstrap UCL      | 68.04         | 95% Bootstrap-t UCL                                      | 70.81    |

| 95% Hall's Bootstrap UCL   | 70.11   | 0E% Dereentile Restation LICI  | 68.65  |
|--|---|--|--------|
| 95% Hall's Bootstrap UCL<br>90% Chebyshev(Mean, Sd) UCL  | 80.53   | 95% Percentile Bootstrap UCL<br>95% Chebyshev(Mean, Sd) UCL  | 92.75  |
|  |   |  |        |
| 97.5% Chebyshev(Mean, Sd) UCL  | 109.7   | 99% Chebyshev(Mean, Sd) UCL  | 143.1  |
|  | Suggested   | UCL to Use   |        |
| 95% Student's-t UCL  | 68.86   |  |        |
| Note: Suggestions regarding the selection of a 95%   | 6 UCL are pr  | ovided to help the user to select the most appropriate 95% UCL.  |        |
|  |   | ution, and skewness using results from simulation studies.   |        |
|  |   | ts; for additional insight the user may want to consult a statisticiz  | an.    |
|  |   |  |        |
| (groundwater   isophorone   78-59-1)   |   |  |        |
|  | General   | Statistics   |        |
| Total Number of Observations   | 42  | Number of Distinct Observations  | 9      |
| Number of Detects  | 0   | Number of Non-Detects  | 42     |
| Number of Distinct Detects   | 0   | Number of Distinct Non-Detects   | 9      |
|  |   |  |        |
| -  |   | erefore all statistics and estimates should also be NDs!   |        |
| Specifically, sample mean, UCLs, UPLs, and   | d other stati   | stics are also NDs lying below the largest detection limit!  |        |
| The Project Team may decide to use alternative si  | ite specific v  | values to estimate environmental parameters (e.g., EPC, BTV)   | ).     |
|  |   |  |        |
|  |   |  |        |
| The data set for variable C (gr  | roundwater  | isophorone   78-59-1) was not processed!   |        |
| The data set for variable C (gr<br>(groundwater   isopropanol   67-63-0)   | roundwater  | isophorone   78-59-1) was not processed!   |        |
|  |   | isophorone   78-59-1) was not processed!<br>Statistics   |        |
|  |   |  | 1      |
| (groundwater   isopropanol   67-63-0)  | General<br>6  | Statistics   | 1 6    |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations  | General<br>6  | Statistics Number of Distinct Observations   |        |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects   | General<br>6<br>0<br>0  | Statistics Number of Distinct Observations Number of Non-Detects Number of Distinct Non-Detects  | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect   | General<br>6<br>0<br>0  | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects  | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and   | General<br>6<br>0<br>0<br>s (NDs), the<br>d other stati   | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and   | General<br>6<br>0<br>0<br>s (NDs), the<br>d other stati   | Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects  | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si  | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati<br>ite specific v  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           erefore all statistics and estimates should also be NDs!           stics are also NDs lying below the largest detection limit!           values to estimate environmental parameters (e.g., EPC, BTV)   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si  | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati<br>ite specific v  | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (groups)  | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati<br>ite specific v  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           erefore all statistics and estimates should also be NDs!           stics are also NDs lying below the largest detection limit!           values to estimate environmental parameters (e.g., EPC, BTV)   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si  | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati<br>ite specific v  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           erefore all statistics and estimates should also be NDs!           stics are also NDs lying below the largest detection limit!           values to estimate environmental parameters (e.g., EPC, BTV)   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (groups)  | General<br>6<br>0<br>0<br>ss (NDs), the<br>d other stati<br>ite specific v  | Statistics           Statistics           Number of Distinct Observations           Number of Non-Detects           Number of Distinct Non-Detects           erefore all statistics and estimates should also be NDs!           stics are also NDs lying below the largest detection limit!           values to estimate environmental parameters (e.g., EPC, BTV)   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (groups)  | General<br>6<br>0<br>0<br>s (NDs), the<br>d other stati<br>ite specific v<br>oundwater  <br>General                                 | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV)         isopropanol   67-63-0) was not processed!  | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (gr<br>(groundwater   lead   7439-92-1)   | General<br>6<br>0<br>0<br>s (NDs), the<br>d other stati<br>ite specific v<br>oundwater  <br>General                                 | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV)         isopropanol   67-63-0) was not processed!         Statistics   | 6      |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (groundwater   lead   7439-92-1)<br>Total Number of Observations  | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati<br>ite specific v<br>oundwater  <br>General<br>41                          | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV)         isopropanol   67-63-0) was not processed!         Statistics         Number of Distinct Observations                               | 6<br>1 |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (gr<br>(groundwater   lead   7439-92-1)<br>Total Number of Observations<br>Number of Detects                        | General<br>6<br>0<br>0<br>is (NDs), the<br>d other stati-<br>ite specific v<br>oundwater  <br>General<br>41<br>17                   | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV)         isopropanol   67-63-0) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects | 6<br>1 |
| (groundwater   isopropanol   67-63-0)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Warning: All observations are Non-Detect<br>Specifically, sample mean, UCLs, UPLs, and<br>The Project Team may decide to use alternative si<br>The data set for variable C (groundwater   lead   7439-92-1)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects | General<br>6<br>0<br>0<br>ss (NDs), the<br>d other stati<br>ite specific v<br>oundwater  <br>General<br>41<br>17<br>17<br>1.6000E-4 | Statistics         Number of Distinct Observations         Number of Non-Detects         Number of Distinct Non-Detects         erefore all statistics and estimates should also be NDs!         stics are also NDs lying below the largest detection limit!         values to estimate environmental parameters (e.g., EPC, BTV)         isopropanol   67-63-0) was not processed!         Statistics         Number of Distinct Observations         Number of Non-Detects | 6<br>1 |

| Mean Detects   | 0.00767   | SD Detects  | 0.00888   |
|--|---|---|---|
| Median Detects   | 0.0016  | CV Detects  | 1.158   |
| Skewness Detects   | 0.845   | Kurtosis Detects  | -0.591  |
| Mean of Logged Detects   | -6.168  | SD of Logged Detects  | 1.987   |
| Norm   | al GOF Test   | t on Detects Only   |   |
| Shapiro Wilk Test Statistic  | 0.806   | Shapiro Wilk GOF Test   |   |
| 1% Shapiro Wilk Critical Value   | 0.851   | Detected Data Not Normal at 1% Significance Level   |   |
| Lilliefors Test Statistic  | 0.282   | Lilliefors GOF Test   |   |
| 1% Lilliefors Critical Value   | 0.241   | Detected Data Not Normal at 1% Significance Level   |   |
|  | Not Normal  | at 1% Significance Level  |   |
|  |   | -   |   |
| Kaplan-Meier (KM) Statistics usin  | g Normal C  | ritical Values and other Nonparametric UCLs   |   |
| KM Mean  | 0.00489   | KM Standard Error of Mean   | 0.00139   |
| 90KM SD  | 0.00691   | 95% KM (BCA) UCL  | 0.00731   |
| 95% KM (t) UCL   | 0.00724   | 95% KM (Percentile Bootstrap) UCL   | 0.00721   |
| 95% KM (z) UCL   | 0.00718   | 95% KM Bootstrap t UCL  | 0.00778   |
| 90% KM Chebyshev UCL   | 0.00907   | 95% KM Chebyshev UCL  | 0.011   |
| 97.5% KM Chebyshev UCL   | 0.0136  | 99% KM Chebyshev UCL  | 0.0188  |
| -  |   | aset. Other substitution method recommended   |   |
| ·  |   |   |   |
| Gamma GOF  | Tests on De   | tected Observations Only  |   |
| A-D Test Statistic   | 1.086   | Anderson-Darling GOF Test   |   |
| 5% A-D Critical Value  | 0.8   | Detected Data Not Gamma Distributed at 5% Significance  |   |
|  | 0.0   | Delected Data Not Gamma Distributed at 5% Significance  | LEVEI   |
|  |   | -   | Level   |
| K-S Test Statistic<br>5% K-S Critical Value  | 0.8   | Kolmogorov-Smirnov GOF  |   |
| K-S Test Statistic<br>5% K-S Critical Value  | 0.212<br>0.221  | Kolmogorov-Smirnov GOF Detected data appear Gamma Distributed at 5% Significance  |   |
| K-S Test Statistic<br>5% K-S Critical Value  | 0.212<br>0.221  | Kolmogorov-Smirnov GOF  |   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App  | 0.212<br>0.221<br>or. Gamma D   | Kolmogorov-Smirnov GOF Detected data appear Gamma Distributed at 5% Significance  |   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App  | 0.212<br>0.221<br>or. Gamma D   | Kolmogorov-Smirnov GOF Detected data appear Gamma Distributed at 5% Significance Distribution at 5% Significance Level Detected Data Only   |   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S   | 0.212<br>0.221<br>or. Gamma D   | Kolmogorov-Smirnov GOF Detected data appear Gamma Distributed at 5% Significance Distribution at 5% Significance Level  | e Level   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)  | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491   | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)   | e Level   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)   | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156   | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)   | e Level<br>0.443<br>0.0173  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)   | 0.212<br>0.221<br>or. Gamma E<br>Statistics on<br>0.491<br>0.0156<br>16.69  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)   | e Level<br>0.443<br>0.0173  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)   | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767   | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)   | e Level<br>0.443<br>0.0173  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS  | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected)  | 0.443<br>0.0173   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data se  | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected)         sing Imputed Non-Detects   | 0.443<br>0.0173   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s   | 0.212<br>0.221<br>or. Gamma E<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>at has > 50%<br>mall such as  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected)         ing Imputed Non-Detects         NDs with many tied observations at multiple DLs  | 0.443<br>0.0173   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m  | 0.212<br>0.221<br>or. Gamma C<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected)         Significance         Significance         Detected Data Only         k star (bias corrected MLE)         nu star (bias corrected)         Significance         Significance         Significance         Significance         Level         Significance         Significance         Level         Significance         Level         NDs with many tied observations at multiple DLs         Significance         Significance         Level         Level         Significance         Level         Level         Level         Level         Significance         Level         Level         Level         Level         Level         Level         Level  | e Level<br>0.443<br>0.0173  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m  | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>at has > 50%<br>mall such as<br>nethod may y<br>ally true when  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | 0.443<br>0.0173   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m  | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may   | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | 0.443<br>0.0173   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar   | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may   | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         star (bias corrected MLE)         star (bias corrected MLE)         nu star (bias corrected)         star (bias corrected)         star (bias corrected)         star (bias corrected)         nu star (bias corrected)         nu star (bias corrected)         st | e Level   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum                                    | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>at has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may<br>1.6000E-4  | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | e Level   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum                         | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>d UCLs may<br>1.6000E-4<br>0.025<br>0.00575                               | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | e Level   |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)                    | 0.212<br>0.221<br>or. Gamma E<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>at has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may<br>1.6000E-4<br>0.025<br>0.00575<br>1.049                     | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)   | 20.443<br>0.0173<br>15.08<br>0.00907<br>0.01<br>0.634<br>0.989  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)                    | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may<br>1.6000E-4<br>0.025<br>0.00575<br>1.049<br>0.00864          | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | e Level<br>0.443<br>0.0173<br>15.08<br>0.00907<br>0.00907<br>0.01<br>0.634<br>0.989<br>0.00917            |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE) | 0.212<br>0.221<br>or. Gamma E<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>at has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may<br>1.6000E-4<br>0.025<br>0.00575<br>1.049<br>0.00864<br>86.04 | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)   | 20.443<br>0.0173<br>15.08<br>0.00907<br>0.01<br>0.634<br>0.989  |
| K-S Test Statistic<br>5% K-S Critical Value<br>Detected data follow App<br>Gamma S<br>k hat (MLE)<br>Theta hat (MLE)<br>nu hat (MLE)<br>Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS m<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)                    | 0.212<br>0.221<br>or. Gamma D<br>Statistics on<br>0.491<br>0.0156<br>16.69<br>0.00767<br>Statistics us<br>et has > 50%<br>mall such as<br>nethod may y<br>ally true when<br>nd UCLs may<br>1.6000E-4<br>0.025<br>0.00575<br>1.049<br>0.00864          | Kolmogorov-Smirnov GOF         Detected data appear Gamma Distributed at 5% Significance         Distribution at 5% Significance Level         Detected Data Only         k star (bias corrected MLE)         Theta star (bias corrected MLE)         nu star (bias corrected MLE)         nu star (bias corrected MLE)         sing Imputed Non-Detects         NDs with many tied observations at multiple DLs         s <1.0, especially when the sample size is small (e.g., <15-20)  | e Level<br>0.443<br>0.0173<br>15.08<br>0.00907<br>0.00907<br>0.00907<br>0.01<br>0.634<br>0.989<br>0.00917 |

| 95% Gamma Approximate UCL                 | 0.012        | 95% Gamma Adjusted UCL                              | 0.0121  |
|---|--------------|---|---------|
| E   |              |   |         |
|   |              | meters using KM Estimates                           | 0.00001 |
| Mean (KM)                                 | 0.00489      | SD (KM)   | 0.00691 |
| Variance (KM)                             |              | SE of Mean (KM)                                     | 0.00139 |
| k hat (KM)                                | 0.501        | k star (KM)   | 0.48    |
| nu hat (KM)                               | 41.06        | nu star (KM)  | 39.39   |
| theta hat (KM)                            | 0.00976      | theta star (KM)                                     | 0.0102  |
| 80% gamma percentile (KM)                 | 0.00801      | 90% gamma percentile (KM)                           | 0.0133  |
| 95% gamma percentile (KM)                 | 0.019        | 99% gamma percentile (KM)                           | 0.0331  |
| Gamm                                      | a Kanlan-M   | eier (KM) Statistics                                |         |
| Approximate Chi Square Value (39.39, α)   | 26.01        | Adjusted Chi Square Value (39.39, β)                | 25.62   |
| 95% KM Approximate Gamma UCL              | 0.0074       | 95% KM Adjusted Gamma UCL                           | 0.00752 |
|   |              | taset. Other substitution method recommended        | 0.00702 |
|   |              |   |         |
| Lognormal GC                              | F Test on D  | etected Observations Only                           |         |
| Shapiro Wilk Test Statistic               | 0.847        | Shapiro Wilk GOF Test                               |         |
| 10% Shapiro Wilk Critical Value           | 0.91         | Detected Data Not Lognormal at 10% Significance Lev | vel     |
| Lilliefors Test Statistic                 | 0.234        | Lilliefors GOF Test                                 |         |
| 10% Lilliefors Critical Value             | 0.19         | Detected Data Not Lognormal at 10% Significance Lev | vel     |
| Detected Data N                           | Not Lognorm  | al at 10% Significance Level                        |         |
|   |              |   |         |
| Lognormal RO                              | S Statistics | Using Imputed Non-Detects                           |         |
| Mean in Original Scale                    | 0.00415      | Mean in Log Scale                                   | -6.77   |
| SD in Original Scale                      | 0.00656      | SD in Log Scale                                     | 1.72    |
| 95% t UCL (assumes normality of ROS data) | 0.00588      | 95% Percentile Bootstrap UCL                        | 0.00592 |
| 95% BCA Bootstrap UCL                     | 0.00617      | 95% Bootstrap t UCL                                 | 0.00643 |
| 95% H-UCL (Log ROS)                       | 0.0122       |   |         |
|   |              |   |         |
|   |              | Data and Assuming Lognormal Distribution            | 0.00117 |
| KM Mean (logged)                          | -6.754       | KM Geo Mean   | 0.00117 |
| KM SD (logged)                            | 1.811        | 95% Critical H Value (KM-Log)                       | 3.376   |
| KM Standard Error of Mean (logged)        | 0.421        | 95% H-UCL (KM -Log)                                 | 0.0158  |
| KM SD (logged)                            | 1.811        | 95% Critical H Value (KM-Log)                       | 3.376   |
| KM Standard Error of Mean (logged)        | 0.421        |   |         |
|   | DL/2 S       | tatistics   |         |
| DL/2 Normal                               |              | DL/2 Log-Transformed                                |         |
| Mean in Original Scale                    | 0.00722      | Mean in Log Scale                                   | -5.588  |
| SD in Original Scale                      | 0.00584      | SD in Log Scale                                     | 1.534   |
| 95% t UCL (Assumes normality)             | 0.00875      | 95% H-Stat UCL                                      | 0.0252  |
| · · · · · · · · · · · · · · · · · · ·     | ethod, provi | ded for comparisons and historical reasons          |         |
|   |              |   |         |
| -   |              | tion Free UCL Statistics                            |         |
| Detected Data appear Appro                | oximate Gan  | nma Distributed at 5% Significance Level            |         |
|   |              |   |         |
|   | Suggested    | UCL to Use  |         |

|  | 0.00750        |   |         |
|--|----------------|---|---------|
| 95% KM Adjusted Gamma UCL                              | 0.00752        |   |         |
| The coloulated LICLs are based on accumpt              | ione that the  | e data were collected in a random and unbiased manner.                |         |
| · · · · · · · · · · · · · · · · · · ·                  |                | blected from random locations.  |         |
|  |                | mental or other non-random methods,                                   |         |
|  |                | to correctly calculate UCLs.  |         |
|  | Statistician   |   |         |
| When a data set follows an app                         | proximate dis  | stribution passing only one of the GOF tests,                         |         |
|  |                | istribution passing both GOF tests in ProUCL                          |         |
|  |                |   |         |
| Note: Suggestions regarding the selection of a 95%     | UCL are pr     | ovided to help the user to select the most appropriate 95% UCL.       |         |
| Recommendations are based upon data size,              | , data distrib | ution, and skewness using results from simulation studies.            |         |
| However, simulations results will not cover all Real W | /orld data se  | ts; for additional insight the user may want to consult a statisticia | n.      |
|  |                |   |         |
|  |                |   |         |
| C (groundwater   manganese   7439-96-5)                |                |   |         |
|  |                |   |         |
|  | General        | Statistics  |         |
| Total Number of Observations                           | 28             | Number of Distinct Observations                                       | 27      |
|  |                | Number of Missing Observations  | 0       |
| Minimum  | 0.032          | Mean  | 8.402   |
| Maximum  | 28.1           | Median  | 5.61    |
| SD   | 7.941          | Std. Error of Mean  | 1.501   |
| Coefficient of Variation                               | 0.945          | Skewness  | 1.286   |
|  |                |   |         |
|  |                | GOF Test  |         |
| Shapiro Wilk Test Statistic                            | 0.842          | Shapiro Wilk GOF Test   |         |
| 1% Shapiro Wilk Critical Value                         | 0.896          | Data Not Normal at 1% Significance Level                              |         |
| Lilliefors Test Statistic                              | 0.211          | Lilliefors GOF Test   |         |
| 1% Lilliefors Critical Value                           | 0.191          | Data Not Normal at 1% Significance Level                              |         |
| Data Not   | Normal at 1    | 1% Significance Level   |         |
| A.   |                |   |         |
|  | suming Nori    | mal Distribution  |         |
| 95% Normal UCL   | 10.00          | 95% UCLs (Adjusted for Skewness)                                      | 11.00   |
| 95% Student's-t UCL                                    | 10.96          | 95% Adjusted-CLT UCL (Chen-1995)<br>95% Modified-t UCL (Johnson-1978) | 11.26   |
|  |                | 95% Modified-t OCE (Johnson-1978)                                     | 11.02   |
|  | Gamma          | GOF Test  |         |
| A-D Test Statistic                                     | 0.21           | Anderson-Darling Gamma GOF Test                                       |         |
| 5% A-D Critical Value                                  | 0.21           | Detected data appear Gamma Distributed at 5% Significance             |         |
| K-S Test Statistic                                     | 0.0806         | Kolmogorov-Smirnov Gamma GOF Test                                     | 0 2010  |
| 5% K-S Critical Value                                  | 0.171          | Detected data appear Gamma Distributed at 5% Significance             | e Level |
|  |                | stributed at 5% Significance Level                                    |         |
|  |                | •   |         |
|  | Gamma          | Statistics  |         |
| k hat (MLE)  | 0.956          | k star (bias corrected MLE)   | 0.878   |
| Theta hat (MLE)  | 8.786          | Theta star (bias corrected MLE)                                       | 9.574   |
| nu hat (MLE)   | 53.55          | nu star (bias corrected)  | 49.15   |
|  |                | . ,   |         |

| MLE Mean (bias corrected)  | 8.402  | MLE Sd (bias corrected)   | 8.969                    |
|--|--|---|--------------------------|
|  |  | Approximate Chi Square Value (0.05)   | 34.05                    |
| Adjusted Level of Significance   | 0.0404   | Adjusted Chi Square Value   | 33.28                    |
| As   | suming Gam   | ma Distribution   |                          |
| 95% Approximate Gamma UCL  | 12.13  | 95% Adjusted Gamma UCL  | 12.41                    |
|  |  |   |                          |
|  | Lognorma   | I GOF Test  |                          |
| Shapiro Wilk Test Statistic  | 0.877  | Shapiro Wilk Lognormal GOF Test   |                          |
| 10% Shapiro Wilk Critical Value  | 0.936  | Data Not Lognormal at 10% Significance Level  |                          |
| Lilliefors Test Statistic  | 0.155  | Lilliefors Lognormal GOF Test   |                          |
| 10% Lilliefors Critical Value  | 0.151  | Data Not Lognormal at 10% Significance Level  |                          |
| Data Not L   | ognormal at  | 10% Significance Level  |                          |
|  |  |   |                          |
|  | Lognorma   | I Statistics  |                          |
| Minimum of Logged Data   | -3.442   | Mean of logged Data   | 1.522                    |
| Maximum of Logged Data   | 3.336  | SD of logged Data   | 1.442                    |
|  |  |   |                          |
|  |  | ormal Distribution  |                          |
| 95% H-UCL  | 30.14  | 90% Chebyshev (MVUE) UCL  | 24.33                    |
| 95% Chebyshev (MVUE) UCL   | 29.88  | 97.5% Chebyshev (MVUE) UCL  | 37.58                    |
| 99% Chebyshev (MVUE) UCL   | 52.71  |   |                          |
| Nonporomo  | tria Diatribu  | tion Free UCL Statistics  |                          |
| -  |  | Discernible Distribution  |                          |
| Data appea   |  |   |                          |
| Nonpa  | rametric Dis   | tribution Free UCLs   |                          |
| 95% CLT UCL  | 10.87  | 95% BCA Bootstrap UCL   | 11.27                    |
| 95% Standard Bootstrap UCL   | 10.84  | 95% Bootstrap-t UCL   | 11.59                    |
| 95% Hall's Bootstrap UCL   | 11.29  | 95% Percentile Bootstrap UCL  | 10.94                    |
| 90% Chebyshev(Mean, Sd) UCL  | 12.9   | 95% Chebyshev(Mean, Sd) UCL   | 14.94                    |
| 97.5% Chebyshev(Mean, Sd) UCL  | 17.77  | 99% Chebyshev(Mean, Sd) UCL   | 23.33                    |
|  |  |   |                          |
|  | Suggested  | UCL to Use  |                          |
|  | Cuggoolou  |   |                          |
| 95% Adjusted Gamma UCL   | 12.41  |   |                          |
| 95% Adjusted Gamma UCL   |  |   |                          |
|  | 12.41  | ovided to help the user to select the most appropriate 95% UCL.   |                          |
| Note: Suggestions regarding the selection of a 95%   | 12.41  |   |                          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size   | 12.41<br>6 UCL are pr  | ovided to help the user to select the most appropriate 95% UCL.   | n.                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 12.41<br>6 UCL are pr  | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   | n.                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 12.41<br>6 UCL are pr  | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.   | n.                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W   | 12.41<br>6 UCL are pri<br>, data distribu<br>/orld data se   | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistician   | n.                       |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>c (groundwater   mercury   7439-97-6)  | 12.41<br>5 UCL are pr<br>, data distrib<br>/orld data se<br>General  | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticial<br>Statistics   |                          |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   mercury   7439-97-6)<br>Total Number of Observations  | 12.41<br>6 UCL are pro-<br>data distribution<br>/orld data se<br>General<br>41   | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistician<br>Statistics   | 7                        |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   mercury   7439-97-6)<br>Total Number of Observations<br>Number of Detects                               | 12.41<br>5 UCL are provided and the second sec | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticial<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects                                   | 7 36                     |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   mercury   7439-97-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects | 12.41<br>5 UCL are pro-<br>data distribution<br>forld data se<br>General<br>41<br>5<br>4   | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistician<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects | 7<br>36<br>3             |
| Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size<br>However, simulations results will not cover all Real W<br>C (groundwater   mercury   7439-97-6)<br>Total Number of Observations<br>Number of Detects                               | 12.41<br>b UCL are pro-<br>data distribution<br>/orld data se<br>General<br>41<br>5<br>4<br>5.3000E-5  | ovided to help the user to select the most appropriate 95% UCL.<br>ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticial<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects                                   | 7<br>36<br>3<br>.0000E-4 |

| Verience Detecto                              |                        | Demonst New Detector  | 07.00/           |
|---|------------------------|---|------------------|
| Variance Detects                              |                        | Percent Non-Detects   | 87.8%            |
| Mean Detects                                  |                        | SD Detects  |                  |
| Median Detects                                |                        | CV Detects  | N/A              |
| Skewness Detects                              |                        | Kurtosis Detects  | 4.835            |
| Mean of Logged Detects                        | -9.452                 | SD of Logged Detects  | 0.585            |
| Norr  | nal GOF Tes            | t on Detects Only   |                  |
| Shapiro Wilk Test Statistic                   | 0.633                  | Shapiro Wilk GOF Test   |                  |
| 1% Shapiro Wilk Critical Value                | 0.686                  | Detected Data Not Normal at 1% Significance Leve                | el               |
| Lilliefors Test Statistic                     | 0.42                   | Lilliefors GOF Test   |                  |
| 1% Lilliefors Critical Value                  | 0.396                  | Detected Data Not Normal at 1% Significance Leve                | el               |
| Detected Dat                                  | a Not Norma            | I at 1% Significance Level                                      |                  |
| Kanlan-Majer (KM) Statistics us               | ing Normal C           | ritical Values and other Nonparametric UCLs                     |                  |
|   | 6.4878E-5              | KM Standard Error of Mean                                       | 5 5301E 6        |
|   | 0.4878E-5<br>2.5339E-5 | 95% KM (BCA) UCL  | 0.0094L-0<br>N/A |
| 95% KM (t) UCL                                |                        | 95% KM (Percentile Bootstrap) UCL                               | N/A<br>N/A       |
| 95% KM (z) UCL                                |                        | 95% KM Bootstrap t UCL  | N/A              |
| 90% KM Chebyshev UCL                          |                        | 95% KM Chebyshev UCL  |                  |
| 97.5% KM Chebyshev UCL                        |                        | 99% KM Chebyshev UCL  |                  |
|   | 9.947TE-3              |   | 1.1999⊏-4        |
| Gamma GOF                                     | Tests on De            | etected Observations Only                                       |                  |
| A-D Test Statistic                            | 0.941                  | Anderson-Darling GOF Test                                       |                  |
| 5% A-D Critical Value                         | 0.682                  | Detected Data Not Gamma Distributed at 5% Significance          | e Level          |
| K-S Test Statistic                            | 0.403                  | Kolmogorov-Smirnov GOF  |                  |
| 5% K-S Critical Value                         | 0.359                  | Detected Data Not Gamma Distributed at 5% Significance          | e Level          |
| Detected Data Not                             | Gamma Dist             | ributed at 5% Significance Level                                |                  |
|   | Otatiatian an          | Protocolo d Deste Onde  |                  |
|   |                        | Detected Data Only  | 1 201            |
| k hat (MLE)                                   |                        | k star (bias corrected MLE)                                     |                  |
| Theta hat (MLE)                               |                        | Theta star (bias corrected MLE)                                 |                  |
| nu hat (MLE)<br>Mean (detects)                |                        | nu star (bias corrected)  | 13.91            |
|   | 9.2000E-5              |   |                  |
| Gamma ROS                                     | 6 Statistics u         | sing Imputed Non-Detects  |                  |
| GROS may not be used when data s              | set has > 50%          | NDs with many tied observations at multiple DLs                 |                  |
| GROS may not be used when kstar of detects is | small such a           | s <1.0, especially when the sample size is small (e.g., <15-20) |                  |
| For such situations, GROS                     | method may             | yield incorrect values of UCLs and BTVs                         |                  |
| This is espec                                 | ially true whe         | en the sample size is small.                                    |                  |
| For gamma distributed detected data, BTVs a   | and UCLs ma            | y be computed using gamma distribution on KM estimates          |                  |
| Minimum                                       | 5.3000E-5              | Mean  | 0.00879          |
| Maximum                                       | 0.01                   | Median  | 0.01             |
| SD  | 0.00328                | CV  | 0.373            |
| k hat (MLE)                                   | 1.221                  | k star (bias corrected MLE)                                     | 1.148            |
| Theta hat (MLE)                               | 0.0072                 | Theta star (bias corrected MLE)                                 | 0.00766          |
| nu hat (MLE)                                  | 100.1                  | nu star (bias corrected)  | 94.14            |
| Adjusted Level of Significance (β)            |                        |   |                  |
| Approximate Chi Square Value (94.14, α)       |                        | Adjusted Chi Square Value (94.14, β)                            | 72.08            |
|   |                        |   |                  |

| 95% Gamma Approximate UCL                 | 0.0114         | 05% Commo Adjusted LICI                            | 0.0115    |  |  |
|---|----------------|--|-----------|--|--|
| 95% Gamma Approximate UCL                 | 0.0114         | 95% Gamma Adjusted UCL                             | 0.0115    |  |  |
| Estimates of G                            | amma Para      | meters using KM Estimates                          |           |  |  |
| Mean (KM)                                 | 6.4878E-5      | SD (KM)  | 2.5339E-5 |  |  |
| Variance (KM)                             | 6.421E-10      | SE of Mean (KM)                                    | 5.5394E-6 |  |  |
| k hat (KM)                                | 6.556          | k star (KM)  |           |  |  |
| nu hat (KM)                               | 537.6          | nu star (KM)                                       | 499.6     |  |  |
| theta hat (KM)                            | 9.8964E-6      | theta star (KM)                                    | 1.0649E-5 |  |  |
| 80% gamma percentile (KM)                 | 8.5348E-5      | 90% gamma percentile (KM)                          | 1.0001E-4 |  |  |
| 95% gamma percentile (KM)                 |                | 99% gamma percentile (KM)                          |           |  |  |
|   |                |  |           |  |  |
| Gamn                                      | na Kaplan-M    | eier (KM) Statistics                               |           |  |  |
| Approximate Chi Square Value (499.57, α)  | 448.7          | Adjusted Chi Square Value (499.57, β)              | 447       |  |  |
| 95% KM Approximate Gamma UCL              | 7.2227E-5      | 95% KM Adjusted Gamma UCL                          | 7.2510E-5 |  |  |
|   |                |  |           |  |  |
| Lognormal GC                              | DF Test on D   | Petected Observations Only                         |           |  |  |
| Shapiro Wilk Test Statistic               | 0.71           | Shapiro Wilk GOF Test                              |           |  |  |
| 10% Shapiro Wilk Critical Value           | 0.806          | Detected Data Not Lognormal at 10% Significance Le | evel      |  |  |
| Lilliefors Test Statistic                 | 0.368          | Lilliefors GOF Test                                |           |  |  |
| 10% Lilliefors Critical Value             | 0.319          | Detected Data Not Lognormal at 10% Significance Le | evel      |  |  |
| Detected Data                             | Not Lognorm    | al at 10% Significance Level                       |           |  |  |
|   |                |  |           |  |  |
| Lognormal RO                              | S Statistics   | Using Imputed Non-Detects                          |           |  |  |
| Mean in Original Scale                    | 7.0891E-5      | Mean in Log Scale                                  | -9.641    |  |  |
| SD in Original Scale                      | 3.3907E-5      | SD in Log Scale                                    | 0.408     |  |  |
| 95% t UCL (assumes normality of ROS data) | 7.9808E-5      | 95% Percentile Bootstrap UCL                       | 8.0355E-5 |  |  |
| 95% BCA Bootstrap UCL                     | 8.1899E-5      | 95% Bootstrap t UCL                                | 8.2897E-5 |  |  |
| 95% H-UCL (Log ROS)                       | 7.9498E-5      |  |           |  |  |
|   |                |  |           |  |  |
| Statistics using KM estimates             | on Logged      | Data and Assuming Lognormal Distribution           |           |  |  |
| KM Mean (logged)                          | -9.679         | KM Geo Mean  | 6.2604E-5 |  |  |
| KM SD (logged)                            | 0.224          | 95% Critical H Value (KM-Log)                      | 1.737     |  |  |
| KM Standard Error of Mean (logged)        | 0.0665         | 95% H-UCL (KM -Log)                                | 6.8258E-5 |  |  |
| KM SD (logged)                            | 0.224          | 95% Critical H Value (KM-Log)                      | 1.737     |  |  |
| KM Standard Error of Mean (logged)        | 0.0665         |  |           |  |  |
| Note: KM UCLs may be biased low           | v with this da | taset. Other substitution method recommended       | <u>I</u>  |  |  |
|   |                |  |           |  |  |
|   | DL/2 S         | tatistics  |           |  |  |
| DL/2 Normal                               |                | DL/2 Log-Transformed                               |           |  |  |
| Mean in Original Scale                    | 8.8268E-5      | Mean in Log Scale                                  | -9.39     |  |  |
| SD in Original Scale                      | 3.0427E-5      | SD in Log Scale                                    | 0.337     |  |  |
| 95% t UCL (Assumes normality)             | 9.6270E-5      | 95% H-Stat UCL                                     | 9.7340E-5 |  |  |
| DL/2 is not a recommended m               | ethod, provi   | ded for comparisons and historical reasons         | 1         |  |  |
|   |                |  |           |  |  |
| Nonparame                                 | etric Distribu | tion Free UCL Statistics                           |           |  |  |
| Data do n                                 | not follow a D | Discernible Distribution                           |           |  |  |
|   |                |  |           |  |  |
|   | Suggested      | UCL to Use   |           |  |  |
|   |                |  |           |  |  |

| 95% KM (t) UCL  | 7.4205E-   | 5   |     |
|---|------------|---|-----|
|   |            |   |     |
|   |            | provided to help the user to select the most appropriate 95% UCL.       |     |
|   |            | ribution, and skewness using results from simulation studies.           |     |
| However, simulations results will not cover all Real Wo | orid data  | sets; for additional insight the user may want to consult a statisticia | an. |
| C (groundwater   methanol   67-56-1)                    |            |   |     |
|   |            |   |     |
|   | Gener      | al Statistics   |     |
| Total Number of Observations                            | 6          | Number of Distinct Observations   | 1   |
| Number of Detects                                       | 0          | Number of Non-Detects   | 6   |
| Number of Distinct Detects                              | 0          | Number of Distinct Non-Detects  | 1   |
|   |            |   |     |
| Warning: All observations are Non-Detects               | ; (NDs), 1 | therefore all statistics and estimates should also be NDs!              |     |
| Specifically, sample mean, UCLs, UPLs, and              | i other st | atistics are also NDs lying below the largest detection limit!          |     |
| The Project Team may decide to use alternative sit      | e specifi  | c values to estimate environmental parameters (e.g., EPC, BTV)          |     |
|   |            |   |     |
| The data set for variable C (g                          | roundwat   | ter   methanol   67-56-1) was not processed!                            |     |
|   |            |   |     |
|   |            |   |     |
| C (groundwater   methyl acetate   79-20-9)              |            |   |     |
|   |            |   |     |
|   | Gener      | al Statistics   |     |
| Total Number of Observations                            | 36         | Number of Distinct Observations   | 4   |
| Number of Detects                                       | 0          | Number of Non-Detects   | 36  |
| Number of Distinct Detects                              | 0          | Number of Distinct Non-Detects  | 4   |
|   |            |   |     |
|   |            | therefore all statistics and estimates should also be NDs!              |     |
|   |            | atistics are also NDs lying below the largest detection limit!          |     |
| The Project Team may decide to use alternative sit      | e specifi  | c values to estimate environmental parameters (e.g., EPC, BTV)          | •   |
| The data and formed all a Q (and                        |            |   |     |
| I he data set for variable C (grou                      | ndwater    | methyl acetate   79-20-9) was not processed!                            |     |
|   |            |   |     |
| C (groundwater   methyl tert-butyl ether   1634-04-4)   |            |   |     |
|   |            |   |     |
|   | Gener      | al Statistics   |     |
| Total Number of Observations                            | 43         | Number of Distinct Observations   | 8   |
| Number of Detects                                       | 0          | Number of Non-Detects   | 43  |
| Number of Distinct Detects                              | 0          | Number of Distinct Non-Detects  | 8   |
|   |            |   |     |
| Warning: All observations are Non-Detects               | ; (NDs), t | therefore all statistics and estimates should also be NDs!              |     |
| -   |            | atistics are also NDs lying below the largest detection limit!          |     |
|   |            | c values to estimate environmental parameters (e.g., EPC, BTV)          |     |
|   | · · · · ·  |   |     |
| The data set for variable C (groundwa                   | ater   met | thyl tert-butyl ether   1634-04-4) was not processed!                   |     |
| ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~                 | ·          |   |     |
|   |            |   |     |

| C (groundwater   methylcyclohexane   108-87-2)                 |               |   |           |
|--|---------------|---|-----------|
|  |               |   |           |
| <b>T</b>   | General       |   |           |
| Total Number of Observations                                   | 36            | Number of Distinct Observations                               | 5         |
| Number of Detects  | 1             | Number of Non-Detects   | 35        |
| Number of Distinct Detects                                     | 1             | Number of Distinct Non-Detects                                | 4         |
| Warning: Only one distinct data value was detected             | d! ProUCL (   | or any other software) should not be used on such a data set! |           |
| It is suggested to use alternative site specific values detern | nined by the  | Project Team to estimate environmental parameters (e.g., EP   | C, BTV).  |
|  |               |   |           |
| The data set for variable C (ground                            | water   meth  | nylcyclohexane   108-87-2) was not processed!                 |           |
| C (groundwater   methylene chloride   75-09-2)                 |               |   |           |
|  | General       | Statistics  |           |
| Total Number of Observations                                   | 36            | Number of Distinct Observations                               | 4         |
| Number of Detects  | 0             | Number of Non-Detects   | 36        |
| Number of Distinct Detects                                     | 0             | Number of Distinct Non-Detects                                | 4         |
|  |               |   |           |
| -  |               | refore all statistics and estimates should also be NDs!       |           |
|  |               | tics are also NDs lying below the largest detection limit!    |           |
| The Project Team may decide to use alternative si              | te specific v | alues to estimate environmental parameters (e.g., EPC, BTV).  |           |
|  |               |   |           |
| I në data set for variable C (groun                            | dwater   met  | hylene chloride   75-09-2) was not processed!                 |           |
|  |               |   |           |
| C (groundwater   molybdenum   7439-98-7)                       |               |   |           |
|  |               |   |           |
|  | General       | Statistics  |           |
| Total Number of Observations                                   | 31            | Number of Distinct Observations                               | 2         |
| Number of Detects  | 0             | Number of Non-Detects   | 31        |
| Number of Distinct Detects                                     | 0             | Number of Distinct Non-Detects                                | 2         |
|  |               |   |           |
| Warning: All observations are Non-Detect                       | s (NDs), the  | refore all statistics and estimates should also be NDs!       |           |
|  |               | stics are also NDs lying below the largest detection limit!   |           |
| The Project Team may decide to use alternative si              | te specific v | alues to estimate environmental parameters (e.g., EPC, BTV).  | •         |
|  |               |   |           |
| The data set for variable C (grou                              | indwater   m  | olybdenum   7439-98-7) was not processed!                     |           |
|  |               |   |           |
|  |               |   |           |
| C (groundwater   naphthalene   91-20-3)                        |               |   |           |
|  |               |   |           |
|  | General       |   |           |
| Total Number of Observations                                   | 50            | Number of Distinct Observations                               | 36        |
| Number of Detects  | 15            | Number of Non-Detects   | 35        |
| Number of Distinct Detects                                     | 15            | Number of Distinct Non-Detects                                | 22        |
| Minimum Detect   | 1.9000E-4     | Minimum Non-Detect 2  | 2.5883E-4 |

|  | 0.036   | Maximum Non-Detect   | 0.002                            |
|--|---|--|----------------------------------|
| Maximum Detect Variance Detects  |   | Percent Non-Detects  | 70%                              |
| Mean Detects   |   |  |                                  |
|  |   | SD Detects   | 0.00928                          |
| Median Detects   |   | CV Detects   | 1.802                            |
| Skewness Detects   |   | Kurtosis Detects   | 9.739                            |
| Mean of Logged Detects   | -6.35   | SD of Logged Detects   | 1.514                            |
| Nam  |   | han Datasta Only   |                                  |
|  |   | t on Detects Only  |                                  |
| Shapiro Wilk Test Statistic  |   | Shapiro Wilk GOF Test  |                                  |
| 1% Shapiro Wilk Critical Value   |   | Detected Data Not Normal at 1% Significance Level  |                                  |
| Lilliefors Test Statistic  |   | Lilliefors GOF Test  |                                  |
| 1% Lilliefors Critical Value   |   | Detected Data Not Normal at 1% Significance Level  |                                  |
| Detected Dat   | a Not Norma   | l at 1% Significance Level   |                                  |
|  |   |  |                                  |
|  | -   | ritical Values and other Nonparametric UCLs  |                                  |
| KM Mean  |   | KM Standard Error of Mean  |                                  |
| 90KM SD  |   | 95% KM (BCA) UCL   | 0.00327                          |
| 95% KM (t) UCL   | 0.00308   | 95% KM (Percentile Bootstrap) UCL  | 0.00314                          |
| 95% KM (z) UCL   |   | 95% KM Bootstrap t UCL   | 0.00589                          |
| 90% KM Chebyshev UCL   | 0.00412   | 95% KM Chebyshev UCL   | 0.0052                           |
| 97.5% KM Chebyshev UCL   | 0.00669   | 99% KM Chebyshev UCL   | 0.00962                          |
|  |   |  |                                  |
|  |   | tected Observations Only   |                                  |
| A-D Test Statistic   |   | Anderson-Darling GOF Test  |                                  |
| 5% A-D Critical Value  |   | Detected data appear Gamma Distributed at 5% Significance  | e Level                          |
| K-S Test Statistic   |   | Kolmogorov-Smirnov GOF   |                                  |
| 5% K-S Critical Value  |   | Detected data appear Gamma Distributed at 5% Significance  | e Level                          |
| Detected data appea  | r Gamma Dis   | stributed at 5% Significance Level   |                                  |
|  |   |  |                                  |
|  |   | Detected Data Only   |                                  |
| k hat (MLE)  |   | k star (bias corrected MLE)  | 0.504                            |
| Theta hat (MLE)  | 0.00896   | Theta star (bias corrected MLE)  | 0.0102                           |
| nu hat (MLE)   |   | nu star (bias corrected)   | 15.13                            |
| Mean (detects)   | 0.00515   |  |                                  |
|  |   |  |                                  |
|  |   |  |                                  |
|  |   | sing Imputed Non-Detects   |                                  |
| GROS may not be used when data s   | et has > 50%  | NDs with many tied observations at multiple DLs  |                                  |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is  | et has > 50%<br>small such as   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)   |                                  |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS   | et has > 50%<br>small such as<br>method may   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs  |                                  |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec  | et has > 50%<br>small such as<br>method may<br>ially true whe   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.   |                                  |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a   | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma  | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs  |                                  |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum  | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean   | 0.00855                          |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a   | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036                                      | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates   | 0.01                             |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD                                   | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036<br>0.00545                           | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean   | 0.01<br>0.637                    |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum   | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036<br>0.00545                           | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median   | 0.01                             |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD                                   | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036<br>0.00545<br>1.51                   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV   | 0.01<br>0.637                    |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)                    | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036<br>0.00545<br>1.51                   | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)                                    | 0.01<br>0.637<br>1.433           |
| GROS may not be used when data s<br>GROS may not be used when kstar of detects is<br>For such situations, GROS<br>This is espec<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum<br>SD<br>k hat (MLE)<br>Theta hat (MLE) | et has > 50%<br>small such as<br>method may<br>ially true whe<br>and UCLs ma<br>1.9000E-4<br>0.036<br>0.00545<br>1.51<br>0.00566<br>151 | NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV<br>k star (bias corrected MLE)<br>Theta star (bias corrected MLE) | 0.01<br>0.637<br>1.433<br>0.0059 |

| Approximate Chi Square Value (143.28, $\alpha$ ) | 116.6          | Adjusted Chi Square Value (143.28, β)                | 115.9     |
|--|----------------|--|-----------|
| 95% Gamma Approximate UCL                        | 0.0105         | 95% Gamma Adjusted UCL                               | 0.0106    |
|  |                |  |           |
| Estimates of G                                   | amma Paran     | neters using KM Estimates                            |           |
| Mean (KM)  | 0.00175        | SD (KM)  | 0.0054    |
| Variance (KM)                                    | 2.9121E-5      | SE of Mean (KM)                                      | 7.9084E-4 |
| k hat (KM)                                       | 0.105          | k star (KM)  | 0.112     |
| nu hat (KM)                                      | 10.53          | nu star (KM)   | 11.23     |
| theta hat (KM)                                   | 0.0166         | theta star (KM)                                      | 0.0156    |
| 80% gamma percentile (KM)                        | 0.00142        | 90% gamma percentile (KM)                            | 0.00486   |
| 95% gamma percentile (KM)                        | 0.0101         | 99% gamma percentile (KM)                            | 0.0262    |
| Gamm   | a Kaplan-Me    | er (KM) Statistics                                   |           |
| Approximate Chi Square Value (11.23, α)          | 4.725          | Adjusted Chi Square Value (11.23, $\beta$ )          | 4.599     |
| 95% KM Approximate Gamma UCL                     | 0.00416        | 95% KM Adjusted Gamma UCL                            | 0.00428   |
|  |                |  |           |
| Lognormal GC                                     | F Test on De   | etected Observations Only                            |           |
| Shapiro Wilk Test Statistic                      | 0.972          | Shapiro Wilk GOF Test                                |           |
| 10% Shapiro Wilk Critical Value                  | 0.901          | Detected Data appear Lognormal at 10% Significance L | evel      |
| Lilliefors Test Statistic                        | 0.0952         | Lilliefors GOF Test                                  |           |
| 10% Lilliefors Critical Value                    | 0.202          | Detected Data appear Lognormal at 10% Significance L | evel      |
|  |                | nal at 10% Significance Level                        |           |
|  |                | Jsing Imputed Non-Detects                            |           |
| Mean in Original Scale                           | 0.00172        | Mean in Log Scale                                    | -7.951    |
| SD in Original Scale                             | 0.00546        | SD in Log Scale                                      | 1.484     |
| 95% t UCL (assumes normality of ROS data)        | 0.00301        | 95% Percentile Bootstrap UCL                         | 0.00313   |
| 95% BCA Bootstrap UCL                            | 0.00396        | 95% Bootstrap t UCL                                  | 0.0057    |
| 95% H-UCL (Log ROS)                              | 0.00197        |  |           |
| Statistics using KM estimates                    | on Logged D    | ata and Assuming Lognormal Distribution              |           |
| KM Mean (logged)                                 | -7.708         | KM Geo Mean  | 4.4916E-4 |
| KM SD (logged)                                   | 1.266          | 95% Critical H Value (KM-Log)                        | 2.647     |
| KM Standard Error of Mean (logged)               | 0.209          | 95% H-UCL (KM -Log)                                  | 0.0016    |
| KM SD (logged)                                   | 1.266          | 95% Critical H Value (KM-Log)                        | 2.647     |
| KM Standard Error of Mean (logged)               | 0.209          |  |           |
| Note: KM UCLs may be biased low                  | with this dat  | aset. Other substitution method recommended          |           |
|  | DL/2 St        | atistics   |           |
| DL/2 Normal                                      |                | DL/2 Log-Transformed                                 |           |
| Mean in Original Scale                           | 0.00193        | Mean in Log Scale                                    | -7.284    |
| SD in Original Scale                             | 0.00541        | SD in Log Scale                                      | 1.141     |
| 95% t UCL (Assumes normality)                    | 0.00321        | 95% H-Stat UCL                                       | 0.00198   |
| DL/2 is not a recommended me                     | ethod, provid  | led for comparisons and historical reasons           |           |
| Nonarame   | tric Distribut | ion Free UCL Statistics                              |           |
| -  |                | stributed at 5% Significance Level                   |           |
|  |                |  |           |

|   | Suggested      | UCL to Use  |         |
|---|----------------|---|---------|
| 95% KM Approximate Gamma UCL                | 0.00416        |   |         |
|   |                |   |         |
| The calculated UCLs are based on assumpt    | ions that the  | e data were collected in a random and unbiased manner.  |         |
|   |                | Illected from random locations.   |         |
|   |                | nental or other non-random methods,   |         |
| then contact a                              | statistician t | to correctly calculate UCLs.  |         |
|   |                |   |         |
|   |                | ovided to help the user to select the most appropriate 95% UCL.   |         |
|   |                | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statisticia | <u></u> |
|   |                |   |         |
| C (groundwater   n-butylbenzene   104-51-8) |                |   |         |
| - (3.0                                      |                |   |         |
|   | General        | Statistics  |         |
| Total Number of Observations                | 13             | Number of Distinct Observations   | 2       |
| Number of Detects                           | 0              | Number of Non-Detects   | 13      |
| Number of Distinct Detects                  | 0              | Number of Distinct Non-Detects  | 2       |
| ·   |                | · · · · · · · · · · · · · · · · · · ·   |         |
| C (groundwater   nickel   7440-02-0)        |                |   |         |
|   | General        | Statistics  |         |
| Total Number of Observations                | 41             | Number of Distinct Observations   | 41      |
| Number of Detects                           | 40             | Number of Non-Detects   | 1       |
| Number of Distinct Detects                  | 40             | Number of Distinct Non-Detects  | 1       |
| Minimum Detect                              | 0.0024         | Minimum Non-Detect  | 0.01    |
| Maximum Detect                              | 0.299          | Maximum Non-Detect  | 0.01    |
| Variance Detects                            | 0.00449        | Percent Non-Detects   | 2.439%  |
| Mean Detects                                | 0.0515         | SD Detects  | 0.067   |
| Median Detects                              | 0.025          | CV Detects  | 1.301   |
| Skewness Detects                            | 2.165          | Kurtosis Detects  | 4.722   |
| Mean of Logged Detects                      | -3.747         | SD of Logged Detects  | 1.348   |
|   |                |   |         |
| т<br>Т                                      |                | t on Detects Only   |         |
| Shapiro Wilk Test Statistic                 | 0.717          | Shapiro Wilk GOF Test   |         |
| 1% Shapiro Wilk Critical Value              | 0.919          | Detected Data Not Normal at 1% Significance Level   |         |
| Lilliefors Test Statistic                   | 0.245          | Lilliefors GOF Test   |         |
| 1% Lilliefors Critical Value                | 0.162          | Detected Data Not Normal at 1% Significance Level   |         |
| Detected Data                               |                | Il at 1% Significance Level   |         |
| Kanlan-Maiar (KM) Statistics wai            | a Normal C     | critical Values and other Nonparametric UCLs  |         |
| rapian-weier (rivi) Statistics USI          | ig inormal C   | Antical values and other Nonparametric UCLS   |         |

| KM Mean   | 0.0504                | KM Standard Error of Mean  | 0.0104  |
|---|-----------------------|--|---------|
| 90KM SD   |                       |  |         |
| 95% KM (t) UCL  | 0.0658                | 95% KM (BCA) UCL<br>95% KM (Percentile Bootstrap) UCL  | 0.0685  |
| 95% KM (t) UCL<br>95% KM (z) UCL  | 0.0679                | 95% KM (Percentile Bootstrap) UCL<br>95% KM Bootstrap t UCL  | 0.0082  |
|   | 0.0875                | 95% KM Boolstrap t OCL<br>95% KM Chebyshev UCL   | 0.0739  |
| 90% KM Chebyshev UCL  |                       | 95% KM Chebyshev UCL   | 0.0957  |
| 97.5% KM Chebyshev UCL  | 0.115                 | 99% KM Chebysnev UCL   | 0.154   |
| Gamma GOF   | Tests on De           | etected Observations Only  |         |
| A-D Test Statistic  | 0.684                 | Anderson-Darling GOF Test  |         |
| 5% A-D Critical Value   | 0.789                 | Detected data appear Gamma Distributed at 5% Significance  | e Level |
| K-S Test Statistic  | 0.118                 | Kolmogorov-Smirnov GOF   |         |
| 5% K-S Critical Value   | 0.145                 | Detected data appear Gamma Distributed at 5% Significance  | e Level |
| Detected data appear  | <b>r Gamma Di</b> s   | stributed at 5% Significance Level   |         |
|   |                       |  |         |
| Gamma   | Statistics or         | n Detected Data Only   |         |
| k hat (MLE)   | 0.764                 | k star (bias corrected MLE)  | 0.723   |
| Theta hat (MLE)   | 0.0675                | Theta star (bias corrected MLE)  | 0.0713  |
| nu hat (MLE)  | 61.1                  | nu star (bias corrected)   | 57.85   |
| Mean (detects)  | 0.0515                |  |         |
| Operation DOG   | Otatiatias            | ing languaged New Detector   |         |
|   |                       | Sing Imputed Non-Detects   |         |
|   |                       |  |         |
|   |                       | s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs |         |
|   |                       | -  |         |
|   |                       | en the sample size is small.<br>by be computed using gamma distribution on KM estimates                    |         |
| Minimum   |                       | Mean   | 0.0505  |
| Maximum   | 0.0024                | Median   | 0.0303  |
| SD  | 0.299                 | CV   | 1.316   |
| k hat (MLE)   |                       | k star (bias corrected MLE)  | 0.723   |
| Theta hat (MLE)   |                       | Theta star (bias corrected MLE)  | 0.0698  |
| nu hat (MLE)  |                       | nu star (bias corrected WLL)   | 59.31   |
| Adjusted Level of Significance (β)  |                       |  | 55.51   |
| Aujusted Level of Significance (ρ)<br>Approximate Chi Square Value (59.31, α) | 42.6                  | Adjusted Chi Square Value (59.31, β)   | 42.09   |
| 95% Gamma Approximate UCL   | 0.0703                | 95% Gamma Adjusted UCL   | 0.0712  |
|   | 0.0700                |  | 0.0712  |
| Estimates of G  | iamma Para            | meters using KM Estimates  |         |
| Mean (KM)   |                       | SD (KM)  | 0.0658  |
| Variance (KM)   |                       | SE of Mean (KM)  | 0.0104  |
| k hat (KM)  | 0.587                 | k star (KM)  | 0.561   |
| nu hat (KM)   |                       | nu star (KM)   | 45.98   |
| theta hat (KM)  | 0.0858                | theta star (KM)  | 0.0899  |
|   | 1                     |  |         |
| 80% gamma percentile (KM)   | 0.083                 | 90% gamma percentile (KM)  | 0.133   |
| 80% gamma percentile (KM)<br>95% gamma percentile (KM)                        |                       | 90% gamma percentile (KM)<br>99% gamma percentile (KM)   | 0.133   |
|   |                       |  |         |
| 95% gamma percentile (KM)   | 0.186                 |  |         |
| 95% gamma percentile (KM)   | 0.186<br>na Kaplan-Me | 99% gamma percentile (KM)  |         |

|  | F Test on Dete  | ected Observations Only   |        |
|--|---|---|--------|
| Shapiro Wilk Test Statistic  | 0.955   | Shapiro Wilk GOF Test   |        |
| 10% Shapiro Wilk Critical Value  | 0.949   | Detected Data appear Lognormal at 10% Significance Lo   | evel   |
| Lilliefors Test Statistic  | 0.102   | Lilliefors GOF Test   |        |
| 10% Lilliefors Critical Value  | 0.128   | Detected Data appear Lognormal at 10% Significance Level  |        |
|  |   | al at 10% Significance Level  |        |
|  |   |   |        |
| Lognormal ROS  | Statistics Us   | ing Imputed Non-Detects   |        |
| Mean in Original Scale   | 0.0504  | Mean in Log Scale   | -3.783 |
| SD in Original Scale   | 0.0666  | SD in Log Scale   | 1.35   |
| 95% t UCL (assumes normality of ROS data)  | 0.0679  | 95% Percentile Bootstrap UCL  | 0.0684 |
| 95% BCA Bootstrap UCL  | 0.0717  | 95% Bootstrap t UCL   | 0.0744 |
| 95% H-UCL (Log ROS)  | 0.102   |   |        |
| Statistics using KM astimatos (  |   | ta and Assuming Lognormal Distribution  |        |
| KM Mean (logged)   | -3.787  | KM Geo Mean   | 0.0227 |
| KM SD (logged)   | 1.34  | 95% Critical H Value (KM-Log)   | 2.752  |
| KM Standard Error of Mean (logged)   | 0.212   | 95% Childai H Valde (KM-Log)<br>95% H-UCL (KM -Log)   | 0.0997 |
| KM SD (logged)   | 1.34  | 95% Critical H Value (KM-Log)   | 2.752  |
| KM Standard Error of Mean (logged)   | 0.212   | 55% Chical H Value (Kivi-Log)   | 2.752  |
|  | 0.212   |   |        |
|  | DL/2 Stat   | istics  |        |
| DL/2 Normal  |   | DL/2 Log-Transformed  |        |
| Mean in Original Scale   | 0.0504  | Mean in Log Scale   | -3.785 |
| SD in Original Scale   | 0.0666  | SD in Log Scale   | 1.353  |
| 95% t UCL (Assumes normality)  | 0.0679  | 95% H-Stat UCL  | 0.102  |
| DL/2 is not a recommended me   | thod, provided  | d for comparisons and historical reasons  |        |
| Nonparame  | tric Distributio  | n Free UCL Statistics   |        |
|  |   |   |        |
| Detected Data appear   | Gamma Distr   | ibuted at 5% Significance Level   |        |
|  |   |   |        |
|  | Gamma Distr<br>Suggested UC<br>0.0748   |   |        |
| 95% KM Adjusted Gamma UCL  | Suggested UC  | CL to Use   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti   | Suggested UC<br>0.0748<br>ons that the d  | CL to Use   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the d  | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle  | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data were collected  | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme  | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,  |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data were collected  | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme  | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data<br>If the data were collected<br>then contact a s   | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to c                                   | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%   | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to o                                   | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.<br>ded to help the user to select the most appropriate 95% UCL.   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to c<br>UCL are providata distribution | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.   |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the di<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real We | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to c<br>UCL are providata distribution | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.<br>ded to help the user to select the most appropriate 95% UCL.<br>on, and skewness using results from simulation studies.  |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the di<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real We | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to c<br>UCL are providata distribution | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.<br>ded to help the user to select the most appropriate 95% UCL.<br>on, and skewness using results from simulation studies.  |        |
| 95% KM Adjusted Gamma UCL<br>The calculated UCLs are based on assumpti<br>Please verify the data<br>If the data were collected<br>then contact a s<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,  | Suggested UC<br>0.0748<br>ons that the d<br>ata were colle<br>using judgme<br>statistician to c<br>UCL are providata distribution | CL to Use<br>ata were collected in a random and unbiased manner.<br>cted from random locations.<br>ntal or other non-random methods,<br>correctly calculate UCLs.<br>ded to help the user to select the most appropriate 95% UCL.<br>on, and skewness using results from simulation studies.<br>for additional insight the user may want to consult a statisticia |        |

| Number of Detects                                       | 0              | Number of Non-Detects   | 42 |
|---|----------------|---|----|
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects  | 9  |
|   |                | I I   |    |
| Warning: All observations are Non-Detects               | s (NDs), the   | erefore all statistics and estimates should also be NDs!  |    |
| Specifically, sample mean, UCLs, UPLs, and              | d other stati  | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si       | te specific v  | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |                |   |    |
| The data set for variable C (gro                        | undwater       | nitrobenzene   98-95-3) was not processed!  |    |
|   |                |   |    |
|   |                |   |    |
| C (groundwater   n-nitrosodimethylamine   62-75-9)      |                |   |    |
|   |                |   |    |
|   |                | Statistics  |    |
| Total Number of Observations                            | 13             | Number of Distinct Observations   | 6  |
| Number of Detects                                       | 0              | Number of Non-Detects   | 13 |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects  | 6  |
|   |                |   |    |
| -   |                | erefore all statistics and estimates should also be NDs!  |    |
|   |                | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si       | te specific v  | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   | eter I.a. alta | ee dimethylemine I CO 75 () was not pressed   |    |
| i në data sët for variable C (groundw                   | ater   n-nitr  | osodimethylamine   62-75-9) was not processed!  |    |
|   |                |   |    |
| C (groundwater   n-nitroso-di-n-propylamine   621-64-7) |                |   |    |
|   |                |   |    |
|   | General        | Statistics  |    |
| Total Number of Observations                            | 42             | Number of Distinct Observations   | 10 |
| Number of Detects                                       | 0              | Number of Non-Detects   | 42 |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects  | 10 |
|   |                |   |    |
| Warning: All observations are Non-Detect                | s (NDs), the   | erefore all statistics and estimates should also be NDs!  |    |
| Specifically, sample mean, UCLs, UPLs, and              | d other stati  | stics are also NDs lying below the largest detection limit!   |    |
| The Project Team may decide to use alternative si       | te specific v  | values to estimate environmental parameters (e.g., EPC, BTV).   |    |
|   |                |   |    |
| The data set for variable C (groundwat                  | er   n-nitros  | o-di-n-propylamine   621-64-7) was not processed!   |    |
|   |                |   |    |
|   |                |   |    |
| C (groundwater   n-nitrosodiphenylamine   86-30-6)      |                |   |    |
|   |                |   |    |
|   |                | Statistics  |    |
| Total Number of Observations                            | 42             | Number of Distinct Observations   | 10 |
| Number of Detects                                       | 0              | Number of Non-Detects   | 42 |
| Number of Distinct Detects                              | 0              | Number of Distinct Non-Detects  | 10 |
| Wandam All alagamentaria and Alam Parts                 | • (NID-) - 1   | vefere all statistics and estimates should shark a ND-1   |    |
|   |                | erefore all statistics and estimates should also be NDs!<br>stics are also NDs lying below the largest detection limit!   |    |
|   |                | stics are also NDS lying below the largest detection limit: values to estimate environmental parameters (e.g., EPC, BTV). |    |
| The Project ream may decide to use alternative si       | re shecilic /  | raiues to estimate environmental parameters (e.g., EPC, BTV).   |    |

## The data set for variable C (groundwater | n-nitrosodiphenylamine | 86-30-6) was not processed!

C (groundwater | n-propylbenzene | 103-65-1)

|   | General   | Statistics  |  |
|---|---|---|--|
| Total Number of Observations  | 13  | Number of Distinct Observations   | 2  |
| Number of Detects   | 0   | Number of Non-Detects   | 13   |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 2  |
| Warning: All observations are Non-Detects   | (NDs), the  | refore all statistics and estimates should also be NDs!   |  |
| Specifically, sample mean, UCLs, UPLs, and  | other statis  | stics are also NDs lying below the largest detection limit!   |  |
| The Project Team may decide to use alternative site   | e specific v  | alues to estimate environmental parameters (e.g., EPC, BTV)   |  |
| The data set for variable C (ground   | lwater   n-p  | ropylbenzene   103-65-1) was not processed!   |  |
| oundwater   pcbs (total)   1336-36-3)   |   |   |  |
|   | General   | Statistics  |  |
| Total Number of Observations  | 1   | Number of Distinct Observations   | 1  |
| Number of Detects   | 0   | Number of Non-Detects   | 1  |
|   |   |   |  |
| Number of Distinct Detects  | 0   | Number of Distinct Non-Detects  | 1  |
| Warning: Thi<br>Data set is too small to compu  | s data set o<br>ute reliable  | Number of Distinct Non-Detects<br>only has 1 observations!<br>and meaningful statistics and estimates!<br>obs (total)   1336-36-3) was not processed!   | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou   | s data set o<br>ute reliable<br>Indwater   p  | only has 1 observations!<br>and meaningful statistics and estimates!  | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t  | s data set o<br>ute reliable<br>indwater   p  | only has 1 observations!<br>and meaningful statistics and estimates!<br>cbs (total)   1336-36-3) was not processed!   | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua   | s data set o<br>ute reliable<br>indwater   p  | only has 1 observations!<br>and meaningful statistics and estimates!<br>cbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!  | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t  | s data set o<br>ute reliable<br>indwater   p  | only has 1 observations!<br>and meaningful statistics and estimates!<br>cbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!  | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua   | s data set o<br>ute reliable<br>indwater   p  | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.  | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua   | s data set o<br>ute reliable<br>indwater   p<br>to 10 obser<br>lity Objecti   | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.  | 1  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>pundwater   p-cymene   99-87-6)  | s data set c<br>ute reliable<br>indwater   p<br>to 10 obser<br>lity Objecti   | only has 1 observations!<br>and meaningful statistics and estimates!<br>obs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.   |  |
| Warning: Thi<br>Data set is too small to compu<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations  | s data set o<br>ute reliable<br>indwater   p<br>to 10 obser<br>lity Objecti<br>General 3<br>13  | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.  | 5  |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects  | s data set c<br>ute reliable<br>indwater   p<br>to 10 obser<br>lity Objecti<br>General 5<br>13<br>2                                       | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | 5 11 3   |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | s data set c<br>ute reliable<br>indwater   p<br>to 10 observation<br>lity Objecti<br>13<br>2<br>2<br>0.0022<br>0.00525                    | only has 1 observations!<br>and meaningful statistics and estimates!<br>acbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 5<br>11<br>3<br>7.0500E                            |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | s data set c<br>ute reliable<br>indwater   p<br>to 10 observation<br>lity Objecti<br>13<br>2<br>2<br>0.0022<br>0.00525                    | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detects   | 5<br>11<br>3<br>7.0500E<br>0.002                   |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect  | s data set c<br>ute reliable<br>indwater   p<br>to 10 observation<br>lity Objecti<br>13<br>2<br>2<br>0.0022<br>0.00525                    | only has 1 observations!<br>and meaningful statistics and estimates!<br>acbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect                        | 5<br>11<br>3<br>7.0500E<br>0.002<br>84.62          |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects 4<br>Mean Detects | s data set c<br>ute reliable<br>indwater   p<br>to 10 obser<br>lity Objecti<br>13<br>2<br>2<br>0.0022<br>0.00525<br>1.6513E-6             | only has 1 observations!<br>and meaningful statistics and estimates!<br>icbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects                       | 5<br>11<br>3<br>7.0500E<br>0.002<br>84.62<br>0.002 |
| Warning: Thi<br>Data set is too small to compu-<br>The data set for variable C (grou<br>It is suggested to collect at least 8 t<br>If possible, compute and collect Data Qua<br>bundwater   p-cymene   99-87-6)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect<br>Variance Detects 4<br>Mean Detects                      | s data set c<br>ute reliable<br>indwater   p<br>to 10 observation<br>lity Objecti<br>13<br>2<br>0.0022<br>0.00525<br>1.6513E-6<br>0.00373 | only has 1 observations!<br>and meaningful statistics and estimates!<br>acbs (total)   1336-36-3) was not processed!<br>vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.<br>Statistics<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects | 5 11 3   |

|   | ure meanin(  | gful or reliable statistics and estimates.    |          |
|---|--------------|---|----------|
|   |              |   |          |
|   |              | t on Detects Only Perform GOF Test            |          |
|   |              |   |          |
| Kaplan-Meier (KM) Statistics usi                | ng Normal C  | ritical Values and other Nonparametric UCLs   |          |
| KM Mean   | 0.00117      | KM Standard Error of Mean                     | 4.8755E- |
| 90KM SD   | 0.00124      | 95% KM (BCA) UCL                              | N/A      |
| 95% KM (t) UCL                                  | 0.00204      | 95% KM (Percentile Bootstrap) UCL             | N/A      |
| 95% KM (z) UCL                                  | 0.00197      | 95% KM Bootstrap t UCL                        | N/A      |
| 90% KM Chebyshev UCL                            | 0.00263      | 95% KM Chebyshev UCL                          | 0.0032   |
| 97.5% KM Chebyshev UCL                          | 0.00421      | 99% KM Chebyshev UCL                          | 0.0060   |
|   |              | etected Observations Only<br>Perform GOF Test |          |
|   | -            |   |          |
| k hat (MLE)                                     | 5.612        | k star (bias corrected MLE)                   | N/A      |
| Theta hat (MLE)                                 |              | Theta star (bias corrected MLE)               | N/A      |
| nu hat (MLE)                                    | 22.45        | nu star (bias corrected MLL)                  | N/A      |
| Mean (detects)                                  | 0.00373      |   | 11/7     |
|   |              |   |          |
| Estimates of G                                  | amma Parar   | neters using KM Estimates                     |          |
| Mean (KM)                                       | 0.00117      | SD (KM)                                       | 0.0012   |
| Variance (KM)                                   | 1.5451E-6    | SE of Mean (KM)                               | 4.8755E- |
| k hat (KM)                                      | 0.885        | k star (KM)                                   | 0.732    |
| nu hat (KM)                                     | 23.02        | nu star (KM)                                  | 19.04    |
| theta hat (KM)                                  | 0.00132      | theta star (KM)                               | 0.0016   |
| 80% gamma percentile (KM)                       | 0.00192      | 90% gamma percentile (KM)                     | 0.0029   |
| 95% gamma percentile (KM)                       | 0.00392      | 99% gamma percentile (KM)                     | 0.006    |
| Gamm  | a Kaplan-Me  | eier (KM) Statistics                          |          |
|   |              | Adjusted Level of Significance (β)            | 0.030    |
| Approximate Chi Square Value (19.04, $\alpha$ ) | 10.15        | Adjusted Chi Square Value (19.04, $\beta$ )   | 9.235    |
| 95% KM Approximate Gamma UCL                    | 0.00219      | 95% KM Adjusted Gamma UCL                     | 0.0024   |
| Lognormal GO                                    | F Test on D  | etected Observations Only                     |          |
| Not End   | ough Data to | Perform GOF Test                              |          |
|   |              | Jsing Imputed Non-Detects                     |          |
| Mean in Original Scale                          |              | Mean in Log Scale                             | -9.074   |
| SD in Original Scale                            | 0.00149      | SD in Log Scale                               | 2.011    |
| 95% t UCL (assumes normality of ROS data)       | 0.00143      | 95% Percentile Bootstrap UCL                  | 0.0014   |
| 95% BCA Bootstrap UCL                           | 0.00182      | 95% Bootstrap t UCL                           | 0.0058   |
| 95% H-UCL (Log ROS)                             | 0.0143       |   |          |
|   |              | Data and Assuming Lognormal Distribution      |          |

|  | 7.015          |  | 0.00045 |
|--|----------------|--|---------|
| KM Mean (logged)<br>KM SD (logged)                     |                | KM Geo Mean<br>95% Critical H Value (KM-Log)                           | 2.22    |
| KM Standard Error of Mean (logged)                     | 0.393          | 95% H-UCL (KM -Log)  | 0.001   |
|  |                |  | 2.22    |
| KM SD (logged)   |                | 95% Critical H Value (KM-Log)  | 2.22    |
| KM Standard Error of Mean (logged)                     | 0.232          |  |         |
|  | DL/2 S         | statistics   |         |
| DL/2 Normal  |                | DL/2 Log-Transformed   |         |
| Mean in Original Scale                                 | 0.00102        | Mean in Log Scale  | -7.28   |
| SD in Original Scale                                   | 0.00136        | SD in Log Scale  | 0.76    |
| 95% t UCL (Assumes normality)                          | 0.0017         | 95% H-Stat UCL   | 0.001   |
| DL/2 is not a recommended me                           | ethod, provi   | ided for comparisons and historical reasons                            |         |
| Naccore  | tale Distrike  |  |         |
| -  |                | Ition Free UCL Statistics Discernible Distribution                     |         |
|  |                |  |         |
|  | Suggested      | UCL to Use   |         |
| 95% KM (t) UCL   | 0.00204        |  |         |
|  |                |  |         |
|  |                | rovided to help the user to select the most appropriate 95% UCL.       |         |
| Recommendations are based upon data size               | , data distrib | oution, and skewness using results from simulation studies.            |         |
| nowever, simulations results will not cover all Real w | ionu uata se   | ets; for additional insight the user may want to consult a statisticia | an.     |
| Total Number of Observations                           |                | Statistics Number of Distinct Observations                             | 6       |
| Number of Detects                                      |                | Number of Non-Detects  | 13      |
| Number of Distinct Detects                             | -              | Number of Distinct Non-Detects   | 6       |
|  | L              |  |         |
| Warning: All observations are Non-Detect               | s (NDs), the   | erefore all statistics and estimates should also be NDs!               |         |
| Specifically, sample mean, UCLs, UPLs, an              | d other stati  | istics are also NDs lying below the largest detection limit!           |         |
| The Project Team may decide to use alternative si      | ite specific v | values to estimate environmental parameters (e.g., EPC, BTV)           |         |
|  |                |  |         |
| The data set for variable C (groundwa                  | ater   penta   | chloronitrobenzene   82-68-8) was not processed!                       |         |
|  |                |  |         |
| roundwater   pentachlorophenol   87-86-5)              |                |  |         |
|  | General        | Statistics   |         |
| Total Number of Observations                           |                | Number of Distinct Observations  | 9       |
| Number of Detects                                      |                | Number of Non-Detects  | 42      |
| Number of Distinct Detects                             |                | Number of Distinct Non-Detects   | 9       |
|  | L              |  |         |
| Warning: All observations are Non-Detect               | s (NDs), the   | erefore all statistics and estimates should also be NDs!               |         |
| Specifically, sample mean, UCLs, UPLs, and             | d other stati  | istics are also NDs lying below the largest detection limit!           |         |
| The Project Team may decide to use alternative s       | ite specific · | values to estimate environmental parameters (e.g., EPC, BTV)           |         |
| ^  |                |  |         |

| The data set for variable C (groun                | dwater   pentac   | hlorophenol   87-86-5) was not processed!                       |          |
|---|-------------------|---|----------|
|   |                   |   |          |
|   |                   |   |          |
| C (groundwater   perylene   198-55-0)             |                   |   |          |
|   |                   |   |          |
|   | General Sta       | listics   |          |
| Total Number of Observations                      | 7                 | Number of Distinct Observations                                 | 7        |
| Number of Detects                                 | 0                 | Number of Non-Detects   | 7        |
| Number of Distinct Detects                        | 0                 | Number of Distinct Non-Detects                                  | 7        |
| Warning: All observations are Non-Detect          | s (NDs), therefo  | re all statistics and estimates should also be NDs!             |          |
| Specifically, sample mean, UCLs, UPLs, and        | d other statistic | s are also NDs lying below the largest detection limit!         |          |
| The Project Team may decide to use alternative si | te specific valu  | es to estimate environmental parameters (e.g., EPC, BTV).       |          |
|   |                   |   |          |
| The data set for variable C (g                    | roundwater   pe   | rylene   198-55-0) was not processed!                           |          |
|   |                   |   |          |
|   |                   |   |          |
| C (groundwater   phenanthrene   85-01-8)          |                   |   |          |
|   |                   |   |          |
|   | General Sta       | istics  |          |
| Total Number of Observations                      | 43                | Number of Distinct Observations                                 | 18       |
| Number of Detects                                 | 5                 | Number of Non-Detects   | 38       |
| Number of Distinct Detects                        | 5                 | Number of Distinct Non-Detects                                  | 13       |
| Minimum Detect                                    | 7.0000E-5         | Minimum Non-Detect 1  | I.6175E  |
| Maximum Detect                                    | 3.1000E-4         | Maximum Non-Detect  | 0.0056   |
| Variance Detects                                  | 1.2413E-8         | Percent Non-Detects   | 88.37    |
| Mean Detects                                      | 1.7889E-4         | SD Detects 1  | I.1141E  |
| Median Detects                                    | 1.6644E-4         | CV Detects  | 0.623    |
| Skewness Detects                                  | 0.199             | Kurtosis Detects  | -2.75    |
| Mean of Logged Detects                            | -8.814            | SD of Logged Detects  | 0.708    |
| Norm  | al GOF Test or    | Detects Only  |          |
| Shapiro Wilk Test Statistic                       | 0.873             | Shapiro Wilk GOF Test   |          |
| 1% Shapiro Wilk Critical Value                    | 0.686             | Detected Data appear Normal at 1% Significance Leve             | el       |
| Lilliefors Test Statistic                         | 0.229             | Lilliefors GOF Test   |          |
| 1% Lilliefors Critical Value                      | 0.396             | Detected Data appear Normal at 1% Significance Leve             | el       |
|   |                   | at 1% Significance Level  |          |
|   |                   | le for small sample sizes                                       |          |
|   |                   |   |          |
| Kaplan-Meier (KM) Statistics usir                 | a Normal Critic   | al Values and other Nonparametric UCLs                          |          |
| Kapian-weier (Kw) Staustics usi<br>KM Mean        | -                 | KM Standard Error of Mean 4                                     | L 1275E  |
| 90KM SD   |                   | 95% KM (BCA) UCL 2  |          |
| 95% KM (t) UCL                                    |                   | 95% KM (Percentile Bootstrap) UCL 2                             |          |
| 95% KM (t) UCL<br>95% KM (z) UCL                  |                   | 95% KM (Percentile Bootstrap) UCL 2<br>95% KM Bootstrap t UCL 2 |          |
|   |                   |   |          |
| 90% KM Chebyshev UCL                              |                   | 95% KM Chebyshev UCL 3  |          |
| 97.5% KM Chebyshev UCL                            | 4.0930⊏-4         | 99% KM Chebyshev UCL 5  | 0.0228E- |

| Gamma GOF                                | Tests on De                             | tected Observations Only  |           |
|--|---|---|-----------|
| A-D Test Statistic                       | 0.438                                   | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                    | 0.683                                   | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| K-S Test Statistic                       | 0.266                                   | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                    | 0.36                                    | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| Detected data appear                     | r Gamma Dis                             | stributed at 5% Significance Level                              |           |
|  |   | liable for small sample sizes                                   |           |
|  | -                                       | · · · ·   |           |
| Gamma                                    | Statistics on                           | Detected Data Only  |           |
| k hat (MLE)                              | 2.853                                   | k star (bias corrected MLE)                                     | 1.275     |
| Theta hat (MLE)                          | 6.2702E-5                               | Theta star (bias corrected MLE)                                 | 1.4036E-4 |
| nu hat (MLE)                             | 28.53                                   | nu star (bias corrected)  | 12.75     |
| Mean (detects)                           |   | · · · · · · · · · · · · · · · · · · ·                           |           |
|  |   |   |           |
| Gamma ROS                                | Statistics us                           | sing Imputed Non-Detects  |           |
|  |   | NDs with many tied observations at multiple DLs                 |           |
|  |   | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|  |   | yield incorrect values of UCLs and BTVs                         |           |
|  |   | n the sample size is small.                                     |           |
|  | 1 C C C C C C C C C C C C C C C C C C C | y be computed using gamma distribution on KM estimates          |           |
| _  | 7.0000E-5                               | Mean  | 0.00886   |
| Maximum                                  | 0.01                                    | Median  | 0.01      |
| SD                                       | 0.00319                                 | CV  | 0.36      |
| k hat (MLE)                              | 1.503                                   | k star (bias corrected MLE)                                     | 1.414     |
| Theta hat (MLE)                          | 0.00589                                 | Theta star (bias corrected MLE)                                 | 0.00627   |
| nu hat (MLE)                             | 129.3                                   | nu star (bias corrected MLE)                                    | 121.6     |
| Adjusted Level of Significance (β)       | 0.0444                                  |   | 121.0     |
|  | 97.12                                   | Adjusted Obj Opugra Malus (121 EQ. 0)                           | 96.36     |
| Approximate Chi Square Value (121.58, α) |   | Adjusted Chi Square Value (121.58, β)                           |           |
| 95% Gamma Approximate UCL                | 0.0111                                  | 95% Gamma Adjusted UCL  | 0.0112    |
| Estimates of O                           |   | neters using KM Estimates                                       |           |
| Estimates of G<br>Mean (KM)              |   | •   | 0.61105 5 |
| · · ·                                    |   |   | 9.6112E-5 |
| Variance (KM)                            |   | SE of Mean (KM)   |           |
| k hat (KM)                               | 2.488                                   | k star (KM)   | 2.33      |
| nu hat (KM)                              | 214                                     | nu star (KM)  | 200.4     |
| theta hat (KM)                           |   | theta star (KM)   |           |
| 80% gamma percentile (KM)                |   | 90% gamma percentile (KM)                                       |           |
| 95% gamma percentile (KM)                | 3.4290E-4                               | 99% gamma percentile (KM)                                       | 4./113E-4 |
|  |   |   |           |
|  | -                                       | pier (KM) Statistics  | 107.0     |
| Approximate Chi Square Value (200.36, α) | 168.6                                   | Adjusted Chi Square Value (200.36, β)                           | 167.6     |
| 95% KM Approximate Gamma UCL             |   | 95% KM Adjusted Gamma UCL                                       | 1.8123E-4 |
| Note: KM UCLs may be biased low          | with this dat                           | taset. Other substitution method recommended                    |           |
|  |   |   |           |
| _  |   | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic              | 0.855                                   | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value          | 0.806                                   | Detected Data appear Lognormal at 10% Significance I            | Level     |
| Lilliefors Test Statistic                | 0.242                                   | Lilliefors GOF Test   |           |

| 10% Lilliefors Critical Value                      | 0.319          | Detected Data appear Lognormal at 10% Significance I                 | aval      |
|--|----------------|--|-----------|
|  |                | mal at 10% Significance Level  | Levei     |
| -  |                | aliable for small sample sizes                                       |           |
|  |                |  |           |
| L ognormal PO                                      | S Statistics   | Using Imputed Non-Detects  |           |
| Mean in Original Scale                             |                | Mean in Log Scale  | -8.996    |
| SD in Original Scale                               |                | SD in Log Scale  | -0.990    |
|  |                |  |           |
| 95% t UCL (assumes normality of ROS data)          |                | 95% Percentile Bootstrap UCL   |           |
| 95% BCA Bootstrap UCL                              |                | 95% Bootstrap t UCL  | 1./1/4E-4 |
| 95% H-UCL (Log ROS)                                | 1./132E-4      |  |           |
| Statistics using KM estimates                      | on Loggod      | Data and Assuming Lognormal Distribution                             |           |
| Statistics using KM estimates<br>KM Mean (logged)  |                | KM Geo Mean  | 1 24275   |
|  |                | 95% Critical H Value (KM-Log)  |           |
| KM SD (logged)                                     |                |  | 1.996     |
| KM Standard Error of Mean (logged)                 |                | 95% H-UCL (KM -Log)  |           |
| KM SD (logged)                                     |                | 95% Critical H Value (KM-Log)  | 1.996     |
| KM Standard Error of Mean (logged)                 |                |  |           |
| Note: KM UCLs may be blased low                    | v with this da | taset. Other substitution method recommended                         |           |
|  |                |  |           |
| <b>-</b>   | DL/2 S         | tatistics  |           |
| DL/2 Normal  |                | DL/2 Log-Transformed   |           |
| Mean in Original Scale                             |                | Mean in Log Scale  | -7.658    |
| SD in Original Scale                               |                | SD in Log Scale  | 1.192     |
| 95% t UCL (Assumes normality)                      |                | 95% H-Stat UCL ded for comparisons and historical reasons            | 0.00155   |
| •  |                | tion Free UCL Statistics<br>stributed at 1% Significance Level       |           |
|  | Suaaested      | UCL to Use   |           |
| 95% KM (t) UCL                                     | à              |  |           |
|  |                |  |           |
| Note: Suggestions regarding the selection of a 95% | 6 UCL are pr   | ovided to help the user to select the most appropriate 95% UCL       |           |
|  | ·              | ution, and skewness using results from simulation studies.           |           |
| · · · · ·  |                | ts; for additional insight the user may want to consult a statistici | an        |
|  |                |  |           |
| ; (groundwater   phenol   108-95-2)                |                |  |           |
| (3.02  |                |  |           |
|  | General        | Statistics   |           |
| Total Number of Observations                       | 1              | Number of Distinct Observations                                      | 9         |
| Number of Detects                                  |                | Number of Non-Detects  | 42        |
| Number of Distinct Detects                         |                | Number of Distinct Non-Detects                                       | 9         |
|  | U              |  | 5         |
| Warning: All observations are Non-Deter            | ts (NDs) the   | prefore all statistics and estimates should also be NDs!             |           |
|  | <u> </u>       | stics are also NDs lying below the largest detection limit!          |           |
|  |                | values to estimate environmental parameters (e.g., EPC, BTV          | )         |
|  | no specific (  | Sauss to ostimute environmental paralleters (e.y., EFO, DIV          | /•        |
| The date set for veriable 0 /                      | aroundwate     | r   phenol   108-95-2) was not processed!                            |           |
|  | Biogingware    | i phonor [ 100-30-2/ was not processed!                              |           |

| c (groundwater   propylene glycol   57-55-6)     |                |   |         |
|--|----------------|---|---------|
| (3   |                |   |         |
|  | General        | Statistics  |         |
| Total Number of Observations                     | 6              | Number of Distinct Observations                             | 1       |
| Number of Detects                                | 0              | Number of Non-Detects                                       | 6       |
| Number of Distinct Detects                       | 0              | Number of Distinct Non-Detects                              | 1       |
| Warning: All observations are Non-Detect         | s (NDs), the   | refore all statistics and estimates should also be NDs!     |         |
| Specifically, sample mean, UCLs, UPLs, an        | d other statis | stics are also NDs lying below the largest detection limit! |         |
| The Project Team may decide to use alternative s | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV) | •       |
| The data set for variable C (grou                | ndwater   pr   | opylene glycol   57-55-6) was not processed!                |         |
| (groundwater   pyrene   129-00-0)                |                |   |         |
|  | General        | Statistics  |         |
| Total Number of Observations                     | 43             | Number of Distinct Observations                             | 22      |
| Number of Detects                                | 13             | Number of Non-Detects                                       | 30      |
| Number of Distinct Detects                       | 12             | Number of Distinct Non-Detects                              | 11      |
| Minimum Detect                                   | 7.5250E-5      | Minimum Non-Detect  | 5.0000E |
| Maximum Detect                                   | 0.001          | Maximum Non-Detect  | 0.005   |
| Variance Detects                                 | 9.2363E-8      | Percent Non-Detects   | 69.77   |
| Mean Detects                                     |                | SD Detects  | 3.0391E |
| Median Detects                                   | 2.0000E-4      | CV Detects  | 0.87    |
| Skewness Detects                                 | 1.351          | Kurtosis Detects  | 0.843   |
| Mean of Logged Detects                           | -8.297         | SD of Logged Detects  | 0.839   |
| Norm   | al GOF Tes     | t on Detects Only   |         |
| Shapiro Wilk Test Statistic                      | 0.811          | Shapiro Wilk GOF Test                                       |         |
| 1% Shapiro Wilk Critical Value                   | 0.814          | Detected Data Not Normal at 1% Significance Level           |         |
| Lilliefors Test Statistic                        | 0.224          | Lilliefors GOF Test   |         |
| 1% Lilliefors Critical Value                     | 0.271          | Detected Data appear Normal at 1% Significance Lev          | el      |
| Detected Data appear                             | Approximat     | e Normal at 1% Significance Level                           |         |
| Kaplan-Meier (KM) Statistics usi                 | ng Normal C    | ritical Values and other Nonparametric UCLs                 |         |
|  | 2.6969E-4      | KM Standard Error of Mean                                   | 5.1233E |
|  | 2.2571E-4      | 95% KM (BCA) UCL  |         |
| 95% KM (t) UCL                                   |                | 95% KM (Percentile Bootstrap) UCL                           |         |
| 95% KM (z) UCL                                   |                | 95% KM Bootstrap t UCL                                      |         |
| 90% KM Chebyshev UCL                             |                | 95% KM Chebyshev UCL  |         |
| 97.5% KM Chebyshev UCL                           |                | 99% KM Chebyshev UCL  |         |
| -  |                | taset. Other substitution method recommended                |         |
| Gamma GOF  | Tests on De    | tected Observations Only                                    |         |
| A-D Test Statistic                               | 0.454          | Anderson-Darling GOF Test                                   |         |

|  | 0.740  |  |                            |
|--|--|--|----------------------------|
| 5% A-D Critical Value  |  | Detected data appear Gamma Distributed at 5% Significan  | ce Level                   |
| K-S Test Statistic   |  | Kolmogorov-Smirnov GOF   |                            |
| 5% K-S Critical Value  |  | Detected data appear Gamma Distributed at 5% Significan  | ce Level                   |
| Detected data appea  | ir Gamma Di  | stributed at 5% Significance Level   |                            |
|  | Statiatica ar  | Patented Date Only   |                            |
|  |  | Detected Data Only   | 1 000                      |
| k hat (MLE)  |  | k star (bias corrected MLE)  | 1.332                      |
| Theta hat (MLE)  |  | Theta star (bias corrected MLE)  |                            |
| nu hat (MLE)   |  | nu star (bias corrected)   | 34.64                      |
| Mean (detects)   | 3.4651E-4  |  |                            |
|  |  |  |                            |
|  |  | sing Imputed Non-Detects   |                            |
| -  |  | NDs with many tied observations at multiple DLs  |                            |
|  |  | s <1.0, especially when the sample size is small (e.g., <15-20)  |                            |
|  | -  | yield incorrect values of UCLs and BTVs  |                            |
|  | -  | n the sample size is small.  |                            |
| For gamma distributed detected data, BTVs a  | and UCLs ma  | y be computed using gamma distribution on KM estimates   |                            |
| Minimum  | 7.5250E-5  | Mean   | 0.00708                    |
| Maximum  | 0.01   | Median   | 0.01                       |
| SD   | 0.00449  | CV   | 0.634                      |
| k hat (MLE)  | 0.773  | k star (bias corrected MLE)  | 0.735                      |
| Theta hat (MLE)  | 0.00916  | Theta star (bias corrected MLE)  | 0.00964                    |
| nu hat (MLE)   | 66.5   | nu star (bias corrected)   | 63.19                      |
| Adjusted Level of Significance (β)   | 0.0444   |  |                            |
| Approximate Chi Square Value (63.19, α)  | 45.9   | Adjusted Chi Square Value (63.19, β)   | 45.39                      |
| 95% Gamma Approximate UCL  | 0.00975  | 95% Gamma Adjusted UCL   | 0.00986                    |
|  |  |  |                            |
| Estimates of C   | Gamma Para   | meters using KM Estimates  |                            |
| Mean (KM)  | 2.6969E-4  | SD (KM)  | 2.2571E-4                  |
| Variance (KM)  |  | SE of Mean (KM)  |                            |
| k hat (KM)   |  | k star (KM)  | 1.344                      |
| nu hat (KM)  |  | nu star (KM)   | 115.5                      |
| theta hat (KM)   |  | theta star (KM)  |                            |
| 80% gamma percentile (KM)  |  | 90% gamma percentile (KM)  |                            |
| 95% gamma percentile (KM)  |  |  |                            |
| oo /o gamma percentile (raw)   | 7 2914F-4  | 99% gamma percentile (KM)  | 0.00107                    |
|  | 7.2914E-4  | 99% gamma percentile (KM)  | 0.00107                    |
|  |  |  | 0.00107                    |
|  | na Kaplan-M  | eier (KM) Statistics   |                            |
| Approximate Chi Square Value (115.54, α)   | na Kaplan-Mo<br>91.73  | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)  | 90.99                      |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL   | na Kaplan-Ma<br>91.73<br>3.3972E-4   | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)<br>95% KM Adjusted Gamma UCL   | 90.99                      |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL   | na Kaplan-Ma<br>91.73<br>3.3972E-4   | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)  | 90.99                      |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be blased lov  | na Kaplan-Ma<br>91.73<br>3.3972E-4<br>v with this da   | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)<br>95% KM Adjusted Gamma UCL<br>taset. Other substitution method recommended   | 90.99                      |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be biased low<br>Lognormal GC  | na Kaplan-Ma<br>91.73<br>3.3972E-4<br>v with this da<br>DF Test on D                                     | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)<br>95% KM Adjusted Gamma UCL<br>taset. Other substitution method recommended<br>etected Observations Only  | 90.99                      |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be biased low<br>Lognormal GC<br>Shapiro Wilk Test Statistic   | na Kaplan-Ma<br>91.73<br>3.3972E-4<br>v with this da<br>DF Test on D<br>0.948                            | eier (KM) Statistics<br>Adjusted Chi Square Value (115.54, β)<br>95% KM Adjusted Gamma UCL<br>taset. Other substitution method recommended<br>etected Observations Only<br>Shapiro Wilk GOF Test   | 90.99<br>3.4247E-4         |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be biased low<br>Lognormal GC<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value                              | na Kaplan-Ma<br>91.73<br>3.3972E-4<br>v with this da<br>DF Test on D<br>0.948<br>0.889                   | eier (KM) Statistics Adjusted Chi Square Value (115.54, β) 95% KM Adjusted Gamma UCL taset. Other substitution method recommended etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 10% Significance I                     | 90.99<br>3.4247E-4         |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be blased low<br>Lognormal GC<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | na Kaplan-Ma<br>91.73<br>3.3972E-4<br>v with this da<br>DF Test on D<br>0.948<br>0.889<br>0.142          | eier (KM) Statistics Adjusted Chi Square Value (115.54, β) 95% KM Adjusted Gamma UCL taset. Other substitution method recommended etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 10% Significance I Lilliefors GOF Test | 90.99<br>3.4247E-4<br>evel |
| Approximate Chi Square Value (115.54, α)<br>95% KM Approximate Gamma UCL<br>Note: KM UCLs may be biased low<br>Lognormal GC<br>Shapiro Wilk Test Statistic<br>10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic | na Kaplan-Mo<br>91.73<br>3.3972E-4<br>v with this da<br>DF Test on D<br>0.948<br>0.889<br>0.142<br>0.215 | eier (KM) Statistics Adjusted Chi Square Value (115.54, β) 95% KM Adjusted Gamma UCL taset. Other substitution method recommended etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 10% Significance I                     | 90.99<br>3.4247E-4<br>evel |

| Lognormal RO                                       | S Statistics L  | Jsing Imputed Non-Detects   |           |
|--|-----------------|---|-----------|
| Mean in Original Scale                             | 2.5075E-4       | Mean in Log Scale   | -8.49     |
| SD in Original Scale                               | 1.9111E-4       | SD in Log Scale   | 0.612     |
| 95% t UCL (assumes normality of ROS data)          | 2.9977E-4       | 95% Percentile Bootstrap UCL  | 3.0020E-4 |
| 95% BCA Bootstrap UCL                              | 3.1169E-4       | 95% Bootstrap t UCL   | 3.2376E-4 |
| 95% H-UCL (Log ROS)                                | 2.9893E-4       |   |           |
| Statistics using KM estimates                      | on Logged D     | Data and Assuming Lognormal Distribution                            |           |
| KM Mean (logged)                                   | -8.485          | KM Geo Mean   | 2.0651E-4 |
| KM SD (logged)                                     | 0.701           | 95% Critical H Value (KM-Log)                                       | 2.065     |
| KM Standard Error of Mean (logged)                 | 0.186           | 95% H-UCL (KM -Log)   | 3.2995E-4 |
| KM SD (logged)                                     | 0.701           | 95% Critical H Value (KM-Log)                                       | 2.065     |
| KM Standard Error of Mean (logged)                 | 0.186           |   |           |
| Note: KM UCLs may be biased low                    | with this dat   | taset. Other substitution method recommended                        |           |
|  | DL/2 St         | atistica  |           |
| DL/2 Normal  | 00231           | DL/2 Log-Transformed  |           |
| Mean in Original Scale                             | 9.8325E-4       | Mean in Log Scale   | -7.549    |
| SD in Original Scale                               | 0.00103         | SD in Log Scale   | 1.154     |
| 95% t UCL (Assumes normality)                      | 0.00125         | 95% H-Stat UCL  | 0.0016    |
|  | ethod, provid   | led for comparisons and historical reasons                          |           |
|  |                 |   |           |
| Nonparame  | etric Distribut | ion Free UCL Statistics   |           |
| Detected Data appear Appr                          | oximate Norr    | nal Distributed at 1% Significance Level                            |           |
|  | Suggested       | UCL to Use  |           |
| 95% KM (t) UCL                                     |                 |   |           |
|  |                 |   |           |
| When a data set follows an app                     | proximate dis   | tribution passing only one of the GOF tests,                        |           |
|  |                 | stribution passing both GOF tests in ProUCL                         |           |
|  |                 |   |           |
| Note: Suggestions regarding the selection of a 95% | UCL are pro     | ovided to help the user to select the most appropriate 95% UCL      |           |
| Recommendations are based upon data size           | , data distribu | ition, and skewness using results from simulation studies.          |           |
|  |                 | s; for additional insight the user may want to consult a statistici | an.       |
|  |                 | ·,·····   |           |
| (groundwater   pyridine   110-86-1)                |                 |   |           |
|  |                 |   |           |
|  | General         | Statistics  |           |
| Total Number of Observations                       | 13              | Number of Distinct Observations                                     | 7         |
| Number of Detects                                  | 0               | Number of Non-Detects   | 13        |
| Number of Distinct Detects                         | 0               | Number of Non-Detects   | 7         |
|  | U               |   | 1         |
| Warning: All observations are Non-Detect           | s (NDs), the    | refore all statistics and estimates should also be NDs!             |           |
| -  |                 | tics are also NDs lying below the largest detection limit!          |           |
|  |                 | alues to estimate environmental parameters (e.g., EPC, BTV          | ).        |
|  |                 |   |           |
| The data set for variable C (g                     | roundwater      | pyridine   110-86-1) was not processed!                             |           |
|  |                 |   |           |

| oundwater   sec-butylbenzene   135-98-8)          |               |  |     |
|---|---------------|--|-----|
|   | General       | Protiotico   |     |
| Total Number of Observations                      | 13            | Number of Distinct Observations                              | 2   |
| Number of Detects                                 | 0             | Number of Non-Detects  |     |
| Number of Distinct Detects                        | 0             | Number of Distinct Non-Detects                               | 2   |
|   | 0             | Number of Distinct Non-Detects                               |     |
| -   |               | refore all statistics and estimates should also be NDs!      |     |
|   |               | tics are also NDs lying below the largest detection limit!   |     |
| The Project Team may decide to use alternative si | te specific v | alues to estimate environmental parameters (e.g., EPC, BTV). |     |
| The data set for variable C (ground               | dwater   sec- | -butylbenzene   135-98-8) was not processed!                 |     |
| oundwater   selenium   7782-49-2)                 |               |  |     |
|   | General       | Statistics   |     |
| Total Number of Observations                      | 41            | Number of Distinct Observations                              | 1:  |
| Number of Detects                                 | 10            | Number of Non-Detects  | 3.  |
| Number of Distinct Detects                        | 10            | Number of Distinct Non-Detects                               | 3   |
| Minimum Detect                                    | 9.4000E-4     | Minimum Non-Detect   | 0.0 |
| Maximum Detect                                    | 0.018         | Maximum Non-Detect   | 0.  |
| Variance Detects                                  | 3.6956E-5     | Percent Non-Detects  | 75  |
| Mean Detects                                      | 0.00613       | SD Detects   | 0.0 |
| Median Detects                                    | 0.0037        | CV Detects   | 0   |
| Skewness Detects                                  | 1.119         | Kurtosis Detects   | 0.  |
| Mean of Logged Detects                            | -5.583        | SD of Logged Detects   | 1   |
| Norm  | al GOF Test   | t on Detects Only  |     |
| Shapiro Wilk Test Statistic                       | 0.822         | Shapiro Wilk GOF Test  |     |
| 1% Shapiro Wilk Critical Value                    | 0.781         | Detected Data appear Normal at 1% Significance Leve          | el  |
| Lilliefors Test Statistic                         | 0.257         | Lilliefors GOF Test  |     |
| 1% Lilliefors Critical Value                      | 0.304         | Detected Data appear Normal at 1% Significance Leve          | el  |
| Detected Data a                                   | appear Norm   | al at 1% Significance Level                                  |     |
| Kaplan-Meier (KM) Statistics usir                 | ng Normal C   | ritical Values and other Nonparametric UCLs                  |     |
| KM Mean   | 0.00571       | KM Standard Error of Mean                                    | 0.0 |
| 90KM SD   | 0.00566       | 95% KM (BCA) UCL   | 0.0 |
| 95% KM (t) UCL                                    | 0.00874       | 95% KM (Percentile Bootstrap) UCL                            | 0.0 |
| 95% KM (z) UCL                                    | 0.00867       | 95% KM Bootstrap t UCL                                       | 0.  |
| 90% KM Chebyshev UCL                              | 0.0111        | 95% KM Chebyshev UCL   | 0.  |
| 97.5% KM Chebyshev UCL                            | 0.0169        | 99% KM Chebyshev UCL   | 0   |
| Note: KM UCLs may be biased low                   | with this dat | taset. Other substitution method recommended                 |     |
| Gamma GOF   | Tests on De   | tected Observations Only                                     |     |
|   | 0.543         | Anderson-Darling GOF Test                                    |     |

| K-S Test Statistic                       | 0.266                                   | Kolmogorov-Smirnov GOF  |             |
|--|---|---|-------------|
| 5% K-S Critical Value                    | 0.273                                   | Detected data appear Gamma Distributed at 5% Significand        | ce Level    |
| Detected data appea                      | r Gamma Dis                             | stributed at 5% Significance Level                              |             |
|  |   |   |             |
| Gamma                                    | Statistics on                           | Detected Data Only  |             |
| k hat (MLE)                              | 1.162                                   | k star (bias corrected MLE)                                     | 0.88        |
| Theta hat (MLE)                          | 0.00527                                 | Theta star (bias corrected MLE)                                 | 0.00696     |
| nu hat (MLE)                             | 23.24                                   | nu star (bias corrected)  | 17.6        |
| Mean (detects)                           | 0.00613                                 |   |             |
|  |   |   |             |
|  |   | sing Imputed Non-Detects  |             |
|  |   | NDs with many tied observations at multiple DLs                 |             |
|  |   | s <1.0, especially when the sample size is small (e.g., <15-20) |             |
|  |   | yield incorrect values of UCLs and BTVs                         |             |
|  | 1 C C C C C C C C C C C C C C C C C C C | n the sample size is small.                                     |             |
| -  |   | y be computed using gamma distribution on KM estimates          |             |
|  | 9.4000E-4                               | Mean  | 0.00989     |
| Maximum                                  |   | Median  | 0.01        |
| SD                                       | 0.00444                                 | CV  | 0.448       |
| k hat (MLE)                              | 3.156                                   | k star (bias corrected MLE)                                     | 2.942       |
| Theta hat (MLE)                          | 0.00313                                 | Theta star (bias corrected MLE)                                 | 0.00336     |
| nu hat (MLE)                             | 258.8                                   | nu star (bias corrected)  | 241.2       |
| Adjusted Level of Significance (β)       | 0.0441                                  |   |             |
| Approximate Chi Square Value (241.21, α) | 206.3                                   | Adjusted Chi Square Value (241.21, β)                           | 205.1       |
| 95% Gamma Approximate UCL                | 0.0116                                  | 95% Gamma Adjusted UCL  | 0.0116      |
| Estimatos of G                           | ommo Boro                               | neters using KM Estimates                                       |             |
| Mean (KM)                                |   | SD (KM)   | 0.00566     |
| Variance (KM)                            |   | SE of Mean (KM)   | 0.00300     |
| k hat (KM)                               |   | k star (KM)   | 0.96        |
| nu hat (KM)                              | 83.49                                   | nu star (KM)  | 78.71       |
| theta hat (KM)                           | 0.00561                                 | theta star (KM)   | 0.00595     |
| 80% gamma percentile (KM)                | 0.00922                                 | 90% gamma percentile (KM)                                       | 0.00333     |
| 95% gamma percentile (KM)                |   | 99% gamma percentile (KM)                                       | 0.0268      |
|  | 0.0174                                  |   | 0.0200      |
| Gamm                                     | na Kaplan-M                             | eier (KM) Statistics  |             |
| Approximate Chi Square Value (78.71, α)  | -                                       | Adjusted Chi Square Value (78.71, β)                            | 58.65       |
| 95% KM Approximate Gamma UCL             |   | 95% KM Adjusted Gamma UCL                                       | 0.00766     |
|  |   | taset. Other substitution method recommended                    | · · · · · · |
| · · · ·                                  |   |   |             |
| Lognormal GC                             | F Test on D                             | etected Observations Only                                       |             |
| Shapiro Wilk Test Statistic              |   | Shapiro Wilk GOF Test   |             |
| 10% Shapiro Wilk Critical Value          | 0.869                                   | Detected Data appear Lognormal at 10% Significance L            | .evel       |
| Lilliefors Test Statistic                | 0.239                                   | Lilliefors GOF Test   |             |
| 10% Lilliefors Critical Value            |   | Detected Data appear Lognormal at 10% Significance L            | evel        |
| Detected Data ap                         | pear Lognor                             | mal at 10% Significance Level                                   |             |
|  |   |   |             |
| Lognormal RO                             | S Statistics                            | Jsing Imputed Non-Detects                                       |             |
| -  |   |   |             |

| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects            | data distribut         (orld data sets)         General S         41         5         2.7000E-5         3.7000E-4         2.2716E-8         1.0060E-4         3.3000E-5         2.227         -9.842   | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 9<br>36<br>4   |
|--|---|--|--|
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects<br>Mean Detects<br>Skewness Detects<br>Mean of Logged Detects            | data distribut         (orld data sets)         General S         41         5         2.7000E-5         3.7000E-4         2.2716E-8         1.0060E-4         3.3000E-5         2.227         -9.842   | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects<br>SD of Logged Detects   | 9<br>36<br>4<br>2.0000E-4<br>0.01<br>87.8%<br>1.5072E-4<br>1.498<br>4.968  |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects<br>Skewness Detects  | data distribut         (orld data sets)         General S         41         5         2.7000E-5         3.7000E-4         2.2716E-8         1.0060E-4         3.3000E-5         2.227  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detects<br>SD Detects<br>CV Detects<br>Kurtosis Detects   | 9<br>36<br>4<br>2.0000E-4<br>0.01<br>87.8%<br>1.5072E-4<br>1.498<br>4.968  |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects<br>Mean Detects<br>Median Detects  | data distribu         /orld data sets         /orld data sets         General S         41         5         2.7000E-5         3.7000E-4         2.2716E-8         1.0060E-4         3.3000E-5  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects<br>CV Detects   | 9<br>36<br>4<br>2.0000E-4<br>0.01<br>87.8%<br>1.5072E-4<br>1.498   |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects<br>Mean Detects  | data distribut         /orld data sets         /orld data sets< | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects<br>SD Detects   | 9<br>36<br>4<br>2.0000E-4<br>0.01<br>87.8%<br>1.5072E-4  |
| Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Variance Detects  | data distribu         /orld data sets         General S         41         5         2.7000E-5         3.7000E-4         2.2716E-8  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect<br>Maximum Non-Detect<br>Percent Non-Detects   | 9<br>36<br>4<br>2.0000E-4<br>0.01<br>87.8%   |
| mmendations are based upon data size,<br>ulations results will not cover all Real W<br>r   7440-22-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect<br>Maximum Detect | Adta distribu<br>Vorld data sets<br>General S<br>41<br>5<br>2.7000E-5<br>3.7000E-4  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect 1<br>Maximum Non-Detect  | 9<br>36<br>4<br>2.0000E-4<br>0.01  |
| r   7440-22-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect  | data distribu<br>/orld data sets<br>General S<br>41<br>5<br>5<br>2.7000E-5  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect  | 9<br>36<br>4<br>2.0000E-   |
| mmendations are based upon data size,<br>ulations results will not cover all Real W<br>r   7440-22-4)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects                                     | , data distribu<br>/orld data sets<br>General S<br>41<br>5<br>5   | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects  | 9<br>36<br>4   |
| mmendations are based upon data size,<br>ulations results will not cover all Real W<br>r   7440-22-4)<br>Total Number of Observations<br>Number of Detects   | , data distribu<br>/orld data sets<br>General S<br>41<br>5  | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects  | an.<br>9<br>36   |
| mmendations are based upon data size,<br>ulations results will not cover all Real W<br>r   7440-22-4)<br>Total Number of Observations  | , data distribu<br>/orld data sets<br>General S<br>41   | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics<br>Number of Distinct Observations   | an.<br>9   |
| mmendations are based upon data size,<br>ulations results will not cover all Real W<br>r   7440-22-4)  | , data distribu<br>/orld data sets<br>General S   | tion, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statisticia<br>Statistics  | an.  |
| mmendations are based upon data size,<br>ulations results will not cover all Real W  | , data distribu   | tion, and skewness using results from simulation studies.  |  |
| mmendations are based upon data size,<br>ulations results will not cover all Real W  | , data distribu   | tion, and skewness using results from simulation studies.  |  |
| mmendations are based upon data size,  | , data distribu   | tion, and skewness using results from simulation studies.  |  |
| mmendations are based upon data size,  | , data distribu   | tion, and skewness using results from simulation studies.  |  |
|  |   |  |  |
|  |   | wided to help the user to select the most appropriate 95% UCL.   |  |
|  |   |  |  |
| 95% KM (t) UCL   | 0.00874   |  |  |
|  | Suggested L   | JCL to Use   |  |
| Detected Data appea  | r Normai Dis  | tributed at 1% Significance Level  |  |
| •  |   |  |  |
|  |   |  |  |
| DL/2 is not a recommended me   | ethod, provid   | ed for comparisons and historical reasons  |  |
| 95% t UCL (Assumes normality)  | 0.022   | 95% H-Stat UCL   | 0.0352   |
| SD in Original Scale   | 0.00911   | SD in Log Scale  | 1.002  |
|  | 0.0196  | -  | -4.222   |
| DI /2 Normal   | DL/2 Sta  |  |  |
|  | DI /0.04  |  |  |
| Note: KM UCLs may be biased low  | with this dat   | aset. Other substitution method recommended  |  |
| KM Standard Error of Mean (logged)   | 0.321   |  |  |
| KM SD (logged)   | 1.007   | 95% Critical H Value (KM-Log)  | 2.359  |
| KM Standard Error of Mean (logged)   | 0.321   | 95% H-UCL (KM -Log)  | 0.0083   |
| KM SD (logged)   | 1.007   | 95% Critical H Value (KM-Log)  | 2.359  |
|  |   |  | 0.0034   |
| Statistics using KM estimates  | on Logged D   | pata and Assuming Lognormal Distribution   |  |
| 95% H-UCE (LOG RUS)  | 0.00662   |  |  |
| · · ·  |   | 95% Bootstrap t UCL  | 0.0078   |
|  |   | · · ·  | 0.0074   |
| SD in Original Scale   | 0.00631   | SD in Log Scale  | 1.04   |
|  | UCL (assumes normality of ROS data)<br>95% BCA Bootstrap UCL<br>95% H-UCL (Log ROS)<br>Statistics using KM estimates<br>KM Mean (logged)<br>KM Standard Error of Mean (logged)<br>KM Standard Error of Mean (logged)<br>KM Standard Error of Mean (logged)<br>Note: KM UCLs may be biased low<br>DL/2 Normal<br>Mean in Original Scale<br>SD in Original Scale<br>95% t UCL (Assumes normality)<br>DL/2 is not a recommended m<br>Nonparame<br>Detected Data appea  | SD in Original Scale       0.00631         UCL (assumes normality of ROS data)       0.00742         95% BCA Bootstrap UCL       0.0077         95% H-UCL (Log ROS)       0.00882         Statistics using KM estimates on Logged D         KM Mean (logged)       -5.669         KM SD (logged)       1.007         KM Standard Error of Mean (logged)       0.321         KM Standard Error of Mean (logged)       0.321         Note: KM UCLs may be biased low with this dat         DL/2 St         DL/2 Normal         Mean in Original Scale       0.0196         SD in Original Scale       0.00911         95% t UCL (Assumes normality)       0.022         DL/2 is not a recommended method, provid         Nonparametric Distribut         Detected Data appear Normal Dis         Suggested I | SD in Original Scale       0.00631       SD in Log Scale         UCL (assumes normality of ROS data)       0.00742       95% Percentile Bootstrap UCL         95% BCA Bootstrap UCL       0.0077       95% Bootstrap UCL         95% H-UCL (Log ROS)       0.00882         Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution         KM Mean (logged)       -5.669       KM Geo Mean         KM SD (logged)       1.007       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.321       95% H-UCL (KM -Log)         KM Standard Error of Mean (logged)       0.321       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.321       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.321       95% Critical H Value (KM-Log)         KM Standard Error of Mean (logged)       0.321       0.021         Note: KM UCLs may be biased low with this dataset. Other substitution method recommended       DL/2 Log-Transformed         UL/2 Normal       0.0196       Mean in Log Scale         SD in Original Scale       0.0196       Mean in Log Scale         95% t UCL (Assumes normality)       0.022       95% H-Stat UCL         DL/2 Is not a recommended method, provided for comparisons and historical reasons       Detected Data ap |

| Lilliefors Test Statistic                     | 0.449          | Lilliefors GOF Test   |           |
|---|----------------|---|-----------|
|   |                |   | -1        |
| 1% Lilliefors Critical Value                  |                | Detected Data Not Normal at 1% Significance Leve                | Ð         |
|   | a Not Norma    | I at 1% Significance Level                                      |           |
|   |                |   |           |
|   | -              | critical Values and other Nonparametric UCLs                    |           |
|   | 6.6925E-5      | KM Standard Error of Mean                                       |           |
|   | 1.0119E-4      | 95% KM (BCA) UCL  |           |
| 95% KM (t) UCL                                |                | 95% KM (Percentile Bootstrap) UCL                               |           |
| 95% KM (z) UCL                                |                | 95% KM Bootstrap t UCL  |           |
| 90% KM Chebyshev UCL                          |                | 95% KM Chebyshev UCL  |           |
| 97.5% KM Chebyshev UCL                        |                | 99% KM Chebyshev UCL  | 4.2359E-4 |
| Note: KM UCLs may be biased low               | v with this da | taset. Other substitution method recommended                    |           |
|   |                |   |           |
| Gamma GOF                                     | Tests on De    | etected Observations Only                                       |           |
| A-D Test Statistic                            | 1.033          | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value                         | 0.694          | Detected Data Not Gamma Distributed at 5% Significance          | e Level   |
| K-S Test Statistic                            | 0.434          | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                         | 0.365          | Detected Data Not Gamma Distributed at 5% Significance          | e Level   |
| Detected Data Not                             | Gamma Dist     | ributed at 5% Significance Level                                |           |
|   |                |   |           |
| Gamma   | Statistics or  | n Detected Data Only  |           |
| k hat (MLE)                                   | 0.915          | k star (bias corrected MLE)                                     | 0.499     |
| Theta hat (MLE)                               | 1.0993E-4      | Theta star (bias corrected MLE)                                 | 2.0145E-4 |
| nu hat (MLE)                                  | 9.151          | nu star (bias corrected)  | 4.994     |
| Mean (detects)                                | 1.0060E-4      |   |           |
|   |                | 1   |           |
| Gamma ROS                                     | Statistics u   | sing Imputed Non-Detects  |           |
| GROS may not be used when data s              | et has > 50%   | 6 NDs with many tied observations at multiple DLs               |           |
| GROS may not be used when kstar of detects is | small such a   | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
| For such situations, GROS                     | method may     | yield incorrect values of UCLs and BTVs                         |           |
| This is espec                                 | ially true whe | en the sample size is small.                                    |           |
| For gamma distributed detected data, BTVs a   | and UCLs ma    | by be computed using gamma distribution on KM estimates         |           |
| Minimum                                       | 2.7000E-5      | Mean  | 0.00879   |
| Maximum                                       | 0.01           | Median  | 0.01      |
| SD  | 0.00328        | CV  | 0.373     |
| k hat (MLE)                                   | 1.118          | k star (bias corrected MLE)                                     | 1.052     |
| Theta hat (MLE)                               |                | Theta star (bias corrected MLE)                                 | 0.00836   |
| nu hat (MLE)                                  | 91.65          | nu star (bias corrected)  | 86.28     |
| Adjusted Level of Significance (β)            | 0.0441         | , , , , , , , , , , , , , , , , , , ,                           |           |
| Approximate Chi Square Value (86.28, α)       | 65.86          | Adjusted Chi Square Value (86.28, β)                            | 65.21     |
| 95% Gamma Approximate UCL                     | 0.0115         | 95% Gamma Adjusted UCL  | 0.0116    |
|   |                |   |           |
| Estimates of G                                | amma Para      | meters using KM Estimates                                       |           |
| Mean (KM)                                     |                |   | 1.0119E-4 |
| Variance (KM)                                 |                | SE of Mean (KM)   |           |
|   |                |   |           |
| k hat (KM)                                    |                | k star (KM)   | 0.422     |
| nu hat (KM)                                   | 35.87          | nu star (KM)  | 34.58     |
| theta hat (KM)                                | 1.5299E-4      | theta star (KM)   | 1.58/UE-4 |

| 80% gamma percentile (KM)<br>95% gamma percentile (KM)          |                            | 90% gamma percentile (KM)<br>99% gamma percentile (KM) |           |
|---|----------------------------|--|-----------|
| 95% gamma percentile (KM)                                       | 2.7301E-4                  | 99% ganina percenule (KM) 4                            | 4.0/JZE-4 |
| Gamm  | a Kaplan-M                 | eier (KM) Statistics                                   |           |
| Approximate Chi Square Value (34.58, α)                         | 22.13                      | Adjusted Chi Square Value (34.58, $\beta$ )            | 21.76     |
| 95% KM Approximate Gamma UCL                                    |                            | 95% KM Adjusted Gamma UCL                              |           |
|   |                            | taset. Other substitution method recommended           |           |
|   |                            |  |           |
| Lognormal GC  | F Test on D                | etected Observations Only                              |           |
| Shapiro Wilk Test Statistic                                     | 0.692                      | Shapiro Wilk GOF Test                                  |           |
| 10% Shapiro Wilk Critical Value                                 | 0.806                      | Detected Data Not Lognormal at 10% Significance Lev    | vel       |
| Lilliefors Test Statistic                                       | 0.377                      | Lilliefors GOF Test                                    |           |
| 10% Lilliefors Critical Value                                   | 0.319                      | Detected Data Not Lognormal at 10% Significance Level  | vel       |
| Detected Data N   | lot Lognorm                | al at 10% Significance Level                           |           |
|   |                            |  |           |
| Lognormal RO  | S Statistics               | Jsing Imputed Non-Detects                              |           |
| Mean in Original Scale  | 6.4923E-5                  | Mean in Log Scale                                      | -10.05    |
| SD in Original Scale  | 7.2519E-5                  | SD in Log Scale  | 0.88      |
| 95% t UCL (assumes normality of ROS data)                       | 8.3994E-5                  | 95% Percentile Bootstrap UCL                           | 8.5252E-  |
| 95% BCA Bootstrap UCL   | 9.0000E-5                  | 95% Bootstrap t UCL                                    | 9.4301E-  |
| 95% H-UCL (Log ROS)   | 8.6912E-5                  |  |           |
|   |                            |  |           |
| -   |                            | Data and Assuming Lognormal Distribution               |           |
| KM Mean (logged)  |                            | KM Geo Mean  |           |
| KM SD (logged)  | 0.746                      | 95% Critical H Value (KM-Log)                          | 2.096     |
| KM Standard Error of Mean (logged)                              | 0.271                      | 95% H-UCL (KM -Log)                                    | 7.0544E-  |
| KM SD (logged)  | 0.746                      | 95% Critical H Value (KM-Log)                          | 2.096     |
| KM Standard Error of Mean (logged)                              | 0.271                      |  |           |
| Note: KM UCLs may be biased low                                 | with this da               | taset. Other substitution method recommended           |           |
|   | DL/2 St                    | atietice   |           |
| DL/2 Normal   | 002.0                      | DL/2 Log-Transformed                                   |           |
| Mean in Original Scale  | 0.00364                    | Mean in Log Scale                                      | -6.395    |
| SD in Original Scale  | 0.00217                    | SD in Log Scale  | 1.869     |
| 95% t UCL (Assumes normality)                                   | 0.00421                    | 95% H-Stat UCL   | 0.026     |
|   |                            | ded for comparisons and historical reasons             |           |
|   |                            |  |           |
| Nonparame   | tric Distribu              | tion Free UCL Statistics                               |           |
| Data do n   | ot follow a D              | iscernible Distribution                                |           |
|   |                            |  |           |
|   |                            |  |           |
|   | Suggested                  |  |           |
| 95% KM (t) UCL  |                            |  |           |
|   | 1.2728E-4                  | e data were collected in a random and unbiased manner. |           |
| The calculated UCLs are based on assumption                     | 1.2728E-4                  |  |           |
| The calculated UCLs are based on assumpt<br>Please verify the c | 1.2728E-4<br>ions that the | e data were collected in a random and unbiased manner. |           |

| Note: Suggestions regarding the selection of a 95%     | % UCL are     | provided to help the user to select the most appropriate 95% UCL.        |    |
|--|---------------|--|----|
| Recommendations are based upon data size               | e, data distr | ibution, and skewness using results from simulation studies.             |    |
| However, simulations results will not cover all Real V | Vorld data s  | sets; for additional insight the user may want to consult a statisticial | n. |
|  |               |  |    |
| oundwater   styrene   100-42-5)                        |               |  |    |
|  | Genera        | al Statistics  |    |
| Total Number of Observations                           | 36            | Number of Distinct Observations  | 5  |
| Number of Detects                                      | 0             | Number of Non-Detects  | 36 |
| Number of Distinct Detects                             | 0             | Number of Distinct Non-Detects   | 5  |
| Warning: All observations are Non-Detec                | ts (NDs), ti  | herefore all statistics and estimates should also be NDs!                |    |
| -  |               | atistics are also NDs lying below the largest detection limit!           |    |
|  |               | c values to estimate environmental parameters (e.g., EPC, BTV).          |    |
| The data set for variable C (                          | aroundwot     | or Laturana L 100, 42, 5) was not processed                              |    |
| I në data set for variable C (                         | groundwat     | er   styrene   100-42-5) was not processed!                              |    |
|  |               |  |    |
| roundwater   t-amyl methyl ether   994-05-8)           |               |  |    |
|  |               |  |    |
|  | Genera        | al Statistics  |    |
| Total Number of Observations                           |               | Number of Distinct Observations  | 2  |
| Number of Detects                                      | _             | Number of Non-Detects  | 13 |
| Number of Distinct Detects                             | 0             | Number of Distinct Non-Detects   | 2  |
|  |               |  |    |
|  |               | herefore all statistics and estimates should also be NDs!                |    |
|  |               | atistics are also NDs lying below the largest detection limit!           |    |
|  | site specific | c values to estimate environmental parameters (e.g., EPC, BTV).          | •  |
| The data set for variable C (group                     | dwater I t-s  | amyl methyl ether   994-05-8) was not processed!                         |    |
|  |               |  |    |
|  |               |  |    |
| oundwater   tert-butyl alcohol   75-65-0)              |               |  |    |
|  |               |  |    |
|  | Genera        | al Statistics  |    |
| Total Number of Observations                           | 20            | Number of Distinct Observations  | 6  |
| Number of Detects                                      | 0             | Number of Non-Detects  | 20 |
| Number of Distinct Detects                             | 0             | Number of Distinct Non-Detects   | 6  |
| Warning: All observations are Non-Detec                | ts (NDs). tl  | herefore all statistics and estimates should also be NDs!                |    |
| -  |               | atistics are also NDs lying below the largest detection limit!           |    |
|  |               | c values to estimate environmental parameters (e.g., EPC, BTV).          |    |
| The data set for variable C (any                       | indwater I (  | tert-butyl alcohol   75-65-0) was not processed!                         |    |
|  |               |  |    |
|  |               |  |    |
|  |               |  |    |

|  | General        | Statistics   |           |
|--|----------------|--|-----------|
| Total Number of Observations                   | 13             | Number of Distinct Observations                              | 2         |
| Number of Detects                              | 0              | Number of Non-Detects  | 13        |
| Number of Distinct Detects                     | 0              | Number of Distinct Non-Detects                               | 2         |
| Warning: All observations are Non-Detect       | ts (NDs), the  | refore all statistics and estimates should also be NDs!      |           |
|  |                | stics are also NDs lying below the largest detection limit!  |           |
|  |                | ralues to estimate environmental parameters (e.g., EPC, BTV) |           |
|  | the specific v |  | ,.        |
| The data set for variable C (grou              | ndwater I ter  | t-butylbenzene   98-06-6) was not processed!                 |           |
|  |                |  |           |
|  |                |  |           |
| C (groundwater   tetrachloroethene   127-18-4) |                |  |           |
|  |                |  |           |
|  | General        |  |           |
| Total Number of Observations                   | 36             | Number of Distinct Observations                              | 6         |
| Number of Detects                              | 3              | Number of Non-Detects  | 33        |
| Number of Distinct Detects                     | 3              | Number of Distinct Non-Detects                               | 3         |
| Minimum Detect                                 | 2.5000E-4      | Minimum Non-Detect   | 0.001     |
| Maximum Detect                                 | 8.8000E-4      | Maximum Non-Detect   | 0.005     |
| Variance Detects                               | 1.0363E-7      | Percent Non-Detects  | 91.67%    |
| Mean Detects                                   | 6.0333E-4      | SD Detects   | 3.2192E-4 |
| Median Detects                                 | 6.8000E-4      | CV Detects   | 0.534     |
| Skewness Detects                               | -1.011         | Kurtosis Detects   | N/A       |
| Mean of Logged Detects                         | -7.541         | SD of Logged Detects   | 0.665     |
| Warning: D                                     | oata set has o | only 3 Detected Values.                                      |           |
| This is not enough to com                      | pute meaning   | gful or reliable statistics and estimates.                   |           |
|  |                |  |           |
|  |                |  |           |
| Norn   | nal GOF Tes    | t on Detects Only  |           |
| Shapiro Wilk Test Statistic                    | 0.957          | Shapiro Wilk GOF Test  |           |
| 1% Shapiro Wilk Critical Value                 | 0.753          | Detected Data appear Normal at 1% Significance Lev           | /el       |
| Lilliefors Test Statistic                      | 0.261          | Lilliefors GOF Test  |           |
| 1% Lilliefors Critical Value                   | 0.429          | Detected Data appear Normal at 1% Significance Lev           | /el       |
| Detected Data                                  | appear Norn    | nal at 1% Significance Level                                 |           |
| Note GOF tests                                 | may be unre    | liable for small sample sizes                                |           |
|  |                |  |           |
| Kaplan-Meier (KM) Statistics usi               | ng Normal C    | ritical Values and other Nonparametric UCLs                  |           |
| KM Mean  | 6.0333E-4      | KM Standard Error of Mean                                    | 1.8586E-4 |
| 90KM SD  | 2.6285E-4      | 95% KM (BCA) UCL   | N/A       |
| 95% KM (t) UCL                                 |                | 95% KM (Percentile Bootstrap) UCL                            | N/A       |
| 95% KM (z) UCL                                 |                | 95% KM Bootstrap t UCL                                       | N/A       |
| 90% KM Chebyshev UCL                           | 0.00116        | 95% KM Chebyshev UCL   | 0.00141   |
| 97.5% KM Chebyshev UCL                         |                | 99% KM Chebyshev UCL   | 0.00245   |
|  |                |  |           |
| Gamma GOF                                      | Tests on De    | etected Observations Only                                    |           |
| A-D Test Statistic                             |                | Anderson-Darling GOF Test                                    |           |
|  |                | <b>~</b>   |           |

| 5% A-D Critical Value                    | 0.637         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
|--|---------------|---|-----------|
| K-S Test Statistic                       | 0.326         | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value                    | 0.434         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| Detected Data Not                        | Gamma Dist    | ributed at 5% Significance Level                                |           |
| Gamma                                    | Statistics or | Detected Data Only  |           |
| k hat (MLE)                              | 4.066         | k star (bias corrected MLE)                                     | N/A       |
| Theta hat (MLE)                          |               | Theta star (bias corrected MLE)                                 | N/A       |
| nu hat (MLE)                             | 24.4          | nu star (bias corrected MEL)                                    | N/A       |
| Mean (detects)                           |               |   | 11/7      |
| 0  | Otestical     | in a laurant of New Detector                                    |           |
|  |               | sing Imputed Non-Detects  |           |
|  |               | NDs with many tied observations at multiple DLs                 |           |
|  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|  |               | yield incorrect values of UCLs and BTVs                         |           |
| · · ·                                    | · ·           | n the sample size is small.                                     |           |
|  |               | y be computed using gamma distribution on KM estimates          |           |
| Minimum                                  | 2.5000E-4     | Mean  | 0.0092    |
| Maximum                                  | 0.01          | Median  | 0.01      |
| SD                                       | 0.00264       | CV  | 0.286     |
| k hat (MLE)                              | 3.222         | k star (bias corrected MLE)                                     | 2.972     |
| Theta hat (MLE)                          | 0.00286       | Theta star (bias corrected MLE)                                 | 0.0031    |
| nu hat (MLE)                             | 232           | nu star (bias corrected)  | 214       |
| Adjusted Level of Significance (β)       | 0.0428        |   |           |
| Approximate Chi Square Value (214.01, α) | 181.2         | Adjusted Chi Square Value (214.01, β)                           | 179.8     |
| 95% Gamma Approximate UCL                | 0.0109        | 95% Gamma Adjusted UCL  | N/A       |
| Estimates of G                           | amma Parai    | meters using KM Estimates                                       |           |
| Mean (KM)                                |               |   | 2.6285E-4 |
| Variance (KM)                            |               | SE of Mean (KM)   |           |
| k hat (KM)                               | 5.269         | k star (KM)   | 4.848     |
| nu hat (KM)                              | 379.3         | nu star (KM)  | 349.1     |
| theta hat (KM)                           |               | theta star (KM)   |           |
| 80% gamma percentile (KM)                |               | 90% gamma percentile (KM)                                       |           |
| 95% gamma percentile (KM)                | 0.00111       | 99% gamma percentile (KM)                                       | 0.0014    |
|  |               |   |           |
|  | -             | eier (KM) Statistics  | 005       |
| Approximate Chi Square Value (349.07, α) | 306.8         | Adjusted Chi Square Value (349.07, β)                           | 305       |
| 95% KM Approximate Gamma UCL             | 6.8651E-4     | 95% KM Adjusted Gamma UCL                                       | 6.9055E-4 |
| Lognormal GC                             | F Test on D   | etected Observations Only                                       |           |
| Shapiro Wilk Test Statistic              | 0.896         | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value          | 0.789         | Detected Data appear Lognormal at 10% Significance L            | _evel     |
| Lilliefors Test Statistic                | 0.312         | Lilliefors GOF Test   |           |
| 10% Lilliefors Critical Value            | 0.389         | Detected Data appear Lognormal at 10% Significance L            | _evel     |
| Detected Data ap                         | pear Lognor   | mal at 10% Significance Level                                   |           |
|  | may be uppe   | liable for small sample sizes                                   |           |

| Lognormal RC                                       | S Statistics    | Using Imputed Non-Detects  |          |
|--|-----------------|--|----------|
| Mean in Original Scale                             | 7.1328E-4       | Mean in Log Scale  | -7.541   |
| SD in Original Scale                               | 5.9699E-4       | SD in Log Scale  | 0.79     |
| 95% t UCL (assumes normality of ROS data)          | 8.8139E-4       | 95% Percentile Bootstrap UCL   | 8.8394E- |
| 95% BCA Bootstrap UCL                              | 9.1374E-4       | 95% Bootstrap t UCL  | 9.3394E  |
| 95% H-UCL (Log ROS)                                | 9.6756E-4       |  |          |
| Statistics using KM estimates                      | on Logged [     | Data and Assuming Lognormal Distribution                             |          |
| KM Mean (logged)                                   | -7.541          | KM Geo Mean  | 5.3086E  |
| KM SD (logged)                                     | 0.543           | 95% Critical H Value (KM-Log)  | 1.942    |
| KM Standard Error of Mean (logged)                 | 0.384           | 95% H-UCL (KM -Log)  | 7.3509E  |
| KM SD (logged)                                     | 0.543           | 95% Critical H Value (KM-Log)  | 1.942    |
| KM Standard Error of Mean (logged)                 | 0.384           |  |          |
| Note: KM UCLs may be biased low                    | w with this da  | taset. Other substitution method recommended                         |          |
|  | DL/2 S          | tatistics  |          |
| DL/2 Normal  |                 | DL/2 Log-Transformed   |          |
| Mean in Original Scale                             | e 7.3778E-4     | Mean in Log Scale  | -7.406   |
| SD in Original Scale                               | 6.3845E-4       | SD in Log Scale  | 0.53     |
| 95% t UCL (Assumes normality)                      | 9.1756E-4       | 95% H-Stat UCL   | 8.3606E  |
| DL/2 is not a recommended m                        | nethod, provid  | ded for comparisons and historical reasons                           |          |
| 95% KM (t) UCL                                     |                 | UCL to Use   |          |
|  |                 | cceeds the maximum observation                                       |          |
| Note: Suggestions regarding the selection of a 050 | / UCL are pr    | ovided to help the user to select the most appropriate 95% UCL       |          |
|  |                 | ution, and skewness using results from simulation studies.           |          |
|  |                 |  |          |
|  | vond data se    | ts; for additional insight the user may want to consult a statistici | an.      |
| groundwater   tetrahydrofuran   109-99-9)          |                 |  |          |
|  | General         | Statistics   |          |
| Total Number of Observations                       | s 13            | Number of Distinct Observations                                      | 2        |
| Number of Detects                                  | s 0             | Number of Non-Detects  | 13       |
| Number of Distinct Detects                         | s 0             | Number of Distinct Non-Detects                                       | 2        |
| Warning: All observations are Non-Detec            | ts (NDs), the   | refore all statistics and estimates should also be NDs!              |          |
| Specifically, sample mean, UCLs, UPLs, ar          | nd other statis | stics are also NDs lying below the largest detection limit!          |          |
| The Project Team may decide to use alternative s   | site specific v | alues to estimate environmental parameters (e.g., EPC, BTV           | ).       |
| The data set for variable C (grou                  | undwater   te   | trahydrofuran   109-99-9) was not processed!                         |          |
|  |                 |  |          |
| (aroundwater   thellium   7440, 29, 0)             |                 |  |          |
| (groundwater   thallium   7440-28-0)               |                 |  |          |

|                                  | General       |   |           |
|----------------------------------|---------------|---|-----------|
| Total Number of Observations     | 41            | Number of Distinct Observations             | 7         |
| Number of Detects                | 2             | Number of Non-Detects                       | 39        |
| Number of Distinct Detects       | 2             | Number of Distinct Non-Detects              | 5         |
| Minimum Detect                   |               | Minimum Non-Detect                          |           |
| Maximum Detect                   |               | Maximum Non-Detect                          | 0.15      |
| Variance Detects                 |               | Percent Non-Detects                         | 95.12%    |
| Mean Detects                     |               | SD Detects                                  |           |
| Median Detects                   |               | CV Detects                                  | 0.692     |
| Skewness Detects                 |               | Kurtosis Detects                            | N/A       |
| Mean of Logged Detects           | -8.753        | SD of Logged Detects                        | 0.757     |
| Warning: D                       | ata set has o | only 2 Detected Values.                     |           |
| This is not enough to com        | oute meaning  | gful or reliable statistics and estimates.  |           |
|                                  |               |   |           |
|                                  |               |   |           |
| Norn                             | al GOF Tes    | t on Detects Only                           |           |
| Not En                           | ough Data to  | Perform GOF Test                            |           |
|                                  |               |   |           |
| Kaplan-Meier (KM) Statistics usi | ng Normal C   | ritical Values and other Nonparametric UCLs |           |
| KM Mean                          | 1.1025E-4     | KM Standard Error of Mean                   | 2.3814E-5 |
| 90KM SD                          | 5.3250E-5     | 95% KM (BCA) UCL                            | N/A       |
| 95% KM (t) UCL                   | 1.5035E-4     | 95% KM (Percentile Bootstrap) UCL           | N/A       |
| 95% KM (z) UCL                   | 1.4942E-4     | 95% KM Bootstrap t UCL                      | N/A       |
| 90% KM Chebyshev UCL             | 1.8169E-4     | 95% KM Chebyshev UCL                        | 2.1405E-4 |
| 97.5% KM Chebyshev UCL           | 2.5897E-4     | 99% KM Chebyshev UCL                        | 3.4720E-4 |
|                                  |               |   |           |
|                                  |               | etected Observations Only                   |           |
| Not En                           | ough Data to  | Perform GOF Test                            |           |
| Gamma                            | Statistics on | Detected Data Only                          |           |
| k hat (MLE)                      | 3.807         | k star (bias corrected MLE)                 | N/A       |
| Theta hat (MLE)                  |               | Theta star (bias corrected MLE)             | N/A       |
| nu hat (MLE)                     | 15.23         | nu star (bias corrected)                    | N/A       |
| Mean (detects)                   |               | · · · · · · · · · · · · · · · · · · ·       |           |
|                                  |               |   |           |
| Estimates of G                   | amma Parar    | meters using KM Estimates                   |           |
| Mean (KM)                        |               | -   | 5.3250E-5 |
| Variance (KM)                    |               | SE of Mean (KM)                             |           |
| k hat (KM)                       | 4.287         | k star (KM)                                 | 3.989     |
| nu hat (KM)                      |               | nu star (KM)                                | 327.1     |
| theta hat (KM)                   |               | theta star (KM)                             |           |
| 80% gamma percentile (KM)        |               | 90% gamma percentile (KM)                   |           |
| 95% gamma percentile (KM)        |               | 99% gamma percentile (KM)                   |           |
|                                  |               |   |           |
| Gamm                             | a Kaplan-M    | eier (KM) Statistics                        |           |
| Gann                             |               | Adjusted Level of Significance (β)          | 0.0441    |
|                                  |               |   | 5.0771    |

| Approximate Chi Square Value (327.12, α)  |   | Adjusted Chi Square Value (327.12, β)  | 284.8                           |
|---|---|--|---------------------------------|
| 95% KM Approximate Gamma UCL  | 1.2601E-4   | 95% KM Adjusted Gamma UCL  | 1.2662E-4                       |
|   |   |  |                                 |
|   |   | etected Observations Only  |                                 |
| Not Er  | ough Data to  | Perform GOF Test   |                                 |
|   |   | Heles Issues d New Detecto   |                                 |
|   |   | Using Imputed Non-Detects  |                                 |
| Mean in Original Scale  |   | Mean in Log Scale  | -9.209                          |
| SD in Original Scale  |   | SD in Log Scale  | 0.504                           |
| 95% t UCL (assumes normality of ROS data)   |   | 95% Percentile Bootstrap UCL   |                                 |
| 95% BCA Bootstrap UCL   |   | 95% Bootstrap t UCL  | 1.3178E-                        |
| 95% H-UCL (Log ROS)   | 1.3226E-4   |  |                                 |
| Statistics using KM estimator   |   | Data and Assuming Lognormal Distribution   |                                 |
|   |   |  | 1 02065                         |
| KM Mean (logged)  |   | KM Geo Mean  |                                 |
| KM SD (logged)  |   | 95% Critical H Value (KM-Log)  | 1.784                           |
| KM Standard Error of Mean (logged)  |   | 95% H-UCL (KM -Log)  |                                 |
| KM SD (logged)  |   | 95% Critical H Value (KM-Log)  | 1.784                           |
| KM Standard Error of Mean (logged)  |   |  |                                 |
| Note: KM UCLs may be biased lov   | v with this da  | taset. Other substitution method recommended   |                                 |
|   | DI /2 S   | tatistics  |                                 |
| DL/2 Normal   |   | DL/2 Log-Transformed   |                                 |
| Mean in Original Scale  | 0.0167  | Mean in Log Scale  | -5.307                          |
| SD in Original Scale  | 0.0204  | SD in Log Scale  | 2.277                           |
| 95% t UCL (Assumes normality)   |   | 95% H-Stat UCL   | 0.283                           |
|   |   | ded for comparisons and historical reasons   |                                 |
|   |   |  |                                 |
| Nonparam  | etric Distribu  | tion Free UCL Statistics   |                                 |
| Data do r   | not follow a D  | Discernible Distribution   |                                 |
|   | <u> </u>  |  |                                 |
|   |   | UCL to Use   |                                 |
| 95% KM (t) UCL  | 1.5035E-4   |  |                                 |
|   |   |  |                                 |
| Note: Suggestions regarding the selection of a 95   | 4 UCL are pr  | avided to help the user to select the most appropriate 95% LCL   |                                 |
|   |   | ovided to help the user to select the most appropriate 95% UCL   |                                 |
| Recommendations are based upon data size  | , data distrib  | ution, and skewness using results from simulation studies.   |                                 |
| Recommendations are based upon data size  | , data distrib  |  |                                 |
| Recommendations are based upon data size  | , data distrib  | ution, and skewness using results from simulation studies.   |                                 |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | , data distrib  | ution, and skewness using results from simulation studies.   |                                 |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | e, data distrib<br>Vorld data se                            | ution, and skewness using results from simulation studies.   |                                 |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V  | e, data distrib<br>Vorld data se<br>General                 | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici   |                                 |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>c (groundwater   toluene   108-88-3)  | e, data distrib<br>Vorld data se<br>General<br>43           | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici<br>Statistics   | an.                             |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>(groundwater   toluene   108-88-3)<br>Total Number of Observations  | e, data distrib<br>Vorld data se<br>General<br>43<br>6      | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations  | an.<br>13                       |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>(groundwater   toluene   108-88-3)<br>Total Number of Observations<br>Number of Detects   | e, data distrib<br>Vorld data se<br>General<br>43<br>6<br>5 | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects   | an.<br>13<br>37<br>8            |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>(groundwater   toluene   108-88-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects                     | General<br>43<br>6<br>5<br>2.0000E-4                        | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects                       | an.<br>13<br>37<br>8            |
| Recommendations are based upon data size<br>However, simulations results will not cover all Real V<br>c (groundwater   toluene   108-88-3)<br>Total Number of Observations<br>Number of Detects<br>Number of Distinct Detects<br>Minimum Detect | General<br>43<br>6<br>5<br>2.0000E-4<br>8.5000E-4           | ution, and skewness using results from simulation studies.<br>ts; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations<br>Number of Non-Detects<br>Number of Distinct Non-Detects<br>Minimum Non-Detect | an.<br>13<br>37<br>8<br>6.8000E |

|                                  | 4 00005 4     |   | 0.504     |
|----------------------------------|---------------|---|-----------|
| Median Detects                   |               | CV Detects  | 0.584     |
| Skewness Detects                 | 0.722         | Kurtosis Detects  | -0.59     |
| Mean of Logged Detects           | -7.873        | SD of Logged Detects  | 0.602     |
|                                  |               |   |           |
|                                  |               | t on Detects Only   |           |
| Shapiro Wilk Test Statistic      | 0.903         | Shapiro Wilk GOF Test   |           |
| 1% Shapiro Wilk Critical Value   | 0.713         | Detected Data appear Normal at 1% Significance Lev              | vel       |
| Lilliefors Test Statistic        | 0.209         | Lilliefors GOF Test   |           |
| 1% Lilliefors Critical Value     | 0.373         | Detected Data appear Normal at 1% Significance Lev              | vel       |
|                                  |               | nal at 1% Significance Level                                    |           |
| Note GOF tests                   | may be unre   | eliable for small sample sizes                                  |           |
|                                  |               |   |           |
| Kaplan-Meier (KM) Statistics usi | ng Normal C   | critical Values and other Nonparametric UCLs                    |           |
| KM Mean                          | 4.0083E-4     | KM Standard Error of Mean                                       | 8.4606E-5 |
| 90KM SD                          | 2.0625E-4     | 95% KM (BCA) UCL  | 5.4667E-4 |
| 95% KM (t) UCL                   | 5.4314E-4     | 95% KM (Percentile Bootstrap) UCL                               | 5.5000E-4 |
| 95% KM (z) UCL                   | 5.4000E-4     | 95% KM Bootstrap t UCL  | 5.7616E-4 |
| 90% KM Chebyshev UCL             | 6.5465E-4     | 95% KM Chebyshev UCL  | 7.6962E-4 |
| 97.5% KM Chebyshev UCL           | 9.2919E-4     | 99% KM Chebyshev UCL  | 0.00124   |
| Note: KM UCLs may be biased low  | with this da  | taset. Other substitution method recommended                    |           |
|                                  |               |   |           |
| Gamma GOF                        | Tests on De   | etected Observations Only                                       |           |
| A-D Test Statistic               | 0.333         | Anderson-Darling GOF Test                                       |           |
| 5% A-D Critical Value            | 0.701         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| K-S Test Statistic               | 0.204         | Kolmogorov-Smirnov GOF  |           |
| 5% K-S Critical Value            | 0.334         | Detected data appear Gamma Distributed at 5% Significan         | ce Level  |
| Detected data appear             | Gamma Di      | stributed at 5% Significance Level                              |           |
|                                  |               | eliable for small sample sizes                                  |           |
|                                  | •             | · · · · · · · · · · · · · · · · · · ·                           |           |
| Gamma                            | Statistics or | n Detected Data Only  |           |
| k hat (MLE)                      | 3.543         | k star (bias corrected MLE)                                     | 1.883     |
| Theta hat (MLE)                  |               | Theta star (bias corrected MLE)                                 |           |
| nu hat (MLE)                     | 42.52         | nu star (bias corrected)  | 22.59     |
| Mean (detects)                   |               |   | 22.00     |
| Wear (delects)                   | 4.4107L-4     |   |           |
| 0.000 B00                        | 04            | along Invested New Data sta                                     |           |
|                                  |               | sing Imputed Non-Detects  |           |
|                                  |               | 6 NDs with many tied observations at multiple DLs               |           |
|                                  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |           |
|                                  |               | yield incorrect values of UCLs and BTVs                         |           |
|                                  | -             | en the sample size is small.                                    |           |
|                                  |               | y be computed using gamma distribution on KM estimates          |           |
|                                  | 2.0000E-4     | Mean  | 0.00867   |
| Maximum                          | 0.01          | Median  | 0.01      |
| SD                               | 0.00335       | CV  | 0.387     |
| k hat (MLE)                      | 1.747         | k star (bias corrected MLE)                                     | 1.64      |
| Theta hat (MLE)                  | 0.00496       | Theta star (bias corrected MLE)                                 | 0.00528   |
| nu hat (MLE)                     | 150.2         | nu star (bias corrected)  | 141.1     |
|                                  |               |   |           |
| Theta hat (MLE)                  | 0.00496       | Theta star (bias corrected MLE)                                 | 0.00528   |

| Approximate Chi Square Value (141.07, α)                     | 114.6          | Adjusted Chi Square Value (141.07, β)                                       | 113.8     |
|--|----------------|---|-----------|
| 95% Gamma Approximate UCL                                    |                | 95% Gamma Adjusted UCL  | 0.0107    |
|  | 0.0107         |   | 0.0107    |
| Estimates of G   | iamma Para     | meters using KM Estimates   |           |
| Mean (KM)  | 4.0083E-4      | SD (KM)   | 2.0625E-4 |
| Variance (KM)  | 4.2541E-8      | SE of Mean (KM)   | 8.4606E-5 |
| k hat (KM)   | 3.777          | k star (KM)   | 3.529     |
| nu hat (KM)  | 324.8          | nu star (KM)  | 303.5     |
| theta hat (KM)   | 1.0613E-4      | theta star (KM)   | 1.1359E-4 |
| 80% gamma percentile (KM)                                    | 5.6081E-4      | 90% gamma percentile (KM)   | 6.8694E-4 |
| 95% gamma percentile (KM)                                    | 8.0370E-4      | 99% gamma percentile (KM)   | 0.00105   |
|  |                |   |           |
|  | -              | eier (KM) Statistics  |           |
| Approximate Chi Square Value (303.47, α)                     |                | Adjusted Chi Square Value (303.47, $\beta$ )                                | 262.8     |
| 95% KM Approximate Gamma UCL                                 |                | 95% KM Adjusted Gamma UCL   | 4.6279E-4 |
| Note: KM UCLs may be biased low                              | v with this da | taset. Other substitution method recommended                                |           |
|  |                |   |           |
|  |                | Detected Observations Only  |           |
| Shapiro Wilk Test Statistic                                  |                | Shapiro Wilk GOF Test   |           |
| 10% Shapiro Wilk Critical Value<br>Lilliefors Test Statistic |                | Detected Data appear Lognormal at 10% Significance I<br>Lilliefors GOF Test | Level     |
| 10% Lilliefors Critical Value                                |                | Detected Data appear Lognormal at 10% Significance I                        | ovol      |
|  |                | mal at 10% Significance Level   |           |
| -  |                | eliable for small sample sizes  |           |
|  |                |   |           |
| Lognormal RO   | S Statistics   | Using Imputed Non-Detects   |           |
| Mean in Original Scale                                       |                | Mean in Log Scale   | -7.975    |
| SD in Original Scale   |                | SD in Log Scale   | 0.481     |
| 95% t UCL (assumes normality of ROS data)                    |                | 95% Percentile Bootstrap UCL  | 4.3458E-4 |
| 95% BCA Bootstrap UCL  |                | 95% Bootstrap t UCL   |           |
| 95% H-UCL (Log ROS)  |                | · · · ·   |           |
|  |                |   |           |
| Statistics using KM estimates                                | on Logged      | Data and Assuming Lognormal Distribution                                    |           |
| KM Mean (logged)   | -7.953         | KM Geo Mean   | 3.5165E-4 |
| KM SD (logged)   | 0.511          | 95% Critical H Value (KM-Log)   | 1.909     |
| KM Standard Error of Mean (logged)                           | 0.221          | 95% H-UCL (KM -Log)   | 4.6586E-4 |
| KM SD (logged)   | 0.511          | 95% Critical H Value (KM-Log)   | 1.909     |
| KM Standard Error of Mean (logged)                           | 0.221          |   |           |
| Note: KM UCLs may be biased low                              | v with this da | taset. Other substitution method recommended                                |           |
|  |                |   |           |
|  | DL/2 S         | tatistics   |           |
| DL/2 Normal  |                | DL/2 Log-Transformed  |           |
| Mean in Original Scale                                       |                | Mean in Log Scale   | -7.517    |
| SD in Original Scale   |                | SD in Log Scale   | 0.554     |
| 95% t UCL (Assumes normality)                                |                | 95% H-Stat UCL  | 7.4826E-4 |
| DL/2 is not a recommended m                                  | ethod, provi   | ded for comparisons and historical reasons                                  |           |
|  |                |   |           |
| Nonparame  | etric Distribu | tion Free UCL Statistics  |           |

| Detected Data appear                                     | Normal      | Distributed at 1% Significance Level                                     |    |
|--|-------------|--|----|
|  | Suggeste    | ed UCL to Use  |    |
| 95% KM (t) UCL   |             |  |    |
|  |             |  |    |
| Note: Suggestions regarding the selection of a 95%       | UCL are     | provided to help the user to select the most appropriate 95% UCL.        |    |
| Recommendations are based upon data size,                | data distr  | ibution, and skewness using results from simulation studies.             |    |
| However, simulations results will not cover all Real We  | orld data   | sets; for additional insight the user may want to consult a statistician | 1. |
| C (groundwater   trans-1,2-dichloroethene   156-60-5)    |             |  |    |
|  | Gener       | al Statistics  |    |
| Total Number of Observations                             | 36          | Number of Distinct Observations  | 4  |
| Number of Detects  | 0           | Number of Non-Detects  | 36 |
| Number of Distinct Detects                               | 0           | Number of Distinct Non-Detects   | 4  |
|  |             |  |    |
|  |             | herefore all statistics and estimates should also be NDs!                |    |
| Specifically, sample mean, UCLs, UPLs, and               | other sta   | atistics are also NDs lying below the largest detection limit!           |    |
| The Project Team may decide to use alternative sit       | e specifi   | c values to estimate environmental parameters (e.g., EPC, BTV).          |    |
|  |             |  |    |
| The data set for variable C (groundwa                    | ter   trans | s-1,2-dichloroethene   156-60-5) was not processed!                      |    |
|  |             |  |    |
| C (groundwater   trans-1,4-dichloro-2-butene   110-57-6) |             |  |    |
|  |             |  |    |
| Total Number of Observations                             | 13          | al Statistics Number of Distinct Observations                            |    |
| Number of Detects  | 0           | Number of Distinct Observations Number of Non-Detects                    | 2  |
| Number of Distinct Detects                               | 0           | Number of Non-Detects  | 2  |
|  | 0           |  | 2  |
| Warning: All observations are Non-Detects                | (NDs). t    | herefore all statistics and estimates should also be NDs!                |    |
|  |             | atistics are also NDs lying below the largest detection limit!           |    |
|  |             | c values to estimate environmental parameters (e.g., EPC, BTV).          |    |
|  |             |  |    |
| The data set for variable C (groundwate                  | er   trans- | 1,4-dichloro-2-butene   110-57-6) was not processed!                     |    |
|  |             |  |    |
|  |             |  |    |
| C (groundwater   trichloroethene   79-01-6)              |             |  |    |
|  |             |  |    |
|  | Gener       | al Statistics  |    |
| Total Number of Observations                             | 36          | Number of Distinct Observations  | 4  |
| Number of Detects  | 0           | Number of Non-Detects  | 36 |
| Number of Distinct Detects                               | 0           | Number of Distinct Non-Detects   | 4  |
| Warning: All observations are Non-Detects                | : (NDe) +   | herefore all statistics and estimates should also be NDs!                |    |
|  | · ·         | atistics are also NDs lying below the largest detection limit!           |    |
|  |             | c values to estimate environmental parameters (e.g., EPC, BTV).          |    |
|  |             |  |    |

| The data set for variable C (gro                   | undwater   tr  | ichloroethene   79-01-6) was not processed!                  |        |
|--|----------------|--|--------|
|  |                |  |        |
| C (groundwater   trichlorofluoromethane   75-69-4) |                |  |        |
|  |                |  |        |
|  | General        |  |        |
| Total Number of Observations                       |                | Number of Distinct Observations                              | 5      |
| Number of Detects                                  | 0              | Number of Non-Detects  | 36     |
| Number of Distinct Detects                         | 0              | Number of Distinct Non-Detects                               | 5      |
| Warning: All observations are Non-Detec            | ts (NDs), the  | refore all statistics and estimates should also be NDs!      |        |
| Specifically, sample mean, UCLs, UPLs, an          | d other statis | stics are also NDs lying below the largest detection limit!  |        |
| The Project Team may decide to use alternative s   | ite specific v | alues to estimate environmental parameters (e.g., EPC, BTV). |        |
| The data set for veriable C (ground                | water Ltrichl  |  |        |
|  | water   trichi | orofluoromethane   75-69-4) was not processed!               |        |
|  |                |  |        |
| C (groundwater   vanadium   7440-62-2)             |                |  |        |
|  |                |  |        |
|  | General        |  |        |
| Total Number of Observations                       | 41             | Number of Distinct Observations                              | 22     |
| Number of Detects                                  | 18             | Number of Non-Detects  | 23     |
| Number of Distinct Detects                         | 18             | Number of Distinct Non-Detects                               | 4      |
| Minimum Detect                                     | 0.0022         | Minimum Non-Detect   | 0.0044 |
| Maximum Detect                                     | 0.064          | Maximum Non-Detect   | 0.01   |
| Variance Detects                                   |                | Percent Non-Detects  | 56.1%  |
| Mean Detects                                       | 0.00993        | SD Detects   | 0.0139 |
| Median Detects                                     | 0.00665        | CV Detects   | 1.404  |
| Skewness Detects                                   | 3.801          | Kurtosis Detects   | 15.34  |
| Mean of Logged Detects                             | -5.011         | SD of Logged Detects   | 0.792  |
| Norm   | nal GOF Tes    | t on Detects Only  |        |
| Shapiro Wilk Test Statistic                        | 0.481          | Shapiro Wilk GOF Test  |        |
| 1% Shapiro Wilk Critical Value                     | 0.858          | Detected Data Not Normal at 1% Significance Level            |        |
| Lilliefors Test Statistic                          | 0.33           | Lilliefors GOF Test  |        |
| 1% Lilliefors Critical Value                       | 0.235          | Detected Data Not Normal at 1% Significance Level            |        |
| Detected Dat                                       | a Not Norma    | I at 1% Significance Level                                   |        |
|  |                |  |        |
| Kaplan-Meier (KM) Statistics usi                   | ng Normal C    | ritical Values and other Nonparametric UCLs                  |        |
| KM Mean  | 0.00659        | KM Standard Error of Mean                                    | 0.0015 |
| 90KM SD  | 0.00955        | 95% KM (BCA) UCL   | 0.0097 |
| 95% KM (t) UCL                                     | 0.00921        | 95% KM (Percentile Bootstrap) UCL                            | 0.0094 |
| 95% KM (z) UCL                                     | 0.00915        | 95% KM Bootstrap t UCL                                       | 0.0131 |
| 90% KM Chebyshev UCL                               | 0.0113         | 95% KM Chebyshev UCL   | 0.0134 |
| 97.5% KM Chebyshev UCL                             | 0.0163         | 99% KM Chebyshev UCL   | 0.0221 |
| Gamma GOF  | Tests on De    | etected Observations Only                                    |        |
| A-D Test Statistic                                 |                | Anderson-Darling GOF Test                                    |        |
|  | ,              |  |        |

| 5% A-D Critical Value                    | 0.758         | Detected Data Not Gamma Distributed at 5% Significance          | Level   |
|--|---------------|---|---------|
| K-S Test Statistic                       | 0.209         | Kolmogorov-Smirnov GOF  |         |
| 5% K-S Critical Value                    | 0.208         | Detected Data Not Gamma Distributed at 5% Significance          | Level   |
| Detected Data Not                        | Gamma Dist    | ributed at 5% Significance Level                                |         |
|  |               |   |         |
|  |               | Detected Data Only  | 4 4 9 9 |
| k hat (MLE)                              |               | k star (bias corrected MLE)                                     | 1.199   |
| Theta hat (MLE)                          | 0.00712       | Theta star (bias corrected MLE)                                 | 0.00828 |
| nu hat (MLE)                             | 50.21         | nu star (bias corrected)  | 43.17   |
| Mean (detects)                           | 0.00993       |   |         |
| Gamma BOS                                | Statistics up | sing Imputed Non-Detects  |         |
|  |               | 5 NDs with many tied observations at multiple DLs               |         |
|  |               | s <1.0, especially when the sample size is small (e.g., <15-20) |         |
|  |               | yield incorrect values of UCLs and BTVs                         |         |
|  | -             | en the sample size is small.                                    |         |
|  |               | be computed using gamma distribution on KM estimates            |         |
| Minimum                                  | <b>T</b>      | Mean  | 0.0101  |
| Maximum                                  |               | Median  | 0.01    |
| SD                                       | 0.00911       | CV  | 0.906   |
| k hat (MLE)                              | 2.99          | k star (bias corrected MLE)                                     | 2.787   |
| Theta hat (MLE)                          | 0.00336       | Theta star (bias corrected MLE)                                 | 0.00361 |
| nu hat (MLE)                             |               | nu star (bias corrected)  | 228.6   |
| Adjusted Level of Significance (β)       | 0.0441        |   | 220.0   |
| Approximate Chi Square Value (228.55, α) |               | Adjusted Chi Square Value (228.55, β)                           | 193.4   |
| 95% Gamma Approximate UCL                | 0.0118        | 95% Gamma Adjusted UCL  | 0.0119  |
|  |               |   |         |
|  |               | meters using KM Estimates                                       |         |
| Mean (KM)                                |               | SD (KM)   | 0.00955 |
| Variance (KM)                            | 9.1182E-5     | SE of Mean (KM)   | 0.00156 |
| k hat (KM)                               | 0.476         | k star (KM)   | 0.457   |
| nu hat (KM)                              | 39            | nu star (KM)  | 37.48   |
| theta hat (KM)                           | 0.0138        | theta star (KM)   | 0.0144  |
| 80% gamma percentile (KM)                | 0.0108        | 90% gamma percentile (KM)                                       | 0.0181  |
| 95% gamma percentile (KM)                | 0.0261        | 99% gamma percentile (KM)                                       | 0.0459  |
| 0  | . Kaulan M    |   |         |
|  | -             | eier (KM) Statistics  | 24.00   |
| Approximate Chi Square Value (37.48, α)  |               | Adjusted Chi Square Value (37.48, β)                            | 24.08   |
| 95% KM Approximate Gamma UCL             | 0.0101        | 95% KM Adjusted Gamma UCL                                       | 0.0103  |
| Lognormal GC                             | OF Test on D  | etected Observations Only                                       |         |
| Shapiro Wilk Test Statistic              |               | Shapiro Wilk GOF Test   |         |
| 10% Shapiro Wilk Critical Value          |               | Detected Data Not Lognormal at 10% Significance Lev             | /el     |
| Lilliefors Test Statistic                |               | Lilliefors GOF Test   |         |
| 10% Lilliefors Critical Value            |               | Detected Data appear Lognormal at 10% Significance L            | evel    |
|  |               | Lognormal at 10% Significance Level                             |         |
|  |               |   |         |
| Lognormal RO                             | S Statistics  | Using Imputed Non-Detects                                       |         |
| Logioinario                              |               |   |         |

|   |                 | vations before using these statistical methods!<br>ves (DQO) based sample size and analytical results.                        |                 |
|---|-----------------|---|-----------------|
| It is suggested to collect at least 0               | to 10 shaan     | retions before using these statistical mathedal   |                 |
|   |                 |   |                 |
| -   |                 | inyl acetate   108-05-4) was not processed!   |                 |
| -   |                 | and meaningful statistics and estimates!  |                 |
| Warning: Th   | nis data set c  | only has 1 observations!  |                 |
| Number of Distinct Detects                          | 0               | Number of Distinct Non-Detects  | 1               |
| Number of Detects                                   | 0               | Number of Non-Detects   | 1               |
| Total Number of Observations                        | 1               | Number of Distinct Observations   | 1               |
|   | General S       |   |                 |
| C (groundwater   vinyl acetate   108-05-4)          |                 |   |                 |
|   |                 | · · · · · · · · · · · · · · · · · · ·   |                 |
|   |                 | s; for additional insight the user may want to consult a statisticia  | n.              |
|   |                 | ovided to help the user to select the most appropriate 95% UCL.<br>Ition, and skewness using results from simulation studies. |                 |
| Note: Suggestions recording the collection of a 050 |                 | wided to help the upprite collect the most environments OF% LIOL  |                 |
| then contact a                                      | statistician to | o correctly calculate UCLs.   |                 |
|   |                 | nental or other non-random methods,   |                 |
| · · · · · · · · · · · · · · · · · · ·               |                 | data were collected in a random and unbiased manner.<br>llected from random locations.  |                 |
| The shaded UQL are been deeper                      |                 |   |                 |
| KM H-UCL  | Suggested U     |   |                 |
|   | <u> </u>        |   |                 |
| Detected Data appear Approxi                        | imate Lognor    | mal Distributed at 10% Significance Level   |                 |
| Nonparame   | etric Distribut | ion Free UCL Statistics   |                 |
| DL/2 is not a recommended me                        | ethod, provid   | led for comparisons and historical reasons  |                 |
| 95% t UCL (Assumes normality)                       | 0.00905         | 95% H-Stat UCL  | 0.00723         |
| SD in Original Scale                                | 0.00964         | SD in Log Scale   | 0.654           |
| Mean in Original Scale                              | 0.00652         | Mean in Log Scale   | -5.351          |
| DL/2 Normal   |                 | DL/2 Log-Transformed  |                 |
|   | DL/2 St         | atistics  |                 |
| KM Standard Error of Mean (logged)                  | 0.123           |   |                 |
| KM SD (logged)                                      | 0.653           | 95% Critical H Value (KM-Log)   | 2.014           |
| KM Standard Error of Mean (logged)                  | 0.123           | 95% H-UCL (KM -Log)   | 0.0072          |
| KM SD (logged)                                      | 0.653           | 95% Critical H Value (KM-Log)   | 2.014           |
| KM Mean (logged)                                    | -5.346          | KM Geo Mean   | 0.0047          |
| Statistics using KM estimates                       | on Logged D     | Data and Assuming Lognormal Distribution  |                 |
|   |                 |   |                 |
| 95% H-UCL (Log ROS)                                 | 0.0076          |   |                 |
| 95% BCA Bootstrap UCL                               | 0.00010         | 95% Bootstrap t UCL   | 0.0000          |
| 95% t UCL (assumes normality of ROS data)           | 0.00908         | 95% Percentile Bootstrap UCL  | 0.0095          |
| Mean in Original Scale<br>SD in Original Scale      | 0.00663         | Mean in Log Scale<br>SD in Log Scale  | -5.355<br>0.703 |
|   |                 |   |                 |

|  | -Detects<br>-Detects<br>imit!<br>PC, BTV | s 36<br>s 5<br>v). |
|--|--|--------------------|
| Total Number of Observations       36       Number of Distinct Observations         Number of Distinct Detects       0       Number of Non         Number of Distinct Detects       0       Number of Distinct Non         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be ND       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E       The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         (groundwater   xylenes (total)   1330-20-7)       Ceneral Statistics         (groundwater   xylenes (total)   1330-20-7)       43         Number of Distinct Detects       3         Numbe  | -Detects<br>-Detects<br>imit!<br>PC, BTV | s 36<br>s 5<br>v). |
| Total Number of Observations       36       Number of Distinct Observations         Number of Distinct Detects       0       Number of Non         Number of Distinct Detects       0       Number of Distinct Non         Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be ND       Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E       Image: Comparison of Distinct Detects         (groundwater   xylenes (total)   1330-20-7)       Eceneral Statistics         General Statistics         Image: Total Number of Detects       3         Number of Distinct Detects       3         Number of Detects       3         Number of Di  | -Detects<br>-Detects<br>imit!<br>PC, BTV | s 36<br>s 5<br>v). |
| Number of Detects         0         Number of Non           Number of Distinct Detects         0         Number of Distinct Non           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be ND         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E         Image: Comparison of Distinct Detects           The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         Image: Comparison of Distinct Detects           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Detects           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Detects           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (groundwater   xylenes (total)   1330-20-7)         43         Number of Distinct Obsec           (grou | -Detects<br>-Detects<br>imit!<br>PC, BTV | s 36<br>s 5<br>v). |
| Number of Distinct Detects         0         Number of Distinct Non           Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be ND         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I           The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E         The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!           (groundwater   xylenes (total)   1330-20-7)         Ceneral Statistics           (groundwater   xylenes (total)   1330-20-7)         All           Number of Deservations         43           Number of Distinct Detects         3           Number of Detects         3           Number of Detects         0.006           Maximum Detect         0.00283           Specifical Detects         0.00283           Specifical Detects         1.206           Mean of Logged Detects         1.   | -Detects<br>imit!<br>PC, BTV             | ×).                |
| Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be ND         Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E         The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         (groundwater   xylenes (total)   1330-20-7)         General Statistics         (groundwater   xylenes (total)   1330-20-7)         General Statistics         Mumber of Detects       3         Number of Distinct Detects       3         Number of Detects       0.000E-4         Minimum No       Maximum No         Variance Detects       0.00283         Specifical Detects       0.002         Kewness Detects       1.206         Kurtosis       Mean of Logged Detects         -6.311       SD of Logged   | ervations                                | v).                |
| Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection I         The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E         The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         (groundwater   xylenes (total)   1330-20-7)         General Statistics         (groundwater   xylenes (total)   1330-20-7)         General Statistics         Mumber of Observations       43         Number of Distinct Observations       Number of Non         Number of Distinct Detects       3       Number of Non         Minimum Detect       5.0000E-4       Minimum No         Maximum Detects       0.006       Maximum No         Variance Detects       8.0833E-6       Percent Non         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       6-311       SD of Logged         Warning: Data set has only 3 Detected Values.       Warning: Data set has only 3 Detected Values.  | imit!<br>PC, BTV                         | s 12               |
| The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., E         The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         General Statistics         (groundwater   xylenes (total)   1330-20-7)         General Statistics         Total Number of Observations         43       Number of Distinct Observations         Number of Distinct Detects       3         Minimum Detect       5.0000E-4         Maximum Detect       0.006         Maximum No       Variance Detects         8.0833E-6       Percent Non         Mean Detects       0.002         Skewness Detects       1.206         Kurtosis       Mean of Logged Detects         Mean of Logged Detects       -6.311         SD of Logged       Warning: Data set has only 3 Detected Values.   | PC, BTV                                  | s 12               |
| The data set for variable C (groundwater   vinyl chloride   75-01-4) was not processed!         Number of Distinct Detects         Number of Distinct Detects       3         Number of Distinct Detects       3       Number of Distinct Non         Maximum Detect       0.006       Maximum No         Mean Detects       0.002       CV         Mean of Logged Detects   | ervations                                | s 12               |
| (groundwater   xylenes (total)   1330-20-7)           General Statistics           Total Number of Observations         43         Number of Distinct Observations           Number of Distinct Detects         3         Number of Non           Number of Distinct Detects         3         Number of Distinct Non           Minimum Detect         5.0000E-4         Minimum No           Maximum Detect         0.006         Maximum No           Variance Detects         8.0833E-6         Percent Non           Median Detects         0.00283         SD           Median Detects         1.206         Kurtosis           Mean of Logged Detects         -6.311         SD of Logged  |  | ·                  |
| General Statistics         Total Number of Observations       43       Number of Distinct Observations         Number of Detects       3       Number of Non         Number of Distinct Detects       3       Number of Distinct Non         Minimum Detect       5.0000E-4       Minimum No         Maximum Detect       0.006       Maximum No         Variance Detects       8.0833E-6       Percent Non         Mean Detects       0.00283       SD         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       -6.311       SD of Logged   |  | ·                  |
| Total Number of Observations43Number of Distinct ObservationsNumber of Detects3Number of NonNumber of Distinct Detects3Number of Distinct NonMinimum Detect5.0000E-4Minimum NoMaximum Detect0.006Maximum NoVariance Detects8.0833E-6Percent NonMean Detects0.00283SDMedian Detects0.002CVSkewness Detects1.206KurtosisMean of Logged Detects-6.311SD of LoggedWarning: Data set has only 3 Detected Values.  |  | ·                  |
| Total Number of Observations43Number of Distinct ObservationsNumber of Detects3Number of NonNumber of Distinct Detects3Number of Distinct NonMinimum Detect5.0000E-4Minimum NoMaximum Detect0.006Maximum NoVariance Detects8.0833E-6Percent NonMean Detects0.00283SDMedian Detects0.002CVSkewness Detects1.206KurtosisMean of Logged Detects-6.311SD of LoggedWarning: Data set has only 3 Detected Values.  |  | ·                  |
| Number of Detects       3       Number of Non         Number of Distinct Detects       3       Number of Distinct Non         Minimum Detect       5.0000E-4       Minimum No         Maximum Detect       0.006       Maximum No         Variance Detects       8.0833E-6       Percent Non         Mean Detects       0.00283       SD         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       -6.311       SD of Logged  |  | ·                  |
| Number of Distinct Detects       3       Number of Distinct Non         Minimum Detect       5.0000E-4       Minimum No         Maximum Detect       0.006       Maximum No         Variance Detects       8.0833E-6       Percent Non         Mean Detects       0.00283       SD         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       -6.311       SD of Logged  | Detecto                                  | s 40               |
| Minimum Detect     5.0000E-4     Minimum No       Maximum Detect     0.006     Maximum No       Variance Detects     8.0833E-6     Percent Non       Mean Detects     0.00283     SD       Median Detects     0.002     CV       Skewness Detects     1.206     Kurtosis       Mean of Logged Detects     -6.311     SD of Logged  |  | -                  |
| Maximum Detect       0.006       Maximum No         Variance Detects       8.0833E-6       Percent Non         Mean Detects       0.00283       SD         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       -6.311       SD of Logged  |  |                    |
| Variance Detects       8.0833E-6       Percent Non         Mean Detects       0.00283       SD         Median Detects       0.002       CV         Skewness Detects       1.206       Kurtosis         Mean of Logged Detects       -6.311       SD of Logged  |  |                    |
| Mean Detects     0.00283     SD       Median Detects     0.002     CV       Skewness Detects     1.206     Kurtosis       Mean of Logged Detects     -6.311     SD of Logged   |  |                    |
| Median Detects     0.002     CV       Skewness Detects     1.206     Kurtosis       Mean of Logged Detects     -6.311     SD of Logged   |  |                    |
| Skewness Detects     1.206     Kurtosis       Mean of Logged Detects     -6.311     SD of Logged       Warning: Data set has only 3 Detected Values.   | Detects                                  |                    |
| Mean of Logged Detects     -6.311     SD of Logged       Warning: Data set has only 3 Detected Values.   | / Detects                                |                    |
| Warning: Data set has only 3 Detected Values.  |  | -                  |
| - · · · ·  | Detects                                  | s 1.24             |
| This is not enough to compute meaningful or reliable statistics and estimates.   |  |                    |
|  |  |                    |
|  |  |                    |
|  |  |                    |
| Normal GOF Test on Detects Only  |  |                    |
| Shapiro Wilk Test Statistic 0.936 Shapiro Wilk GOF Test  |  |                    |
| 1% Shapiro Wilk Critical Value 0.753 Detected Data appear Normal at 1% Signific  | cance Le                                 | evel               |
| Lilliefors Test Statistic 0.282 Lilliefors GOF Test  |  |                    |
| 1% Lilliefors Critical Value 0.429 Detected Data appear Normal at 1% Signific  | cance Le                                 | evel               |
| Detected Data appear Normal at 1% Significance Level   |  |                    |
| Note GOF tests may be unreliable for small sample sizes  |  |                    |
| Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs   |  |                    |
| KM Mean 7.4542E-4 KM Standard Error  | of Mean                                  | 12.0767F           |
| 90KM SD 9.3381E-4 95% KM (BC   |  |                    |
| 95% KM (t) UCL 0.00109 95% KM (Percentile Bootstr  | -  |                    |
| 95% KM (t) OCL         0.00109         95% KM (Percentile Bootstr           95% KM (z) UCL         0.00109         95% KM Bootstra   |  |                    |
| 95% KM (2) UCL 0.00109 95% KM Bootstra<br>90% KM Chebyshev UCL 0.00137 95% KM Chebysh  |  |                    |

|   | 0.00004       |   | 0.00001   |  |  |  |
|---|---------------|---|-----------|--|--|--|
| 97.5% KM Chebyshev UCL                      | 0.00204       | 99% KM Chebyshev UCL  | 0.00281   |  |  |  |
| Gamma GOF                                   | Tests on De   | etected Observations Only   |           |  |  |  |
| A-D Test Statistic                          | 0.247         | Anderson-Darling GOF Test   |           |  |  |  |
| 5% A-D Critical Value                       | 0.64          | Detected data appear Gamma Distributed at 5% Significance L         |           |  |  |  |
| K-S Test Statistic                          | 0.227         | 27 Kolmogorov-Smirnov GOF   |           |  |  |  |
| 5% K-S Critical Value                       | 0.439         | 0.439 Detected data appear Gamma Distributed at 5% Significance Lev |           |  |  |  |
| Detected Data Not                           | Gamma Dist    | ributed at 5% Significance Level                                    |           |  |  |  |
| Gamma                                       | Statistics or | n Detected Data Only  |           |  |  |  |
| k hat (MLE)                                 | 1.266         | k star (bias corrected MLE)   | N/A       |  |  |  |
| Theta hat (MLE)                             | 0.00224       | Theta star (bias corrected MLE)                                     | N/A       |  |  |  |
| nu hat (MLE)                                | 7.598         | nu star (bias corrected)  | N/A       |  |  |  |
| Mean (detects)                              | 0.00283       |   |           |  |  |  |
|   |               |   |           |  |  |  |
|   |               | sing Imputed Non-Detects  |           |  |  |  |
|   |               | NDs with many tied observations at multiple DLs                     |           |  |  |  |
|   |               | s <1.0, especially when the sample size is small (e.g., <15-20)     |           |  |  |  |
| For such situations, GROS                   | method may    | yield incorrect values of UCLs and BTVs                             |           |  |  |  |
| This is especi                              | ally true whe | en the sample size is small.  |           |  |  |  |
| For gamma distributed detected data, BTVs a | ind UCLs ma   | y be computed using gamma distribution on KM estimates              |           |  |  |  |
| Minimum                                     | 5.0000E-4     | Mean  | 0.0095    |  |  |  |
| Maximum                                     | 0.01          | Median  | 0.01      |  |  |  |
| SD  | 0.00195       | CV  | 0.205     |  |  |  |
| k hat (MLE)                                 | 7.55          | k star (bias corrected MLE)   | 7.039     |  |  |  |
| Theta hat (MLE)                             | 0.00126       | Theta star (bias corrected MLE)                                     | 0.00135   |  |  |  |
| nu hat (MLE)                                | 649.3         | nu star (bias corrected)  | 605.3     |  |  |  |
| Adjusted Level of Significance (β)          | 0.0444        |   |           |  |  |  |
| Approximate Chi Square Value (605.34, α)    | 549.3         | Adjusted Chi Square Value (605.34, β)                               | 547.4     |  |  |  |
| 95% Gamma Approximate UCL                   | 0.0105        | 95% Gamma Adjusted UCL  | N/A       |  |  |  |
| Estimates of G                              | amma Para     | meters using KM Estimates   |           |  |  |  |
| Mean (KM)                                   |               | -   | 9.3381E-4 |  |  |  |
| Variance (KM)                               |               | SE of Mean (KM)   |           |  |  |  |
| k hat (KM)                                  | 0.637         | k star (KM)   | 0.608     |  |  |  |
| nu hat (KM)                                 | 54.8          | nu star (KM)  | 52.31     |  |  |  |
| theta hat (KM)                              | 0.00117       | theta star (KM)   | 0.00123   |  |  |  |
| 80% gamma percentile (KM)                   | 0.00123       | 90% gamma percentile (KM)   | 0.00120   |  |  |  |
| 95% gamma percentile (KM)                   | 0.00123       | 99% gamma percentile (KM)   | 0.00445   |  |  |  |
|   | 2.00207       |   | 0.00110   |  |  |  |
| Gamm  | a Kaplan-M    | eier (KM) Statistics  |           |  |  |  |
| Approximate Chi Square Value (52.31, α)     | 36.7          | Adjusted Chi Square Value (52.31, β)                                | 36.24     |  |  |  |
| 95% KM Approximate Gamma UCL                | 0.00106       | 95% KM Adjusted Gamma UCL   | 0.00108   |  |  |  |
| Lognormal GC                                | )F Test on D  | etected Observations Only   |           |  |  |  |
| Shapiro Wilk Test Statistic                 | 0.996         | Shapiro Wilk GOF Test   |           |  |  |  |
| 10% Shapiro Wilk Critical Value             | 0.330         | Detected Data appear Lognormal at 10% Significance                  | evel      |  |  |  |
| Lilliefors Test Statistic                   | 0.197         | Lilliefors GOF Test   |           |  |  |  |
|   | 0.197         |   |           |  |  |  |

| 10% Lilliefors Critical Value  |  |  |           |
|--|--|--|-----------|
|  | 0.389  | Detected Data appear Lognormal at 10% Significance L   | _evel     |
|  |  | nal at 10% Significance Level  |           |
| Note GOF tests   | may be unrel   | liable for small sample sizes  |           |
|  |  |  |           |
| _  |  | Jsing Imputed Non-Detects  |           |
| Mean in Original Scale   |  | Mean in Log Scale  | -7.531    |
| SD in Original Scale   |  | SD in Log Scale  | 0.801     |
| 95% t UCL (assumes normality of ROS data)  | 0.00101  | 95% Percentile Bootstrap UCL   | 0.0010    |
| 95% BCA Bootstrap UCL  | 0.00115  | 95% Bootstrap t UCL  | 0.0012    |
| 95% H-UCL (Log ROS)  | 9.6483E-4  |  |           |
|  |  |  |           |
| _  |  | Data and Assuming Lognormal Distribution   |           |
| KM Mean (logged)   | -7.441   | KM Geo Mean  |           |
| KM SD (logged)   | 0.516  | 95% Critical H Value (KM-Log)  | 1.912     |
| KM Standard Error of Mean (logged)   | 0.136  | 95% H-UCL (KM -Log)  |           |
| KM SD (logged)   | 0.516  | 95% Critical H Value (KM-Log)  | 1.912     |
| KM Standard Error of Mean (logged)   | 0.136  |  |           |
| Note: KM UCLs may be biased low  | with this dat  | aset. Other substitution method recommended  |           |
|  |  |  |           |
|  | DL/2 Sta   |  |           |
| DL/2 Normal  |  | DL/2 Log-Transformed   |           |
| Mean in Original Scale   | 0.00281  | Mean in Log Scale  | -6.249    |
| SD in Original Scale   | 0.00328  | SD in Log Scale  | 0.78      |
| 95% t UCL (Assumes normality)  | 0.00365  | 95% H-Stat UCL<br>led for comparisons and historical reasons   | 0.0033    |
| •  |  | ion Free UCL Statistics<br>tributed at 1% Significance Level   |           |
|  |  |  |           |
|  |  |  |           |
| 95% KM (t) LICI  | Suggested L  | JCL to Use   |           |
| 95% KM (t) UCL   |  | JCL to Use   |           |
|  | Suggested U  |  |           |
| The calculated UCLs are based on assumpt   | Suggested L  | data were collected in a random and unbiased manner.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c  | Suggested L<br>0.00109<br>tions that the<br>data were col  | data were collected in a random and unbiased manner.<br>llected from random locations.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected  | Suggested L<br>0.00109<br>tions that the<br>data were col<br>Lusing judgm  | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,  |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a  | Suggested U<br>0.00109<br>tions that the<br>data were col<br>I using judgm<br>statistician to  | data were collected in a random and unbiased manner.<br>llected from random locations.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%  | Suggested U<br>0.00109<br>tions that the<br>data were col<br>d using judgm<br>statistician to<br>6 UCL are pro   | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,   | Suggested U<br>0.00109<br>tions that the<br>data were col<br>dusing judgm<br>statistician to<br>5 UCL are pro<br>, data distribu                                     | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested U<br>0.00109<br>tions that the<br>data were col<br>dusing judgm<br>statistician to<br>5 UCL are pro<br>, data distribu                                     | data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>pocorrectly calculate UCLs.<br>povided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested U<br>0.00109<br>tions that the<br>data were col<br>dusing judgm<br>statistician to<br>5 UCL are pro<br>, data distribu                                     | data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>pocorrectly calculate UCLs.<br>povided to help the user to select the most appropriate 95% UCL<br>tion, and skewness using results from simulation studies.   |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested U<br>0.00109<br>tions that the<br>data were col<br>dusing judgm<br>statistician to<br>5 UCL are pro<br>, data distribu                                     | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>avided to help the user to select the most appropriate 95% UCL<br>ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistici  |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W   | Suggested U<br>0.00109<br>tions that the<br>data were col<br>dusing judgm<br>statistician to<br>b UCL are pro<br>data distribu<br>/orld data sets                    | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>avided to help the user to select the most appropriate 95% UCL<br>ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistici  |           |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>c (groundwater   zinc   7440-66-6)                                 | Suggested U<br>0.00109<br>tions that the<br>data were col<br>d using judgm<br>statistician to<br>b UCL are pro<br>data distribut<br>/orld data sets<br>General S     | data were collected in a random and unbiased manner.<br>llected from random locations.<br>mental or other non-random methods,<br>o correctly calculate UCLs.<br>ovided to help the user to select the most appropriate 95% UCL<br>tition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistici<br>Statistics                                   | an.       |
| The calculated UCLs are based on assumpt<br>Please verify the c<br>If the data were collected<br>then contact a<br>Note: Suggestions regarding the selection of a 95%<br>Recommendations are based upon data size,<br>However, simulations results will not cover all Real W<br>C (groundwater   zinc   7440-66-6)<br>Total Number of Observations | Suggested U<br>0.00109<br>ions that the<br>data were col<br>d using judgm<br>statistician to<br>b UCL are pro<br>data distribu<br>/orld data sets<br>General S<br>41 | data were collected in a random and unbiased manner.<br>llected from random locations.<br>nental or other non-random methods,<br>o correctly calculate UCLs.<br>avided to help the user to select the most appropriate 95% UCL<br>ition, and skewness using results from simulation studies.<br>s; for additional insight the user may want to consult a statistici<br>Statistics<br>Number of Distinct Observations | an.<br>34 |

| Maximum Detect  | 0.422  | Maximum Non-Detect   | 0.02                               |
|---|--|--|------------------------------------|
| Variance Detects  | 0.0151   | Percent Non-Detects  | 21.95%                             |
| Mean Detects  | 0.105  | SD Detects   | 0.123                              |
| Median Detects  | 0.051  | CV Detects   | 1.168                              |
| Skewness Detects  | 1.411  | Kurtosis Detects   | 1.21                               |
| Mean of Logged Detects  | -3.071   | SD of Logged Detects   | 1.419                              |
|   | 0.071  |  |                                    |
| Norm  | al GOF Test  | t on Detects Only  |                                    |
| Shapiro Wilk Test Statistic   | 0.782  | Shapiro Wilk GOF Test  |                                    |
| 1% Shapiro Wilk Critical Value  | 0.904  | Detected Data Not Normal at 1% Significance Level  |                                    |
| Lilliefors Test Statistic   | 0.207  | Lilliefors GOF Test  |                                    |
| 1% Lilliefors Critical Value  | 0.18   | Detected Data Not Normal at 1% Significance Level  |                                    |
| Detected Data   | a Not Normal   | l at 1% Significance Level   |                                    |
|   |  |  |                                    |
|   | -  | ritical Values and other Nonparametric UCLs  | 0.010/                             |
| KM Mean   | 0.0842   | KM Standard Error of Mean  | 0.0181                             |
| 90KM SD   | 0.114  | 95% KM (BCA) UCL   | 0.114                              |
| 95% KM (t) UCL  | 0.115  | 95% KM (Percentile Bootstrap) UCL  | 0.114                              |
| 95% KM (z) UCL  | 0.114  | 95% KM Bootstrap t UCL   | 0.124                              |
| 90% KM Chebyshev UCL  | 0.139  | 95% KM Chebyshev UCL   | 0.163                              |
| 97.5% KM Chebyshev UCL  | 0.197  | 99% KM Chebyshev UCL   | 0.264                              |
| Gamma GOE   | Tests on De  | tected Observations Only   |                                    |
| A-D Test Statistic  | 0.867  | Anderson-Darling GOF Test  |                                    |
| 5% A-D Critical Value   | 0.789  | Detected Data Not Gamma Distributed at 5% Significance I   |                                    |
| K-S Test Statistic  | 0.154  | Kolmogorov-Smirnov GOF   | Level                              |
| 5% K-S Critical Value   | 0.162  | Detected data appear Gamma Distributed at 5% Significance  |                                    |
|   |  | Distribution at 5% Significance Level  | Level                              |
|   |  |  |                                    |
| Gamma   | Statistics on  | Detected Data Only   |                                    |
| k hat (MLE)   | 0.733  | k star (bias corrected MLE)  | 0.685                              |
| Theta hat (MLE)   | 0.144  | Theta star (bias corrected MLE)  | 0.154                              |
|   |  |  |                                    |
| nu nat (MLE)  | 46.91  | nu star (bias corrected)   | 43.85                              |
| nu hat (MLE)<br>Mean (detects)  | 46.91<br>0.105   | nu star (bias corrected)   | 43.85                              |
|   |  | nu star (bias corrected)   | 43.85                              |
| Mean (detects)  | 0.105  | nu star (bias corrected)   | 43.85                              |
| Mean (detects)<br>Gamma ROS   | 0.105<br>Statistics us   |  | 43.85                              |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se  | 0.105<br>Statistics us<br>et has > 50%   | sing Imputed Non-Detects   | 43.85                              |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s   | 0.105<br>Statistics us<br>et has > 50%<br>small such as  | sing Imputed Non-Detects NDs with many tied observations at multiple DLs   | 43.85                              |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r  | 0.105<br>Statistics us<br>at has > 50%<br>small such as<br>nethod may y  | sing Imputed Non-Detects NDs with many tied observations at multiple DLs s <1.0, especially when the sample size is small (e.g., <15-20)   | 43.85                              |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia   | 0.105<br>Statistics us<br>et has > 50%<br>small such as<br>method may y<br>ally true when  | sing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs  | 43.85                              |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia   | 0.105<br>Statistics us<br>et has > 50%<br>small such as<br>method may y<br>ally true when  | sing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.   |                                    |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a                              | 0.105<br>Statistics us<br>at has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs may                                     | sing Imputed Non-Detects NDs with many tied observations at multiple DLs s <1.0, especially when the sample size is small (e.g., <15-20) yield incorrect values of UCLs and BTVs n the sample size is small. y be computed using gamma distribution on KM estimates  | 0.0849                             |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs an<br>Minimum                  | 0.105<br>Statistics us<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs may<br>0.0047                           | sing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>n the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean                     | 0.0849                             |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs a<br>Minimum<br>Maximum        | 0.105<br>Statistics us<br>at has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs may<br>0.0047<br>0.422                  | sing Imputed Non-Detects NDs with many tied observations at multiple DLs s <1.0, especially when the sample size is small (e.g., <15-20) yield incorrect values of UCLs and BTVs n the sample size is small. y be computed using gamma distribution on KM estimates Mean Median                                | 0.0849                             |
| Mean (detects)<br>Gamma ROS<br>GROS may not be used when data se<br>GROS may not be used when kstar of detects is s<br>For such situations, GROS r<br>This is especia<br>For gamma distributed detected data, BTVs ar<br>Minimum<br>Maximum<br>SD | 0.105<br>Statistics us<br>et has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs may<br>0.0047<br>0.422<br>0.115         | sing Imputed Non-Detects<br>NDs with many tied observations at multiple DLs<br>s <1.0, especially when the sample size is small (e.g., <15-20)<br>yield incorrect values of UCLs and BTVs<br>In the sample size is small.<br>y be computed using gamma distribution on KM estimates<br>Mean<br>Median<br>CV    | 0.0849<br>0.0254<br>1.356          |
| Mean (detects) Gamma ROS GROS may not be used when data se GROS may not be used when kstar of detects is s For such situations, GROS r This is especia For gamma distributed detected data, BTVs ar Minimum Maximum SD k hat (MLE)                | 0.105<br>Statistics us<br>at has > 50%<br>small such as<br>method may y<br>ally true when<br>nd UCLs may<br>0.0047<br>0.422<br>0.115<br>0.67 | sing Imputed Non-Detects NDs with many tied observations at multiple DLs s <1.0, especially when the sample size is small (e.g., <15-20) yield incorrect values of UCLs and BTVs n the sample size is small. y be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) | 0.0849<br>0.0254<br>1.356<br>0.638 |

| Approximate Chi Square Value (52.28, $\alpha$ ) | 36.67        | Adjusted Chi Square Value (52.28, $\beta$ )                  | 36.2   |
|---|--------------|--|--------|
| 95% Gamma Approximate UCL                       | 0.121        | 95% Gamma Adjusted UCL                                       | 0.123  |
|   |              |  |        |
| Estimates of G                                  | amma Para    | meters using KM Estimates                                    |        |
| Mean (KM)                                       | 0.0842       | SD (KM)  | 0.114  |
| Variance (KM)                                   | 0.013        | SE of Mean (KM)  | 0.0181 |
| k hat (KM)                                      | 0.545        | k star (KM)  | 0.521  |
| nu hat (KM)                                     | 44.68        | nu star (KM)   | 42.74  |
| theta hat (KM)                                  | 0.155        | theta star (KM)  | 0.162  |
| 80% gamma percentile (KM)                       | 0.139        | 90% gamma percentile (KM)                                    | 0.226  |
| 95% gamma percentile (KM)                       | 0.319        | 99% gamma percentile (KM)                                    | 0.546  |
| 0   | o Konlon M   | ains (1/AA) Otabiation                                       |        |
| Approximate Chi Square Value (42.74, α)         | 28.75        | eier (KM) Statistics<br>Adjusted Chi Square Value (42.74, β) | 28.33  |
| 95% KM Approximate Gamma UCL                    | 0.125        | 95% KM Adjusted Gamma UCL                                    | 0.127  |
|   |              |  |        |
| Lognormal GO                                    | F Test on D  | etected Observations Only                                    |        |
| Shapiro Wilk Test Statistic                     | 0.923        | Shapiro Wilk GOF Test  |        |
| 10% Shapiro Wilk Critical Value                 | 0.941        | Detected Data Not Lognormal at 10% Significance Lev          | rel    |
| Lilliefors Test Statistic                       | 0.142        | Lilliefors GOF Test  |        |
| 10% Lilliefors Critical Value                   | 0.142        | Detected Data Not Lognormal at 10% Significance Lev          | rel    |
| Detected Data N                                 | lot Lognorm  | al at 10% Significance Level                                 |        |
|   | 2 Statistics | Using Imputed Non-Detects                                    |        |
| Mean in Original Scale                          | 0.0847       | Mean in Log Scale  | -3.418 |
| SD in Original Scale                            | 0.115        | SD in Log Scale  | 1.449  |
| 95% t UCL (assumes normality of ROS data)       | 0.115        | -  |        |
| 95% BCA Bootstrap UCL                           | 0.119        |  |        |
| 95% H-UCL (Log ROS)                             | 0.182        |  | 0.123  |
|   |              |  |        |
| Statistics using KM estimates                   | on Logged I  | Data and Assuming Lognormal Distribution                     |        |
| KM Mean (logged)                                | -3.435       | KM Geo Mean  | 0.0322 |
| KM SD (logged)                                  | 1.422        | 95% Critical H Value (KM-Log)                                | 2.854  |
| KM Standard Error of Mean (logged)              | 0.228        | 95% H-UCL (KM -Log)  | 0.168  |
| KM SD (logged)                                  | 1.422        | 95% Critical H Value (KM-Log)                                | 2.854  |
| KM Standard Error of Mean (logged)              | 0.228        |  |        |
|   | 2 5/ 10      | tatistics  |        |
| DL/2 Normal                                     |              | DL/2 Log-Transformed   |        |
| Mean in Original Scale                          | 0.0842       | Mean in Log Scale  | -3.424 |
| SD in Original Scale                            | 0.115        | SD in Log Scale  | 1.424  |
| 95% t UCL (Assumes normality)                   | 0.115        | 95% H-Stat UCL   | 0.171  |
| DL/2 is not a recommended me                    | ethod, provi | ded for comparisons and historical reasons                   |        |
|   |              |  |        |
| •   |              | tion Free UCL Statistics                                     |        |
| Detected Data appear Appro                      | ximate Gan   | nma Distributed at 5% Significance Level                     |        |
|   |              |  |        |
|   | Suggested    | UCL to Use   |        |

| 95% KM Adjusted Gamma UCL                               | 0.127         |   |     |
|---|---------------|---|-----|
|   |               |   |     |
| The calculated UCLs are based on assumption             | ons that the  | e data were collected in a random and unbiased manner.                |     |
| Please verify the da                                    | ata were co   | Ilected from random locations.  |     |
| If the data were collected a                            | using judgı   | nental or other non-random methods,                                   |     |
| then contact a s  | tatistician 1 | o correctly calculate UCLs.   |     |
|   |               |   |     |
| When a data set follows an appr                         | oximate dis   | stribution passing only one of the GOF tests,                         |     |
| it is suggested to use a UCL base                       | ed upon a d   | istribution passing both GOF tests in ProUCL                          |     |
|   |               |   |     |
| Note: Suggestions regarding the selection of a 95%      | UCL are pr    | ovided to help the user to select the most appropriate 95% UCL.       |     |
| Recommendations are based upon data size, o             | data distrib  | ution, and skewness using results from simulation studies.            |     |
| However, simulations results will not cover all Real Wo | orld data se  | ts; for additional insight the user may want to consult a statisticia | in. |
|   |               |   |     |

#### ATTACHMENT 3 VURAM Results

Attachment 3-1 – Resident

- Attachment 3-2 Construction Worker
- Attachment 3-3 Composite Worker
- Attachment 3-4 Recreator
- Attachment 3-5 Trespasser

#### ATTACHMENT 3-1 RESIDENT

### **Virginia Department of Environmental Quality**

# VURAM

### Virginia Unified Risk Assessment Model

### **VERSION: 3.2.1**

### **Residential Quantitative Risk Assessment Report**

### Program: Voluntary Remediation Program (VRP)

### Site Name: Alexandria

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

### **Chemical Specific Notes Displayed as Applicable**

**Lead** VURAM does not perform an evaluation for lead exposure. Use other approved models for lead modeling.

### All Report Pages are Required for Risk Assessment Submission

| isk Based Performance Criteria |
|--------------------------------|
|--------------------------------|

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

CAS:

| CAS: 83-32            | -9               |                |            |               |             |             |          |
|-----------------------|------------------|----------------|------------|---------------|-------------|-------------|----------|
| Concentration mg/kg : | 2.06E-01         |                | Cal        | lculated Haza | ard/Risk    |             |          |
| RfDo (mg/kg-day):     | 6.00E-02         | Non-Can        | cer Adult  | Non-Ca        | incer Child | c           | Cancer   |
| RfCi (mg/m3):         |                  | Ingestion:     | 4.12E-06   | Ingestion:    | 4.39E-05    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                  | Dermal:        | 2.26E-06   | Dermal:       | 1.35E-05    | Dermal:     |          |
| IUR (μg/m3)-1:        |                  | Inhalation:    |            | Inhalation:   |             | Inhalation: |          |
| Mutagen:              |                  | Total:         | 6.37E-06   | Total:        | 5.74E-05    | Total:      | 0.00E+00 |
| VOC:                  | Y                |                |            |               |             |             |          |
| % Cont                | ribution to Med  | ia Hazard/Risk | 0.00%      |               | 0.00%       |             | 0.00%    |
|                       |                  | mg/kg Non-Ca   | ncer Adult | Non-Ca        | ncer Child  | С           | ancer    |
| Recommended Accepto   | able Concentrati | ion N          | V/A        | ٨             | V/A         |             | N/A      |

#### Analyte: Acenaphthylene

| 208-96-8 |
|----------|
|----------|

| Concentration mg/kg :                | 1.40E-01       | Ţ             | Cal                               | lculated Haza | rd/Risk    |             |          |
|--------------------------------------|----------------|---------------|-----------------------------------|---------------|------------|-------------|----------|
| RfDo (mg/kg-day):                    | 3.00E-02       | Non-Can       | Non-Cancer Adult Non-Cancer Child |               | Cancer     |             |          |
| RfCi (mg/m3):                        |                | Ingestion:    | 5.59E-06                          | Ingestion:    | 5.97E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                   |                | Dermal:       | 3.07E-06                          | Dermal:       | 1.84E-05   | Dermal:     |          |
| IUR (μg/m3)-1:                       |                | Inhalation:   |                                   | Inhalation:   |            | Inhalation: |          |
| Mutagen:                             |                | Total:        | 8.66E-06                          | Total:        | 7.81E-05   | Total:      | 0.00E+00 |
| VOC:                                 | Y              |               |                                   |               |            |             |          |
| % Contril                            | bution to Medi | a Hazard/Risk | 0.00%                             |               | 0.00%      |             | 0.00%    |
|                                      |                | mg/kg Non-Ca  | ncer Adult                        | Non-Cai       | ncer Child | Са          | incer    |
| Recommended Acceptable Concentration |                | V/A           | Λ                                 | I/A           | r          | V/A         |          |

#### Analyte: Acetone

```
CAS:
             67-64-1
```

| Concentration mg/kg : | 1.72E+00      |                | Calculated Hazard/Risk |             |            |             |          |  |
|-----------------------|---------------|----------------|------------------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):     | 9.00E-01      | Non-Can        | cer Adult              | Non-Ca      | ncer Child | Ca          | ancer    |  |
| RfCi (mg/m3):         |               | Ingestion:     | 2.29E-06               | Ingestion:  | 2.44E-05   | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:    |               | Dermal:        |                        | Dermal:     |            | Dermal:     |          |  |
| IUR (µg/m3)-1:        |               | Inhalation:    |                        | Inhalation: |            | Inhalation: |          |  |
| Mutagen:              |               | Total:         | 2.29E-06               | Total:      | 2.44E-05   | Total:      | 0.00E+00 |  |
| VOC:                  | Y             |                |                        |             |            |             |          |  |
| % Contri              | bution to Med | ia Hazard/Risk | 0.00%                  |             | 0.00%      |             | 0.00%    |  |

Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |
|                      |  |   |

### Soil

|   |                                       |                                    | mg/kg Non-Ca                         | ncer Auun                          | Non-Car   | ncer Child             | Car                                  | ncer             |
|---|---------------------------------------|------------------------------------|--------------------------------------|------------------------------------|---|------------------------|--------------------------------------|------------------|
| Recommend   | ed Acceptable                         | e Concentratio                     | on I                                 | V/A                                | N   | /A                     | Ν,                                   | /A               |
| Analyte:  | Acetoph                               | henone                             |                                      |                                    |   |                        |                                      |                  |
| CAS:  | 98-86-2                               |                                    |                                      |                                    |   |                        |                                      |                  |
| Concentratior   | mg/kg :                               | 1.51E-01                           |                                      | Cal                                | culated Haza                                    | rd/Risk                |                                      |                  |
| RfDo (mg/kg-o   | lay):                                 | 1.00E-01                           | Non-Car                              | ncer Adult                         | Non-Ca  | ncer Child             | Сан                                  | ncer             |
| RfCi (mg/m3):   |                                       |                                    | Ingestion:                           | 1.81E-06                           | Ingestion:                                      | 1.93E-05               | Ingestion:                           |                  |
| SFO (mg/kg-da   | ay)-1:                                |                                    | Dermal:                              |                                    | Dermal:   |                        | Dermal:                              |                  |
| IUR (µg/m3)-1   | :                                     |                                    | Inhalation:                          |                                    | Inhalation:                                     |                        | Inhalation:                          |                  |
| Mutagen:  |                                       |                                    | Total:                               | 1.81E-06                           | Total:  | 1.93E-05               | Total:                               | 0.00E+00         |
| VOC:  |                                       | Y                                  |                                      |                                    |   |                        |                                      |                  |
|   | % Contribu                            | ution to Medic                     | n Hazard/Risk                        | 0.00%                              |   | 0.00%                  |                                      | 0.00%            |
|   |                                       |                                    | mg/kg Non-Ca                         | ncer Adult                         | Non-Car   | ncer Child             | Car                                  | ncer             |
| Recommend   | ed Acceptable                         | e Concentratio                     | on I                                 | V/A                                | N,  | /A                     | N,                                   | /A               |
| Analyte:  | Aluminu                               |                                    |                                      |                                    |   |                        |                                      |                  |
|   | Alumin                                | um                                 |                                      |                                    |   |                        |                                      |                  |
| CAS:  | 7429-90                               |                                    |                                      |                                    |   |                        |                                      |                  |
| CAS:  | 7429-90                               |                                    |                                      | Cal                                | culated Haza                                    | rd/Risk                |                                      |                  |
| CAS:<br>Concentration   | <b>7429-90</b><br>mg/kg :             | )-5                                | Non-Car                              | Cal                                |   | rd/Risk<br>ncer Child  | Cai                                  | ncer             |
| CAS:<br>Concentration<br>RfDo (mg/kg-c  | <b>7429-90</b><br>mg/kg :<br>lay):    | <b>)-5</b><br>9.23E+03             | Non-Car<br>Ingestion:                |                                    |   | -                      | <b>Ca</b> ı<br>Ingestion:            | ncer             |
| -   | 7429-90<br>mg/kg :<br>lay):           | <b>)-5</b><br>9.23E+03<br>1.00E+00 |                                      | ncer Adult                         | Non-Ca  | ncer Child             |                                      | ncer             |
| CAS:<br>Concentration<br>RfDo (mg/kg-c<br>RfCi (mg/m3):<br>SFO (mg/kg-da                  | 7429-90<br>mg/kg :<br>day):<br>ay)-1: | <b>)-5</b><br>9.23E+03<br>1.00E+00 | Ingestion:                           | ncer Adult                         | Non-Can<br>Ingestion:                           | ncer Child             | Ingestion:                           | ncer             |
| CAS:<br>Concentration<br>RfDo (mg/kg-c<br>RfCi (mg/m3):                                   | 7429-90<br>mg/kg :<br>day):<br>ay)-1: | <b>)-5</b><br>9.23E+03<br>1.00E+00 | Ingestion:<br>Dermal:                | ncer Adult<br>1.11E-02             | Non-Car<br>Ingestion:<br>Dermal:                | ncer Child<br>1.18E-01 | Ingestion:<br>Dermal:                | ncer<br>0.00E+00 |
| CAS:<br>Concentration<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (μg/m3)-1 | 7429-90<br>mg/kg :<br>day):<br>ay)-1: | <b>)-5</b><br>9.23E+03<br>1.00E+00 | Ingestion:<br>Dermal:<br>Inhalation: | ncer Adult<br>1.11E-02<br>1.30E-03 | Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation: | 1.30E-03               | Ingestion:<br>Dermal:<br>Inhalation: |                  |

| mg/kg                                | Non-Cancer Adult | Non-Cancer Child | Cancer |
|--------------------------------------|------------------|------------------|--------|
| Recommended Acceptable Concentration | N/A              | N/A              | N/A    |

|                      | <u>Risk Based Performance Criteria</u> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

# Soil

CAS:

| Analyte:      | Anthra      | icene          |                |            |               |            |             |          |
|---------------|-------------|----------------|----------------|------------|---------------|------------|-------------|----------|
| CAS:          | 120-12      | 2-7            |                |            |               |            |             |          |
| Concentration | n mg/kg :   | 2.53E-01       |                | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-o | day):       | 3.00E-01       | Non-Car        | ncer Adult | Non-Ca        | ncer Child | C           | ancer    |
| RfCi (mg/m3): |             |                | Ingestion:     | 1.01E-06   | Ingestion:    | 1.08E-05   | Ingestion:  |          |
| SFO (mg/kg-da | ay)-1:      |                | Dermal:        | 5.55E-07   | Dermal:       | 3.33E-06   | Dermal:     |          |
| IUR (µg/m3)-1 | .:          |                | Inhalation:    |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:      |             |                | Total:         | 1.57E-06   | Total:        | 1.41E-05   | Total:      | 0.00E+00 |
| VOC:          |             | Y              |                |            |               |            |             |          |
|               | % Contri    | bution to Med  | ia Hazard/Risk | 0.00%      |               | 0.00%      |             | 0.00%    |
| mg/kg Non-Ca  |             |                | ncer Adult     | Non-Ca     | ncer Child    | С          | ancer       |          |
| Recommend     | ed Acceptab | ole Concentrat | ion N          | V/A        | ٨             | I/A        |             | N/A      |

#### Analyte: Antimony (metallic)

| 7440-36-0 |
|-----------|
|-----------|

| Concentration mg/kg :                | 1.34E+00 | Ĩ           | Cal              | lculated Haza    | rd/Risk  |             |          |
|--------------------------------------|----------|-------------|------------------|------------------|----------|-------------|----------|
| RfDo (mg/kg-day):                    | 4.00E-04 | Non-Can     | cer Adult        | Non-Cancer Child |          | Cancer      |          |
| RfCi (mg/m3):                        | 3.00E-04 | Ingestion:  | 4.02E-03         | Ingestion:       | 4.29E-02 | Ingestion:  |          |
| SFO (mg/kg-day)-1:                   |          | Dermal:     |                  | Dermal:          |          | Dermal:     |          |
| IUR (μg/m3)-1:                       |          | Inhalation: | 3.16E-06         | Inhalation:      | 3.16E-06 | Inhalation: |          |
| Mutagen:                             |          | Total:      | 4.03E-03         | Total:           | 4.29E-02 | Total:      | 0.00E+00 |
| VOC:                                 |          |             |                  |                  |          |             |          |
| % Contribution to Media Hazard/Risk  |          |             | 1.34%            |                  | 1.71%    |             | 0.00%    |
| mg/kg Non-Car                        |          | ncer Adult  | Non-Cancer Child |                  | Cancer   |             |          |
| Recommended Acceptable Concentration |          |             | I/A              | Λ                | I/A      | ٨           | I/A      |

#### Analyte: Arsenic, Inorganic

CAS: 7440-38-2

| Concentration mg/kg :               | 8.80E+00 | Calculated Hazard/Risk |          |                  |          |             |          |  |
|-------------------------------------|----------|------------------------|----------|------------------|----------|-------------|----------|--|
| RfDo (mg/kg-day):                   | 3.00E-04 | Non-Cancer Adult       |          | Non-Cancer Child |          | Cancer      |          |  |
| RfCi (mg/m3):                       | 1.50E-05 | Ingestion:             | 2.11E-02 | Ingestion:       | 2.25E-01 | Ingestion:  | 1.14E-05 |  |
| SFO (mg/kg-day)-1:                  | 1.50E+00 | Dermal:                | 4.45E-03 | Dermal:          | 2.67E-02 | Dermal:     | 1.60E-06 |  |
| IUR (µg/m3)-1:                      | 4.30E-03 | Inhalation:            | 4.14E-04 | Inhalation:      | 4.14E-04 | Inhalation: | 9.91E-09 |  |
| Mutagen:                            |          | Total:                 | 2.60E-02 | Total:           | 2.52E-01 | Total:      | 1.30E-05 |  |
| VOC:                                |          |                        |          |                  |          |             |          |  |
| % Contribution to Media Hazard/Risk |          |                        | 8.62%    |                  | 10.02%   |             | 63.08%   |  |

Residential

#### Voluntary Remediation Program (VRP) **Program:**

| Risk Based Performance Criteria |
|---------------------------------|
|---------------------------------|

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

## Soil

|                                      | Exce         | eeds Risk!     | mg/kg Non-Ca  | ncer Adult | Non-Car       | ncer Child | Ca          | ncer     |
|--------------------------------------|--------------|----------------|---------------|------------|---------------|------------|-------------|----------|
| Recommended Acceptable Concentration |              | ion N/A        |               | N/A        |               | 6.77E-01   |             |          |
| Analyte:                             | Barium       | 1              |               |            |               |            |             |          |
| CAS:                                 | 7440-3       | 9-3            |               |            |               |            |             |          |
| Concentration                        | mg/kg :      | 7.27E+01       |               | Ca         | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-d                        | lay):        | 2.00E-01       | Non-Car       | cer Adult  | Non-Ca        | ncer Child | Ca          | ancer    |
| RfCi (mg/m3):                        |              | 5.00E-04       | Ingestion:    | 4.36E-04   | Ingestion:    | 4.65E-03   | Ingestion:  |          |
| SFO (mg/kg-da                        | ay)-1:       |                | Dermal:       |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1                        | :            |                | Inhalation:   | 1.03E-04   | Inhalation:   | 1.03E-04   | Inhalation: |          |
| Mutagen:                             |              |                | Total:        | 5.38E-04   | Total:        | 4.75E-03   | Total:      | 0.00E+00 |
| VOC:                                 |              |                |               |            |               |            |             |          |
|                                      | % Contrib    | oution to Medi | a Hazard/Risk | 0.18%      |               | 0.19%      |             | 0.00%    |
|                                      |              |                | mg/kg Non-Ca  | ncer Adult | Non-Car       | ncer Child | Сс          | ncer     |
| Recommende                           | ed Acceptabl | le Concentrati | on N          | V/A        | Ν             | //A        | I           | V/A      |
| Analyte:                             | Benz[a]      | ]anthracene    | 9             |            |               |            |             |          |
| CAS:                                 | 56-55-3      | -              |               |            |               |            |             |          |
| Concentration                        | mg/kg :      | 4.82E-01       | Ţ             | Ca         | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-d                        | lay):        |                | Non-Car       | cer Adult  |               | ncer Child | Ca          | ancer    |
| RfCi (mg/m3):                        |              |                | Ingestion:    |            | Ingestion:    |            | Ingestion:  | 3.15E-07 |

0.00E+00

0.00%

Inhalation:

Dermal:

Total:

Inhalation:

Dermal:

Total:

0.00E+00

0.00%

Non-Cancer Child

N/A

Inhalation:

mg/kg Non-Cancer Adult

N/A

Dermal:

Total:

1.00E-01

6.00E-05

Y

Y % Contribution to Media Hazard/Risk

Recommended Acceptable Concentration

SFO (mg/kg-day)-1:

IUR (µg/m3)-1:

Mutagen:

VOC:

1.05E-07

6.49E-09

4.26E-07

2.07%

Cancer

N/A

#### Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

# Soil

| Analyte: | Benzene |
|----------|---------|
| CAS:     | 71-43-2 |

|                       | _              |                        |            |             |            |             |          |
|-----------------------|----------------|------------------------|------------|-------------|------------|-------------|----------|
| Concentration mg/kg : | 5.00E-01       | Calculated Hazard/Risk |            |             |            |             |          |
| RfDo (mg/kg-day):     | 4.00E-03       | Non-Can                | cer Adult  | Non-Ca      | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         | 3.00E-02       | Ingestion:             | 1.50E-04   | Ingestion:  | 1.60E-03   | Ingestion:  | 3.96E-08 |
| SFO (mg/kg-day)-1:    | 5.50E-02       | Dermal:                |            | Dermal:     |            | Dermal:     |          |
| IUR (µg/m3)-1:        | 7.80E-06       | Inhalation:            | 4.51E-03   | Inhalation: | 4.51E-03   | Inhalation: | 3.92E-07 |
| Mutagen:              |                | Total:                 | 4.66E-03   | Total:      | 6.11E-03   | Total:      | 4.32E-07 |
| VOC:                  | Y              |                        |            |             |            |             |          |
| % Contrib             | bution to Medi | a Hazard/Risk          | 1.55%      |             | 0.24%      |             | 2.10%    |
|                       |                | mg/kg Non-Car          | ncer Adult | Non-Ca      | ncer Child | Cai         | ncer     |
| Recommended Acceptab  | le Concentrati | on N                   | I/A        | ٨           | I/A        | N           | /A       |

#### Benzo(g,h,i)perylene Analyte:

| CAS: 191-24           | I-2             |                |            |               |            |             |          |
|-----------------------|-----------------|----------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg : | 2.47E-01        |                | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):     | 3.00E-02        | Non-Can        | cer Adult  | Non-Ca        | ncer Child | Ca          | incer    |
| RfCi (mg/m3):         |                 | Ingestion:     | 9.87E-06   | Ingestion:    | 1.05E-04   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                 | Dermal:        | 5.42E-06   | Dermal:       | 3.25E-05   | Dermal:     |          |
| IUR (µg/m3)-1:        |                 | Inhalation:    |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:              |                 | Total:         | 1.53E-05   | Total:        | 1.38E-04   | Total:      | 0.00E+00 |
| VOC:                  | Y               |                |            |               |            |             |          |
| % Contri              | bution to Med   | ia Hazard/Risk | 0.01%      |               | 0.01%      |             | 0.00%    |
|                       |                 | mg/kg Non-Car  | ncer Adult | Non-Ca        | ncer Child | Са          | ncer     |
| Recommended Acceptal  | ole Concentrati | on N           | I/A        | ٨             | I/A        | ٨           | V/A      |

#### Analyte: Benzo[a]pyrene

CAS: 50-32-8

| Concentration mg/kg : | 3.36E-01      | Calculated Hazard/Risk |            |             |            |             |          |
|-----------------------|---------------|------------------------|------------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-04      | Non-Can                | icer Adult | Non-Ca      | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         | 2.00E-06      | Ingestion:             | 1.34E-03   | Ingestion:  | 1.43E-02   | Ingestion:  | 2.19E-06 |
| SFO (mg/kg-day)-1:    | 1.00E+00      | Dermal:                | 7.37E-04   | Dermal:     | 4.42E-03   | Dermal:     | 7.32E-07 |
| IUR (μg/m3)-1:        | 6.00E-04      | Inhalation:            | 1.18E-04   | Inhalation: | 1.18E-04   | Inhalation: | 1.46E-10 |
| Mutagen:              | Y             | Total:                 | 2.20E-03   | Total:      | 1.89E-02   | Total:      | 2.93E-06 |
| VOC:                  |               |                        |            |             |            |             |          |
| % Contri              | bution to Med | ia Hazard/Risk         | 0.73%      |             | 0.75%      |             | 14.20%   |

Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

## Soil

| Exceeds Risk!                        | mg/kg Non-Cancer Adult | Non-Cancer Child | Cancer   |
|--------------------------------------|------------------------|------------------|----------|
| Recommended Acceptable Concentration | on N/A                 | N/A              | 1.15E-01 |

#### Analyte: Benzo[b]fluoranthene

| CAS: | 205-99-2 |
|------|----------|
|      |          |

| Concentration mg/kg : | 6.65E-01       | Calculated Hazard/Risk |            |             |            |             |          |
|-----------------------|----------------|------------------------|------------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Can                | cer Adult  | Non-Ca      | ncer Child | Car         | ncer     |
| RfCi (mg/m3):         |                | Ingestion:             |            | Ingestion:  |            | Ingestion:  | 4.34E-07 |
| SFO (mg/kg-day)-1:    | 1.00E-01       | Dermal:                |            | Dermal:     |            | Dermal:     | 1.45E-07 |
| IUR (μg/m3)-1:        | 6.00E-05       | Inhalation:            |            | Inhalation: |            | Inhalation: | 2.89E-11 |
| Mutagen:              | Y              | Total:                 | 0.00E+00   | Total:      | 0.00E+00   | Total:      | 5.79E-07 |
| VOC:                  |                |                        |            |             |            |             |          |
| % Contril             | bution to Med  | a Hazard/Risk          | 0.00%      |             | 0.00%      |             | 2.81%    |
|                       |                | mg/kg Non-Ca           | ncer Adult | Non-Ca      | ncer Child | Car         | ncer     |
| Recommended Acceptab  | le Concentrati | on N                   | V/A        | ٨           | I/A        | N,          | /A       |

#### Analyte: Benzo[k]fluoranthene

| CAS: | 207-08-9 |
|------|----------|
| CAJ. | 207 00 5 |

| Concentration mg/kg : | 3.61E-01        |               | Cal        | culated Haza | rd/Risk    |             |          |
|-----------------------|-----------------|---------------|------------|--------------|------------|-------------|----------|
| RfDo (mg/kg-day):     |                 | Non-Can       | cer Adult  | Non-Ca       | ncer Child | Car         | ncer     |
| RfCi (mg/m3):         |                 | Ingestion:    |            | Ingestion:   |            | Ingestion:  | 2.36E-08 |
| SFO (mg/kg-day)-1:    | 1.00E-02        | Dermal:       |            | Dermal:      |            | Dermal:     | 7.87E-09 |
| IUR (µg/m3)-1:        | 6.00E-06        | Inhalation:   |            | Inhalation:  |            | Inhalation: | 1.57E-12 |
| Mutagen:              | Y               | Total:        | 0.00E+00   | Total:       | 0.00E+00   | Total:      | 3.14E-08 |
| VOC:                  |                 |               |            |              |            |             |          |
| % Contri              | bution to Medi  | a Hazard/Risk | 0.00%      |              | 0.00%      |             | 0.15%    |
|                       |                 | mg/kg Non-Ca  | ncer Adult | Non-Cai      | ncer Child | Car         | ncer     |
| Recommended Acceptab  | ole Concentrati | on N          | I/A        | Λ            | I/A        | N,          | /A       |

|                      | <u>Risk Based Performance Criteria</u> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

# Soil

| CAS: 65-85   | -0       |              |            |              |            |             |          |
|--|----------|--------------|------------|--------------|------------|-------------|----------|
| Concentration mg/kg :                                | 1.20E+00 |              | Cal        | culated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):                                    | 4.00E+00 | Non-Can      | ncer Adult | Non-Ca       | ncer Child | Ca          | ancer    |
| RfCi (mg/m3):  |          | Ingestion:   | 3.60E-07   | Ingestion:   | 3.84E-06   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                                   |          | Dermal:      | 1.52E-07   | Dermal:      | 9.10E-07   | Dermal:     |          |
| IUR (μg/m3)-1:                                       |          | Inhalation:  |            | Inhalation:  |            | Inhalation: |          |
| Mutagen:   |          | Total:       | 5.11E-07   | Total:       | 4.75E-06   | Total:      | 0.00E+00 |
| VOC:   |          |              |            |              |            |             |          |
| % Contribution to Media Hazard/Risk                  |          |              | 0.00%      |              | 0.00%      |             | 0.00%    |
|  |          | mg/kg Non-Ca | ncer Adult | Non-Ca       | ncer Child | Ca          | incer    |
| Recommended Acceptable Concentration N/A N/A N/A N/A |          |              |            |              | V/A        |             |          |

#### Analyte: Beryllium and compounds

| CAS: 7440-4           | 1-7             |                |            |               |            |             |          |
|-----------------------|-----------------|----------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg : | 9.00E-01        |                | Ca         | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):     | 2.00E-03        | Non-Can        | cer Adult  | Non-Ca        | ncer Child | Car         | ncer     |
| RfCi (mg/m3):         | 2.00E-05        | Ingestion:     | 5.39E-04   | Ingestion:    | 5.75E-03   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                 | Dermal:        |            | Dermal:       |            | Dermal:     |          |
| IUR (μg/m3)-1:        | 2.40E-03        | Inhalation:    | 3.17E-05   | Inhalation:   | 3.17E-05   | Inhalation: | 5.66E-10 |
| Mutagen:              |                 | Total:         | 5.71E-04   | Total:        | 5.79E-03   | Total:      | 5.66E-10 |
| VOC:                  |                 |                |            |               |            |             |          |
| % Contri              | bution to Medi  | ia Hazard/Risk | 0.19%      |               | 0.23%      |             | 0.00%    |
|                       |                 | mg/kg Non-Car  | ncer Adult | Non-Car       | ncer Child | Car         | ncer     |
| Recommended Acceptat  | ole Concentrati | on N           | V/A        | Ν             | //A        | N,          | /A       |

#### Analyte: Bis(2-ethylhexyl)phthalate

CAS: 117-81-7

| Concentration mg/kg : | 2.31E-01       |                | Calculated Hazard/Risk |             |            |             |          |
|-----------------------|----------------|----------------|------------------------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-02       | Non-Can        | cer Adult              | Non-Ca      | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         |                | Ingestion:     | 1.38E-05               | Ingestion:  | 1.48E-04   | Ingestion:  | 4.65E-09 |
| SFO (mg/kg-day)-1:    | 1.40E-02       | Dermal:        | 5.85E-06               | Dermal:     | 3.50E-05   | Dermal:     | 1.31E-09 |
| IUR (µg/m3)-1:        | 2.40E-06       | Inhalation:    |                        | Inhalation: |            | Inhalation: | 1.45E-13 |
| Mutagen:              |                | Total:         | 1.97E-05               | Total:      | 1.83E-04   | Total:      | 5.96E-09 |
| VOC:                  |                |                |                        |             |            |             |          |
| % Contr               | ibution to Med | ia Hazard/Risk | 0.01%                  |             | 0.01%      |             | 0.03%    |

Wednesday, December 6, 2023

Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |   |
|----------------------|--------------------------------------|---|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                             | 1.00E-04                                |
|                      |                                      |   |

### Soil

|               |             |                  | mg/kg Non-Ca  | ncer Adult | Non-Cai       | ncer Child | Car         | ncer     |
|---------------|-------------|------------------|---------------|------------|---------------|------------|-------------|----------|
| Recommend     | ed Acceptab | ole Concentratio | on I          | N/A        | ٨             | I/A        | N,          | /A       |
| Analyte:      | Butylb      | enzene, n-       |               |            |               |            |             |          |
| CAS:          | 104-51      | -8               |               |            |               |            |             |          |
| Concentration | n mg/kg :   | 1.40E-01         |               | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-c | lay):       | 5.00E-02         | Non-Car       | ncer Adult | Non-Ca        | ncer Child | Cai         | ncer     |
| RfCi (mg/m3): |             |                  | Ingestion:    | 3.36E-06   | Ingestion:    | 3.58E-05   | Ingestion:  |          |
| SFO (mg/kg-da | ay)-1:      |                  | Dermal:       |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1 | :           |                  | Inhalation:   |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:      |             |                  | Total:        | 3.36E-06   | Total:        | 3.58E-05   | Total:      | 0.00E+00 |
| VOC:          |             | Y                |               |            |               |            |             |          |
|               | % Contril   | bution to Medi   | a Hazard/Risk | 0.00%      |               | 0.00%      |             | 0.00%    |
|               |             |                  | mg/kg Non-Ca  | ncer Adult | Non-Ca        | ncer Child | Car         | ncer     |
| Recommend     | ed Acceptab | ole Concentratio | on I          | N/A        | ٨             | I/A        | N,          | /A       |
| Analyte:      | Cadmi       | um (Diet)        |               |            |               |            |             |          |
| CAS:          | 7440-4      | 3-9-Diet         |               |            |               |            |             |          |
| Concentration | n mg/kg :   | 3.33E-01         |               | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-c | lay):       | 1.00E-04         | Non-Car       | ncer Adult |               | ncer Child | Cai         | ncer     |
| RfCi (mg/m3): |             | 1.00E-05         | Ingestion:    | 3.99E-03   | Ingestion:    | 4.26E-02   | Ingestion:  |          |
| SFO (mg/kg-da | ay)-1:      |                  | Dermal:       | 6.74E-04   | Dermal:       | 4.04E-03   | Dermal:     |          |
| IUR (µg/m3)-1 | :           | 1.80E-03         | Inhalation:   | 2.35E-05   | Inhalation:   | 2.35E-05   | Inhalation: | 1.57E-10 |
| Mutagen:      |             |                  | Total:        | 4.69E-03   | Total:        | 4.66E-02   | Total:      | 1.57E-10 |
| VOC:          |             |                  |               |            |               |            |             |          |
|               | % Contril   | bution to Medi   | a Hazard/Risk | 1.56%      |               | 1.85%      |             | 0.00%    |

| % Contribution to Media Hazard/Ri    | isk 1.56%      | 1.85%            | 0.00%  |
|--------------------------------------|----------------|------------------|--------|
| mg/kg <i>Nor</i>                     | n-Cancer Adult | Non-Cancer Child | Cancer |
| Recommended Acceptable Concentration | N/A            | N/A              | N/A    |

#### Voluntary Remediation Program (VRP) Program:

|--|

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

| Analyte:      | Carbaz    | ole      |                  |
|---------------|-----------|----------|------------------|
| CAS:          | 86-74-8   | 3        |                  |
| Concentration | n mg/kg : | 2.42E-01 | C                |
| RfDo (mg/kg-  | day):     |          | Non-Cancer Adult |
| RfCi (mg/m3)  |           |          | Indestion:       |

| Concentration mg/kg : 2.42E-01       | Calculated Hazard/Risk |            |             |            |             |          |
|--------------------------------------|------------------------|------------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):                    | Non-Can                | cer Adult  | Non-Ca      | ncer Child | Cai         | ncer     |
| RfCi (mg/m3):                        | Ingestion:             |            | Ingestion:  |            | Ingestion:  |          |
| SFO (mg/kg-day)-1:                   | Dermal:                |            | Dermal:     |            | Dermal:     |          |
| IUR (μg/m3)-1:                       | Inhalation:            |            | Inhalation: |            | Inhalation: |          |
| Mutagen:                             | Total:                 | 0.00E+00   | Total:      | 0.00E+00   | Total:      | 0.00E+00 |
| VOC:                                 |                        |            |             |            |             |          |
| % Contribution to Med                | ia Hazard/Risk         | 0.00%      |             | 0.00%      |             | 0.00%    |
| mg/kg Non-Ca                         |                        | ncer Adult | Non-Car     | ncer Child | Car         | ncer     |
| Recommended Acceptable Concentration |                        | I/A        | N           | /A         | N,          | /A       |

#### Analyte: Chromium(III), Insoluble Salts

| CAS: 1600             | 55-83-1           |                |            |               |            |             |          |
|-----------------------|-------------------|----------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg : | 2.06E+02          |                | Ca         | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):     | 1.50E+00          | Non-Can        | cer Adult  | Non-Ca        | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         |                   | Ingestion:     | 1.65E-04   | Ingestion:    | 1.76E-03   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                   | Dermal:        |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1:        |                   | Inhalation:    |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:              |                   | Total:         | 1.65E-04   | Total:        | 1.76E-03   | Total:      | 0.00E+00 |
| VOC:                  |                   |                |            |               |            |             |          |
| % Cor                 | tribution to Med  | ia Hazard/Risk | 0.05%      |               | 0.07%      |             | 0.00%    |
|                       |                   | mg/kg Non-Ca   | ncer Adult | Non-Ca        | ncer Child | Са          | ncer     |
| Recommended Accep     | table Concentrati | on N           | V/A        | ٨             | I/A        | Λ           | I/A      |

#### Analyte: Chrysene

#### CAS: 218-01-9

| Concentration mg/kg                 | : 6.91E-01 | Calculated Hazard/Risk |          |             |            |             |          |
|-------------------------------------|------------|------------------------|----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):                   |            | Non-Cancer Adult       |          | Non-Ca      | ncer Child | Cancer      |          |
| RfCi (mg/m3):                       |            | Ingestion:             |          | Ingestion:  |            | Ingestion:  | 4.51E-09 |
| SFO (mg/kg-day)-1:                  | 1.00E-03   | Dermal:                |          | Dermal:     |            | Dermal:     | 1.51E-09 |
| IUR (µg/m3)-1:                      | 6.00E-07   | Inhalation:            |          | Inhalation: |            | Inhalation: | 3.01E-13 |
| Mutagen:                            | Y          | Total:                 | 0.00E+00 | Total:      | 0.00E+00   | Total:      | 6.02E-09 |
| VOC:                                |            |                        |          |             |            |             |          |
| % Contribution to Media Hazard/Risk |            |                        | 0.00%    |             | 0.00%      |             | 0.03%    |

Residential

#### Program: Voluntary Remediation Program (VRP)

|                                      | Risk Based Performan          |                     |                               |
|--------------------------------------|-------------------------------|---------------------|-------------------------------|
| Default Hazard Index                 | Default Risk for Individual C | hemical Default Cun | nulative Risk (All Chemicals) |
| 1                                    | 1.00E-06                      |                     | 1.00E-04                      |
| Soil                                 |                               |                     |                               |
|                                      | mg/kg Non-Cancer Adult        | Non-Cancer Child    | Cancer                        |
| Recommended Acceptable Concentration | on N/A                        | N/A                 | N/A                           |

### Analyte: Cobalt CAS: 7440-48-4

| Concentration mg/kg : | 1.04E+01        |               | Ca         | lculated Haza | rd/Risk    |             |          |
|-----------------------|-----------------|---------------|------------|---------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-04        | Non-Can       | cer Adult  | Non-Ca        | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         | 6.00E-06        | Ingestion:    | 4.14E-02   | Ingestion:    | 4.42E-01   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                 | Dermal:       |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1:        | 9.00E-03        | Inhalation:   | 1.22E-03   | Inhalation:   | 1.22E-03   | Inhalation: | 2.44E-08 |
| Mutagen:              |                 | Total:        | 4.27E-02   | Total:        | 4.43E-01   | Total:      | 2.44E-08 |
| VOC:                  |                 |               |            |               |            |             |          |
| % Contri              | bution to Medi  | a Hazard/Risk | 14.17%     |               | 17.62%     |             | 0.12%    |
|                       |                 | mg/kg Non-Car | ncer Adult | Non-Cai       | ncer Child | Car         | ncer     |
| Recommended Acceptab  | ole Concentrati | on N          | I/A        | Λ             | I/A        | N,          | /A       |

#### Analyte: Copper

CAS:

7440-50-8

| Concentration mg/kg :                     | 1.55E+02       |              | Cal        | lculated Haza | rd/Risk    |             |          |
|---|----------------|--------------|------------|---------------|------------|-------------|----------|
| RfDo (mg/kg-day):                         | 4.00E-02       | Non-Can      | cer Adult  | Non-Ca        | ncer Child | Ca          | incer    |
| RfCi (mg/m3):                             |                | Ingestion:   | 4.64E-03   | Ingestion:    | 4.95E-02   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                        |                | Dermal:      |            | Dermal:       |            | Dermal:     |          |
| IUR (μg/m3)-1:                            |                | Inhalation:  |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:                                  |                | Total:       | 4.64E-03   | Total:        | 4.95E-02   | Total:      | 0.00E+00 |
| VOC:                                      |                |              |            |               |            |             |          |
| % Contribution to Media Hazard/Risk 1.54% |                |              |            |               | 1.97%      |             | 0.00%    |
|   |                | mg/kg Non-Ca | ncer Adult | Non-Cai       | ncer Child | Са          | ncer     |
| Recommended Acceptab                      | le Concentrati | on N         | I/A        | ٨             | I/A        | ٨           | I/A      |

#### Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |   |
|----------------------|--------------------------------------|---|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

CAS:

| Analyte:      | Cresol,     | , <b>O</b> -  |                |            |              |            |             |          |
|---------------|-------------|---------------|----------------|------------|--------------|------------|-------------|----------|
| CAS:          | 95-48-      | 7             |                |            |              |            |             |          |
| Concentration | n mg/kg :   | 1.30E-01      |                | Cal        | culated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-o | day):       | 5.00E-02      | Non-Car        | ncer Adult | Non-Ca       | ncer Child | С           | ancer    |
| RfCi (mg/m3): |             | 6.00E-01      | Ingestion:     | 3.12E-06   | Ingestion:   | 3.32E-05   | Ingestion:  |          |
| SFO (mg/kg-da | ay)-1:      |               | Dermal:        | 1.32E-06   | Dermal:      | 7.89E-06   | Dermal:     |          |
| IUR (µg/m3)-1 | .:          |               | Inhalation:    | 1.53E-10   | Inhalation:  | 1.53E-10   | Inhalation: |          |
| Mutagen:      |             |               | Total:         | 4.43E-06   | Total:       | 4.11E-05   | Total:      | 0.00E+00 |
| VOC:          |             |               |                |            |              |            |             |          |
|               | % Contril   | bution to Med | ia Hazard/Risk | 0.00%      |              | 0.00%      |             | 0.00%    |
|               |             |               | mg/kg Non-Ca   | ncer Adult | Non-Ca       | ncer Child | C           | ancer    |
| Recommend     | ed Acceptab | le Concentrat | ion N          | V/A        | ٨            | I/A        |             | N/A      |

### Analyte: Cresol, p-chloro-m-

59-50-7

| Concentration mg/kg :                     | 1.19E-01       |              | Cal        | culated Haza | rd/Risk    |             |          |
|---|----------------|--------------|------------|--------------|------------|-------------|----------|
| RfDo (mg/kg-day):                         | 1.00E-01       | Non-Can      | cer Adult  | Non-Ca       | ncer Child | Са          | ncer     |
| RfCi (mg/m3):                             |                | Ingestion:   | 1.43E-06   | Ingestion:   | 1.52E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                        |                | Dermal:      | 6.02E-07   | Dermal:      | 3.61E-06   | Dermal:     |          |
| IUR (µg/m3)-1:                            |                | Inhalation:  |            | Inhalation:  |            | Inhalation: |          |
| Mutagen:                                  |                | Total:       | 2.03E-06   | Total:       | 1.88E-05   | Total:      | 0.00E+00 |
| VOC:                                      |                |              |            |              |            |             |          |
| % Contribution to Media Hazard/Risk 0.00% |                |              |            |              | 0.00%      |             | 0.00%    |
|   |                | mg/kg Non-Ca | ncer Adult | Non-Car      | ncer Child | Са          | ncer     |
| Recommended Acceptab                      | le Concentrati | on N         | I/A        | N            | /A         | ٨           | I/A      |

#### Analyte: Cumene

| CAS: | 98-82-8 |
|------|---------|
| CAJ. | 30-02-0 |

| Concentration mg/kg : | 1.68E-01      |                | Cal       | culated Haza | rd/Risk    |             |          |
|-----------------------|---------------|----------------|-----------|--------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-01      | Non-Can        | cer Adult | Non-Ca       | ncer Child | Са          | ncer     |
| RfCi (mg/m3):         | 4.00E-01      | Ingestion:     | 2.01E-06  | Ingestion:   | 2.15E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |               | Dermal:        |           | Dermal:      |            | Dermal:     |          |
| IUR (μg/m3)-1:        |               | Inhalation:    | 6.49E-05  | Inhalation:  | 6.49E-05   | Inhalation: |          |
| Mutagen:              |               | Total:         | 6.69E-05  | Total:       | 8.63E-05   | Total:      | 0.00E+00 |
| VOC:                  | Y             |                |           |              |            |             |          |
| % Contri              | bution to Med | ia Hazard/Risk | 0.02%     |              | 0.00%      |             | 0.00%    |

Wednesday, December 6, 2023

Residential

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |   |
|----------------------|--------------------------------------|---|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                             | 1.00E-04                                |
| <b>5</b> 1           |                                      |   |

### Soil

|   |   |  | mg/kg <i>Non-Ca</i>                                   | ncer Adult                      | Non-Car  | ncer Child                    | Car   | ncer  |
|---|---|--|---|---------------------------------|--|-------------------------------|---|---|
| Recommend   | ed Acceptab                                     | ole Concentratio   | n I   | V/A                             | N  | I/A                           | Ν,  | /A  |
| Analyte:  | Cyanid  | e (CN-)  |   |                                 |  |                               |   |   |
| CAS:  | 57-12-5   | 5  |   |                                 |  |                               |   |   |
| Concentration   | n mg/kg :                                       | 8.26E-01   |   | Cal                             | culated Haza   | rd/Risk                       |   |   |
| RfDo (mg/kg-c   | lay):   | 6.00E-04   |   |                                 | ncer Child   | Cai                           | ncer  |   |
| RfCi (mg/m3):   |   | 8.00E-04   | Ingestion:  | 1.65E-03                        | Ingestion:   | 1.76E-02                      | Ingestion:  |   |
| SFO (mg/kg-da   | ау)-1:  |  | Dermal:   |                                 | Dermal:  |                               | Dermal:   |   |
| IUR (µg/m3)-1   | :   |  | Inhalation:   | 1.86E-02                        | Inhalation:  | 1.86E-02                      | Inhalation:   |   |
| Mutagen:  |   |  | Total:  | 2.02E-02                        | Total:   | 3.62E-02                      | Total:  | 0.00E+00  |
| VOC:  |   | Y  |   |                                 |  |                               |   |   |
|   | % Contrik                                       | bution to Media  | ı Hazard/Risk   | 6.72%                           |  | 1.44%                         |   | 0.00%   |
|   |   |  | mg/kg Non-Ca  | ncer Adult                      | Non-Car  | ncer Child                    | Car   | ncer  |
| Recommend   | ed Acceptab                                     | ole Concentratio   | n I   | V/A                             | N  | I/A                           | N,  | /A  |
| Analyte:  | Dibenz  | [a,h]anthrac   | ene   |                                 |  |                               |   |   |
| CAS:  | 53-70-3   |  |   |                                 |  |                               |   |   |
|   |   | 3  |   |                                 |  |                               |   |   |
| Concentration   |   | <b>3</b><br>1.98E-01                                     |   | Cal                             | culated Haza   | rd/Risk                       |   |   |
|   | n mg/kg :                                       | -  | Non-Car   | Cal                             | culated Haza<br>Non-Ca                                   | r <b>d/Risk</b><br>ncer Child | Car   | ncer  |
| RfDo (mg/kg-c   | n mg/kg :<br>day):                              | -  | Non-Car   |                                 |  | -                             | Car<br>Ingestion:                                     | 1.29E-06  |
| RfDo (mg/kg-c<br>RfCi (mg/m3):  | n mg/kg :<br>day):                              | -  |   |                                 | Non-Ca   | -                             |   |   |
| Concentratior<br>RfDo (mg/kg-c<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (µg/m3)-1 | n mg/kg :<br>day):<br>ay)-1:                    | 1.98E-01   | Ingestion:  |                                 | Non-Ca<br>Ingestion:                                     | -                             | Ingestion:  | 1.29E-06  |
| RfDo (mg/kg-c<br>RfCi (mg/m3):<br>SFO (mg/kg-da                                   | n mg/kg :<br>day):<br>ay)-1:                    | 1.98E-01<br>1.00E+00                                     | Ingestion:<br>Dermal:                                 |                                 | Non-Ca<br>Ingestion:<br>Dermal:                          | -                             | Ingestion:<br>Dermal:                                 | 1.29E-06<br>4.31E-07                                |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (μg/m3)-1<br>Mutagen:      | n mg/kg :<br>day):<br>ay)-1:                    | 1.98E-01<br>1.00E+00<br>6.00E-04                         | Ingestion:<br>Dermal:<br>Inhalation:                  | ncer Adult                      | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | ncer Child                    | Ingestion:<br>Dermal:<br>Inhalation:                  | 1.29E-06<br>4.31E-07<br>8.62E-11                    |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (μg/m3)-1<br>Mutagen:      | n mg/kg :<br>day):<br>ay)-1:<br>.:              | 1.98E-01<br>1.00E+00<br>6.00E-04                         | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | ncer Adult                      | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | ncer Child                    | Ingestion:<br>Dermal:<br>Inhalation:                  | 1.29E-06<br>4.31E-07<br>8.62E-11                    |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (μg/m3)-1                  | n mg/kg :<br>day):<br>ay)-1:<br>.:<br>% Contrib | 1.98E-01<br>1.00E+00<br>6.00E-04<br>Y<br>bution to Media | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | ncer Adult<br>0.00E+00<br>0.00% | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | ncer Child<br>0.00E+00        | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | 1.29E-06<br>4.31E-07<br>8.62E-11<br><b>1.72E-06</b> |

| Risk Based | Performance | Criteria |
|------------|-------------|----------|
|            |             |          |

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

#### Analyte: Dimethylphenol, 2,4-

| CAS: 105            | 67-9               |                |            |               |            |             |          |
|---------------------|--------------------|----------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg | : 2.00E-01         |                | Cal        | lculated Haza | ard/Risk   |             |          |
| RfDo (mg/kg-day):   | 2.00E-02           | Non-Car        | ncer Adult | Non-Ca        | ncer Child | C           | ancer    |
| RfCi (mg/m3):       |                    | Ingestion:     | 1.20E-05   | Ingestion:    | 1.28E-04   | Ingestion:  |          |
| SFO (mg/kg-day)-1:  |                    | Dermal:        | 5.06E-06   | Dermal:       | 3.03E-05   | Dermal:     |          |
| IUR (μg/m3)-1:      |                    | Inhalation:    |            | Inhalation:   |            | Inhalation: |          |
| Mutagen:            |                    | Total:         | 1.70E-05   | Total:        | 1.58E-04   | Total:      | 0.00E+00 |
| VOC:                |                    |                |            |               |            |             |          |
| % Со                | ntribution to Med  | ia Hazard/Risk | 0.01%      |               | 0.01%      |             | 0.00%    |
|                     | mg/kg Non-Ca       | ncer Adult     | Non-Ca     | ncer Child    | Сс         | ancer       |          |
| Recommended Acce    | otable Concentrati | on N           | V/A        | ٨             | I/A        |             | N/A      |

#### Analyte: Ethylbenzene

| CAS: 100-   | 41-4   |  |          |             |          |             |          |  |
|---|--|--|----------|-------------|----------|-------------|----------|--|
| Concentration mg/kg : 3.42E-01 Calculated Hazard/Risk |  |  |          |             |          |             |          |  |
| RfDo (mg/kg-day):                                     | 5.00E-02                                       | Non-Cancer Adult Non-Cancer Child Cancer |          |             |          | ncer        |          |  |
| RfCi (mg/m3):   | 1.00E+00                                       | Ingestion:                               | 8.20E-06 | Ingestion:  | 8.75E-05 | Ingestion:  | 5.41E-09 |  |
| SFO (mg/kg-day)-1:                                    | 1.10E-02                                       | Dermal:                                  |          | Dermal:     |          | Dermal:     |          |  |
| IUR (μg/m3)-1:  | 2.50E-06                                       | Inhalation:                              | 5.78E-05 | Inhalation: | 5.78E-05 | Inhalation: | 5.37E-08 |  |
| Mutagen:  |  | Total:                                   | 6.60E-05 | Total:      | 1.45E-04 | Total:      | 5.91E-08 |  |
| VOC:  | Y  |  |          |             |          |             |          |  |
| % Con   | tribution to Medi                              | a Hazard/Risk                            | 0.02%    |             | 0.01%    |             | 0.29%    |  |
|   | mg/kg Non-Cancer Adult Non-Cancer Child Cancer |  |          |             |          |             | ncer     |  |
| Recommended Acceptable Concentration N/A N/A N/A N/A  |  |  |          |             |          |             |          |  |

#### Analyte: Fluoranthene

CAS: 206-44-0

| Concentration mg/kg : | 8.95E-01      | Calculated Hazard/Risk |           |             |            |             |          |
|-----------------------|---------------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-02      | Non-Can                | cer Adult | Non-Ca      | ncer Child | Ca          | ancer    |
| RfCi (mg/m3):         |               | Ingestion:             | 2.68E-05  | Ingestion:  | 2.86E-04   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |               | Dermal:                | 1.47E-05  | Dermal:     | 8.83E-05   | Dermal:     |          |
| IUR (µg/m3)-1:        |               | Inhalation:            |           | Inhalation: |            | Inhalation: |          |
| Mutagen:              |               | Total:                 | 4.15E-05  | Total:      | 3.74E-04   | Total:      | 0.00E+00 |
| VOC:                  |               |                        |           |             |            |             |          |
| % Contri              | bution to Med | ia Hazard/Risk         | 0.01%     |             | 0.01%      |             | 0.00%    |

Residential

#### Program: Voluntary Remediation Program (VRP)

|                                     | Risk Based Performanc          | <u>e Criteria</u>  |                               |  |  |
|-------------------------------------|--------------------------------|--------------------|-------------------------------|--|--|
| Default Hazard Index                | Default Risk for Individual Ch | emical Default Cun | nulative Risk (All Chemicals) |  |  |
| 1                                   | 1.00E-06 1.00E-04              |                    |                               |  |  |
| Soil                                |                                |                    |                               |  |  |
|                                     | mg/kg Non-Cancer Adult         | Non-Cancer Child   | Cancer                        |  |  |
| Recommended Acceptable Concentratio | n N/A                          | N/A                | N/A                           |  |  |

### CAS: 86-73-7

| Concentration mg/kg : | 2.30E-01       | Calculated Hazard/Risk |           |             |            |             |          |
|-----------------------|----------------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-02       | Non-Can                | cer Adult | Non-Ca      | ncer Child | Са          | ncer     |
| RfCi (mg/m3):         |                | Ingestion:             | 6.89E-06  | Ingestion:  | 7.35E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:                | 3.78E-06  | Dermal:     | 2.27E-05   | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:            |           | Inhalation: |            | Inhalation: |          |
| Mutagen:              |                | Total:                 | 1.07E-05  | Total:      | 9.62E-05   | Total:      | 0.00E+00 |
| VOC:                  | Y              |                        |           |             |            |             |          |
| % Contril             | bution to Medi | ia Hazard/Risk         | 0.00%     |             | 0.00%      |             | 0.00%    |
|                       | mg/kg Non-Ca   | ncer Adult             | Non-Ca    | ncer Child  | Са         | ncer        |          |
| Recommended Acceptab  | le Concentrati | on N                   | V/A       | ٨           | I/A        | Λ           | I/A      |

#### Analyte: Indeno[1,2,3-cd]pyrene

#### CAS: 193-39-5

| Concentration mg/kg : | 2.82E-01        | Calculated Hazard/Risk            |            |             |          |             |          |  |
|-----------------------|-----------------|-----------------------------------|------------|-------------|----------|-------------|----------|--|
| RfDo (mg/kg-day):     |                 | Non-Cancer Adult Non-Cancer Child |            |             |          | Car         | Cancer   |  |
| RfCi (mg/m3):         |                 | Ingestion:                        |            | Ingestion:  |          | Ingestion:  | 1.84E-07 |  |
| SFO (mg/kg-day)-1:    | 1.00E-01        | Dermal:                           |            | Dermal:     |          | Dermal:     | 6.14E-08 |  |
| IUR (µg/m3)-1:        | 6.00E-05        | Inhalation:                       |            | Inhalation: |          | Inhalation: | 1.23E-11 |  |
| Mutagen:              | Y               | Total:                            | 0.00E+00   | Total:      | 0.00E+00 | Total:      | 2.46E-07 |  |
| VOC:                  |                 |                                   |            |             |          |             |          |  |
| % Contri              | bution to Med   | a Hazard/Risk                     | 0.00%      |             | 0.00%    |             | 1.19%    |  |
|                       | ncer Adult      | Non-Ca                            | ncer Child | Car         | ncer     |             |          |  |
| Recommended Acceptal  | ble Concentrati | on N                              | I/A        | Λ           | I/A      | N,          | /A       |  |

|                      | <u>Risk Based Performance Criteria</u> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

# Soil

CAS:

#### Analyte: Iron

| CAS: 7439-8                         | 9-6           |              |            |               |             |             |          |
|-------------------------------------|---------------|--------------|------------|---------------|-------------|-------------|----------|
| Concentration mg/kg :               | 6.57E+04      | Ţ            | Ca         | lculated Haza | ard/Risk    |             |          |
| RfDo (mg/kg-day):                   | 7.00E-01      | Non-Can      | ncer Adult | Non-Ca        | ancer Child | С           | ancer    |
| RfCi (mg/m3):                       |               | Ingestion:   | 1.12E-01   | Ingestion:    | 1.20E+00    | Ingestion:  |          |
| SFO (mg/kg-day)-1:                  |               | Dermal:      |            | Dermal:       |             | Dermal:     |          |
| IUR (µg/m3)-1:                      |               | Inhalation:  |            | Inhalation:   |             | Inhalation: |          |
| Mutagen:                            |               | Total:       | 1.12E-01   | Total:        | 1.20E+00    | Total:      | 0.00E+00 |
| VOC:                                |               |              |            |               |             |             |          |
| % Contribution to Media Hazard/Risk |               |              | 37.38%     |               | 47.70%      |             | 0.00%    |
| Exceeds Hazard!                     |               | mg/kg Non-Ca | ncer Adult | Non-Ca        | ncer Child  | С           | ancer    |
| Recommended Acceptat                | le Concentrat | on N         | V/A        | 5.48          | 8E+04       |             | N/A      |

#### Analyte: isopropyltoluene

| C | 99- | 87 | -6 |  |
|---|-----|----|----|--|

| Concentration mg/kg : | 9.93E-02       |                | Cal       | culated Haza | rd/Risk    |             |          |
|-----------------------|----------------|----------------|-----------|--------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-01       | Non-Can        | cer Adult | Non-Ca       | ncer Child | Ca          | incer    |
| RfCi (mg/m3):         | 4.00E-01       | Ingestion:     | 1.19E-06  | Ingestion:   | 1.27E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:        |           | Dermal:      |            | Dermal:     |          |
| IUR (μg/m3)-1:        |                | Inhalation:    | 2.48E-05  | Inhalation:  | 2.48E-05   | Inhalation: |          |
| Mutagen:              |                | Total:         | 2.60E-05  | Total:       | 3.75E-05   | Total:      | 0.00E+00 |
| VOC:                  | Y              |                |           |              |            |             |          |
| % Contri              | ibution to Med | ia Hazard/Risk | 0.01%     |              | 0.00%      |             | 0.00%    |
|                       | mg/kg Non-Ca   | ncer Adult     | Non-Cai   | ncer Child   | Са         | ncer        |          |
| Recommended Accepta   | I/A            | Λ              | I/A       | ٨            | I/A        |             |          |

#### Analyte: Lead and Compounds

CAS: 7439-92-1

| Concentration mg/kg : | 2.05E+01      | Calculated Hazard/Risk |          |             |             |             |          |
|-----------------------|---------------|------------------------|----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     |               | Non-Cancer Adult       |          | Non-Ca      | ancer Child | Cancer      |          |
| RfCi (mg/m3):         |               | Ingestion:             |          | Ingestion:  |             | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |               | Dermal:                |          | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |               | Inhalation:            |          | Inhalation: |             | Inhalation: |          |
| Mutagen:              |               | Total:                 | 0.00E+00 | Total:      | 0.00E+00    | Total:      | 0.00E+00 |
| VOC:                  |               |                        |          |             |             |             |          |
| % Contri              | bution to Med | ia Hazard/Risk         | 0.00%    |             | 0.00%       |             | 0.00%    |

Wednesday, December 6, 2023

## Residential

## Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |

# Soil

|  |   |   | mg/kg Non-Ca  | ncer Adult   | Non-Car   | ncer Child   | Ca   | ncer             |
|--|---|---|---|--|---|--|--|------------------|
| Recommend  | ed Acceptab   | le Concentratio                                   | on I  | V/A  | Ν   | //A  | N  | I/A              |
| Analyte:   | Manga   | nese (Diet)                                       |   |  |   |  |  |                  |
| CAS:   | 7439-9  | 6-5-Diet  |   |  |   |  |  |                  |
| Concentratior  | n mg/kg :   | 5.16E+02  |   | Ca   | lculated Haza   | rd/Risk  |  |                  |
| RfDo (mg/kg-o  | day):   | 1.40E-01  | Non-Car   | ncer Adult   | Non-Ca  | ncer Child   | Ca   | ncer             |
| RfCi (mg/m3):  |   | 5.00E-05  | Ingestion:  | 4.42E-03   | Ingestion:  | 4.72E-02   | Ingestion:   |                  |
| SFO (mg/kg-da  | ay)-1:  |   | Dermal:   |  | Dermal:   |  | Dermal:  |                  |
| IUR (µg/m3)-1  | :   |   | Inhalation:   | 7.28E-03   | Inhalation:   | 7.28E-03   | Inhalation:  |                  |
| Mutagen:   |   |   | Total:  | 1.17E-02   | Total:  | 5.44E-02   | Total:   | 0.00E+00         |
| VOC:   |   |   |   |  |   |  |  |                  |
|  | % Contrib   | bution to Media                                   | a Hazard/Risk   | 3.89%  |   | 2.16%  |  | 0.00%            |
|  |   |   | mg/kg Non-Ca  | ncer Adult   | Non-Car   | ncer Child   | Ca   | ncer             |
| Recommend  | ed Acceptab   | le Concentratio                                   | ו מר  | V/A  | Δ.  | I/A  |  | 1/1              |
|  |   | ine concentration                                 | 1   | V/A  | N   | /A   | IN IN  | I/A              |
| Analvte:   | Mercu   |   |   | V/A  | /N  | /A   | 1  | /A               |
| -  | Mercu<br>7439-9                                     | ry (elementa                                      |   | V/A  | ,   | /A   |  | /A               |
| CAS:   | 7439-9  | ry (elementa                                      |   |  |   | -  |  | 7A               |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-o   | <b>7439-9</b><br>n mg/kg :                          | ry (elementa<br>7-6                               | al)   |  | culated Haza  | -  |  | ncer             |
| CAS:<br>Concentration  | <b>7439-9</b><br>n mg/kg :<br>day):                 | ry (elementa<br>7-6                               | al)   | Ca   | culated Haza  | rd/Risk  |  |                  |
| CAS:<br>Concentration<br>RfDo (mg/kg-o<br>RfCi (mg/m3):  | <b>7439-9</b><br>n mg/kg :<br>day):                 | <b>ry (elementa</b><br>1 <b>7-6</b><br>5.07E-02   | al)<br>Non-Car  | Ca   | lculated Haza<br>Non-Ca   | rd/Risk  | Ca   |                  |
| <b>CAS:</b><br>Concentratior<br>RfDo (mg/kg-o  | <b>7439-9</b><br>n mg/kg :<br>day):<br>ay)-1:       | <b>ry (elementa</b><br>1 <b>7-6</b><br>5.07E-02   | <b>Non-Car</b><br>Ingestion:                              | Ca   | <b>Iculated Haza</b><br>Non-Ca<br>Ingestion:                              | rd/Risk  | <b>Ca</b><br>Ingestion:                              |                  |
| CAS:<br>Concentratior<br>RfDo (mg/kg-o<br>RfCi (mg/m3):<br>SFO (mg/kg-d                              | <b>7439-9</b><br>n mg/kg :<br>day):<br>ay)-1:       | <b>ry (elementa</b><br>1 <b>7-6</b><br>5.07E-02   | <b>Non-Car</b><br>Ingestion:<br>Dermal:                   | Ca<br>ncer Adult   | <b>Iculated Haza</b><br>Non-Ca<br>Ingestion:<br>Dermal:                   | rd/Risk<br>ncer Child                                | <b>Ca</b><br>Ingestion:<br>Dermal:                   |                  |
| CAS:<br>Concentratior<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-α<br>IUR (μg/m3)-1             | <b>7439-9</b><br>n mg/kg :<br>day):<br>ay)-1:       | <b>ry (elementa</b><br>1 <b>7-6</b><br>5.07E-02   | <b>Non-Car</b><br>Ingestion:<br>Dermal:<br>Inhalation:    | Cal<br>ncer Adult<br>4.67E-03                            | <b>Iculated Haza</b><br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:    | rd/Risk<br>ncer Child<br>4.67E-03                    | <b>Ca</b><br>Ingestion:<br>Dermal:<br>Inhalation:    | ncer             |
| CAS:<br>Concentration<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-α<br>IUR (μg/m3)-1<br>Mutagen: | <b>7439-9</b><br>n mg/kg :<br>day):<br>ay)-1:<br>.: | ry (elementa<br>7-6<br>5.07E-02<br>3.00E-04       | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Cal<br>ncer Adult<br>4.67E-03                            | <b>Iculated Haza</b><br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:    | rd/Risk<br>ncer Child<br>4.67E-03                    | <b>Ca</b><br>Ingestion:<br>Dermal:<br>Inhalation:    | ncer             |
| CAS:<br>Concentration<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-α<br>IUR (μg/m3)-1<br>Mutagen: | <b>7439-9</b><br>n mg/kg :<br>day):<br>ay)-1:<br>.: | ry (elementa<br>17-6<br>5.07E-02<br>3.00E-04<br>Y | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Ca<br>ncer Adult<br>4.67E-03<br><b>4.67E-03</b><br>1.55% | Iculated Haza<br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | rd/Risk<br>ncer Child<br>4.67E-03<br><b>4.67E-03</b> | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | ncer<br>0.00E+00 |

### Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

### Analyte: Methyl Ethyl Ketone (2-Butanone)

| CAS: 78-93-           | 3               |               |            |              |            |             |          |
|-----------------------|-----------------|---------------|------------|--------------|------------|-------------|----------|
| Concentration mg/kg : | 5.73E-01        |               | Cal        | culated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):     | 6.00E-01        | Non-Can       | icer Adult | Non-Ca       | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):         | 5.00E+00        | Ingestion:    | 1.14E-06   | Ingestion:   | 1.22E-05   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                 | Dermal:       |            | Dermal:      |            | Dermal:     |          |
| IUR (μg/m3)-1:        |                 | Inhalation:   | 9.01E-06   | Inhalation:  | 9.01E-06   | Inhalation: |          |
| Mutagen:              |                 | Total:        | 1.02E-05   | Total:       | 2.12E-05   | Total:      | 0.00E+00 |
| VOC:                  | Y               |               |            |              |            |             |          |
| % Contri              | bution to Medi  | a Hazard/Risk | 0.00%      |              | 0.00%      |             | 0.00%    |
|                       |                 | mg/kg Non-Ca  | ncer Adult | Non-Ca       | ncer Child | Са          | ncer     |
| Recommended Acceptal  | ole Concentrati | on N          | V/A        | ٨            | I/A        | ٨           | I/A      |

## Analyte: Methylcyclohexane

| CAS: 108-87-2                             |                        |            |             |                  |             |          |  |
|---|------------------------|------------|-------------|------------------|-------------|----------|--|
| Concentration mg/kg : 7.39E+00            | Calculated Hazard/Risk |            |             |                  |             |          |  |
| RfDo (mg/kg-day):                         | Non-Can                | cer Adult  | Non-Ca      | Non-Cancer Child |             | Cancer   |  |
| RfCi (mg/m3):                             | Ingestion:             |            | Ingestion:  |                  | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:                        | Dermal:                |            | Dermal:     |                  | Dermal:     |          |  |
| IUR (μg/m3)-1:                            | Inhalation:            |            | Inhalation: |                  | Inhalation: |          |  |
| Mutagen:                                  | Total:                 | 0.00E+00   | Total:      | 0.00E+00         | Total:      | 0.00E+00 |  |
| VOC:                                      |                        |            |             |                  |             |          |  |
| % Contribution to Media Hazard/Risk 0.00% |                        |            |             | 0.00%            |             | 0.00%    |  |
|   | mg/kg Non-Car          | ncer Adult | Non-Car     | ncer Child       | Car         | ncer     |  |
| Recommended Acceptable Concentrati        | on N                   | I/A        | Ν           | I/A              | N           | /A       |  |

## Analyte: Methylene Chloride

CAS: 75-09-2

| Concentration mg/kg :               | 6.90E-04 | Calculated Hazard/Risk |           |             |            |             |          |
|-------------------------------------|----------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):                   | 6.00E-03 | Non-Can                | cer Adult | Non-Ca      | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):                       | 6.00E-01 | Ingestion:             | 1.38E-07  | Ingestion:  | 1.47E-06   | Ingestion:  | 9.01E-12 |
| SFO (mg/kg-day)-1:                  | 2.00E-03 | Dermal:                |           | Dermal:     |            | Dermal:     |          |
| IUR (µg/m3)-1:                      | 1.00E-08 | Inhalation:            | 5.04E-07  | Inhalation: | 5.04E-07   | Inhalation: | 3.11E-12 |
| Mutagen:                            | Y        | Total:                 | 6.41E-07  | Total:      | 1.97E-06   | Total:      | 1.21E-11 |
| VOC:                                | Y        |                        |           |             |            |             |          |
| % Contribution to Media Hazard/Risk |          | 0.00%                  |           | 0.00%       |            | 0.00%       |          |

Wednesday, December 6, 2023

Residential

## Program: Voluntary Remediation Program (VRP)

| Risk Based Performance Criteria |                                      |   |  |  |  |  |
|---------------------------------|--------------------------------------|---|--|--|--|--|
| Default Hazard Index            | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |  |  |  |  |
| 1                               | 1.00E-06                             | 1.00E-04                                |  |  |  |  |
|                                 |                                      |   |  |  |  |  |

# Soil

| mg/kg                                | Non-Cancer Adult | Non-Cancer Child | Cancer |
|--------------------------------------|------------------|------------------|--------|
| Recommended Acceptable Concentration | N/A              | N/A              | N/A    |

## Analyte: Methylnaphthalene, 1-

### CAS: 90-12-0

| Concentration mg/kg :               | 2.18E+00        |              | Cal        | culated Haza | rd/Risk    |             |          |
|-------------------------------------|-----------------|--------------|------------|--------------|------------|-------------|----------|
| RfDo (mg/kg-day):                   | 7.00E-02        | Non-Can      | cer Adult  | Non-Ca       | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):                       |                 | Ingestion:   | 3.73E-05   | Ingestion:   | 3.98E-04   | Ingestion:  | 9.09E-08 |
| SFO (mg/kg-day)-1:                  | 2.90E-02        | Dermal:      | 2.05E-05   | Dermal:      | 1.23E-04   | Dermal:     | 3.32E-08 |
| IUR (μg/m3)-1:                      |                 | Inhalation:  |            | Inhalation:  |            | Inhalation: |          |
| Mutagen:                            |                 | Total:       | 5.78E-05   | Total:       | 5.21E-04   | Total:      | 1.24E-07 |
| VOC:                                | Y               |              |            |              |            |             |          |
| % Contribution to Media Hazard/Risk |                 |              | 0.02%      |              | 0.02%      |             | 0.60%    |
|                                     |                 | mg/kg Non-Ca | ncer Adult | Non-Car      | ncer Child | Car         | ncer     |
| Recommended Acceptab                | ole Concentrati | on N         | V/A        | Ν            | //A        | N           | /A       |

## Analyte: Methylnaphthalene, 2-

CAS:

# 91-57-6

| Concentration mg/kg :                    | 3.51E+00 | Calculated Hazard/Risk |            |             |            |             |          |
|--|----------|------------------------|------------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):                        | 4.00E-03 | Non-Can                | cer Adult  | Non-Ca      | ncer Child | Са          | ncer     |
| RfCi (mg/m3):                            |          | Ingestion:             | 1.05E-03   | Ingestion:  | 1.12E-02   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                       |          | Dermal:                | 5.78E-04   | Dermal:     | 3.46E-03   | Dermal:     |          |
| IUR (μg/m3)-1:                           |          | Inhalation:            |            | Inhalation: |            | Inhalation: |          |
| Mutagen:                                 |          | Total:                 | 1.63E-03   | Total:      | 1.47E-02   | Total:      | 0.00E+00 |
| VOC:                                     | Y        |                        |            |             |            |             |          |
| % Contribution to Media Hazard/Risk      |          |                        | 0.54%      |             | 0.58%      |             | 0.00%    |
|  |          | mg/kg Non-Ca           | ncer Adult | Non-Cai     | ncer Child | Са          | ncer     |
| Recommended Acceptable Concentration N/A |          |                        | I/A        | Λ           | I/A        | ٨           | I/A      |

## Program: Voluntary Remediation Program (VRP)

|--|

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

CAS:

91-20-3

| Concentration mg/kg :                | 2.05E+00 | Calculated Hazard/Risk |            |             |            |             |          |  |
|--------------------------------------|----------|------------------------|------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):                    | 2.00E-02 | Non-Can                | cer Adult  | Non-Ca      | ncer Child | Cai         | ncer     |  |
| RfCi (mg/m3):                        | 3.00E-03 | Ingestion:             | 1.23E-04   | Ingestion:  | 1.31E-03   | Ingestion:  | 3.53E-07 |  |
| SFO (mg/kg-day)-1:                   | 1.20E-01 | Dermal:                | 6.73E-05   | Dermal:     | 4.03E-04   | Dermal:     | 1.29E-07 |  |
| IUR (μg/m3)-1:                       | 3.40E-05 | Inhalation:            | 1.41E-02   | Inhalation: | 1.41E-02   | Inhalation: | 5.35E-07 |  |
| Mutagen:                             |          | Total:                 | 1.43E-02   | Total:      | 1.58E-02   | Total:      | 1.02E-06 |  |
| VOC:                                 | Y        |                        |            |             |            |             |          |  |
| % Contribution to Media Hazard/Risk  |          |                        | 4.76%      |             | 0.63%      |             | 4.94%    |  |
| Exceeds Risk! mg/kg Non-Ca           |          |                        | ncer Adult | Non-Car     | ncer Child | Car         | ncer     |  |
| Recommended Acceptable Concentration |          |                        | I/A        | Ν           | /A         | 2.01        | E+00     |  |

#### **Nickel Soluble Salts** Analyte:

| CAS: 7440-0           | 02-0            |                |            |               |            |             |          |
|-----------------------|-----------------|----------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg : | 1.11E+02        |                | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):     | 2.00E-02        | Non-Can        | cer Adult  | Non-Ca        | ncer Child | Cai         | ncer     |
| RfCi (mg/m3):         | 9.00E-05        | Ingestion:     | 6.65E-03   | Ingestion:    | 7.09E-02   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                 | Dermal:        |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1:        | 2.60E-04        | Inhalation:    | 8.69E-04   | Inhalation:   | 8.69E-04   | Inhalation: | 7.55E-09 |
| Mutagen:              |                 | Total:         | 7.52E-03   | Total:        | 7.18E-02   | Total:      | 7.55E-09 |
| VOC:                  |                 |                |            |               |            |             |          |
| % Contri              | bution to Med   | ia Hazard/Risk | 2.50%      |               | 2.85%      |             | 0.04%    |
|                       |                 | mg/kg Non-Car  | ncer Adult | Non-Car       | ncer Child | Car         | ncer     |
| Recommended Acceptal  | ble Concentrati | on N           | I/A        | Ν             | //A        | N,          | /A       |

#### Analyte: Phenanthrene

CAS: 85-01-8

| Concentration mg/kg : | 1.70E+00       | Calculated Hazard/Risk |           |             |            |             |          |
|-----------------------|----------------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-02       | Non-Can                | cer Adult | Non-Ca      | ncer Child | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:             | 6.78E-05  | Ingestion:  | 7.23E-04   | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:                | 3.72E-05  | Dermal:     | 2.23E-04   | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:            |           | Inhalation: |            | Inhalation: |          |
| Mutagen:              |                | Total:                 | 1.05E-04  | Total:      | 9.46E-04   | Total:      | 0.00E+00 |
| VOC:                  | Y              |                        |           |             |            |             |          |
| % Contri              | ibution to Med | ia Hazard/Risk         | 0.03%     |             | 0.04%      |             | 0.00%    |

Residential

## Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |
| hil                  |  |   |

# Soil

|   |  |  | mg/kg <i>Non-Ca</i>  | ncer Adult  | Non-Car   | ncer Child  | Ca   | ncer     |
|---|--|--|--|---|---|---|--|----------|
| Recommend   | ed Acceptab  | ole Concentrati                                    | on N   | I/A   | N   | //A   | N  | /A       |
| Analyte:  | Pyrene   | 9  |  |   |   |   |  |          |
| CAS:  | 129-00   | )-0  |  |   |   |   |  |          |
| Concentratior   | n mg/kg :  | 8.78E-01   | Ţ  | Ca  | lculated Haza   | rd/Risk   |  |          |
| RfDo (mg/kg-o   | day):  | 3.00E-02   | Non-Can  | cer Adult   | Non-Ca  | ncer Child  | Ca   | ncer     |
| RfCi (mg/m3):   |  |  | Ingestion:   | 3.51E-05  | Ingestion:  | 3.74E-04  | Ingestion:   |          |
| SFO (mg/kg-da   | ay)-1:   |  | Dermal:  | 1.93E-05  | Dermal:   | 1.15E-04  | Dermal:  |          |
| IUR (µg/m3)-1   | .:   |  | Inhalation:  |   | Inhalation:   |   | Inhalation:  |          |
| Mutagen:  |  |  | Total:   | 5.43E-05  | Total:  | 4.90E-04  | Total:   | 0.00E+00 |
| VOC:  |  | Y  |  |   |   |   |  |          |
|   | % Contril  | bution to Medi                                     | a Hazard/Risk  | 0.02%   |   | 0.02%   |  | 0.00%    |
|   |  |  | mg/kg Non-Ca   | ncer Adult  | Non-Car   | ncer Child  | Ca   | ncer     |
|   |  |  | 116/16 11011 001   | ner Auun  | Non Cui   |   | Cui  |          |
| Recommend   | ed Acceptab  | ole Concentrati                                    |  | I/A   |   | I/A   |  | //A      |
|   |  |  |  |   |   |   |  |          |
| Analyte:  | Toluen   | e  |  |   |   |   |  |          |
| Analyte:<br>CAS:  | Toluen<br>108-88   | ie<br>3-3  |  | I/A   | N   | I/A   |  |          |
| Analyte:<br>CAS:<br>Concentratior   | <b>Toluen</b><br><b>108-88</b><br>n mg/kg :                    | e  | on N   | <i>I/A</i><br>Cal   | N<br>Iculated Haza  | rd/Risk   | N  | //A      |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-o  | <b>Toluen</b><br><b>108-88</b><br>mg/kg :<br>day):             | <b>1e</b><br><b>3-3</b><br>2.07E+00                | on Non-Can   | //A<br>Cal<br>Icer Adult  | N<br>Iculated Haza<br>Non-Ca  | rd/Risk<br>ncer Child                                     | N  |          |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-o<br>RfCi (mg/m3):   | Toluen<br>108-88<br>n mg/kg :<br>day):                         | 2.07E+00<br>8.00E-02                               | on N   | <i>I/A</i><br>Cal   | N<br>Iculated Haza  | rd/Risk   | N  | //A      |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-c<br>RfCi (mg/m3):<br>SFO (mg/kg-da  | <b>Toluen</b><br><b>108-88</b><br>n mg/kg :<br>day):<br>ay)-1: | 2.07E+00<br>8.00E-02                               | on A<br>Non-Can<br>Ingestion:                                | //A<br>Cal<br>Icer Adult  | N<br>Iculated Haza<br>Non-Ca<br>Ingestion:                                    | rd/Risk<br>ncer Child                                     | Ca<br>Ingestion:                                     | //A      |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-da<br>IUR (μg/m3)-1                                 | <b>Toluen</b><br><b>108-88</b><br>n mg/kg :<br>day):<br>ay)-1: | 2.07E+00<br>8.00E-02                               | on N<br>Non-Can<br>Ingestion:<br>Dermal:                     | //A<br>Ca<br>cer Adult<br>3.10E-05                                    | N<br>Iculated Haza<br>Non-Ca<br>Ingestion:<br>Dermal:                         | r <b>d/Risk</b><br>ncer Child<br>3.31E-04                 | N<br>Ca<br>Ingestion:<br>Dermal:                     | ncer     |
| Recommend<br>Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-d<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (µg/m3)-1<br>Mutagen:<br>VOC: | <b>Toluen</b><br><b>108-88</b><br>n mg/kg :<br>day):<br>ay)-1: | 2.07E+00<br>8.00E-02                               | on Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:           | //A<br>Cal<br>icer Adult<br>3.10E-05<br>9.26E-05                      | <b>Iculated Haza</b><br><b>Non-Ca</b><br>Ingestion:<br>Dermal:<br>Inhalation: | rd/Risk<br>ncer Child<br>3.31E-04<br>9.26E-05             | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | //A      |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d:<br>IUR (μg/m3)-1<br>Mutagen:                     | Toluen<br>108-88<br>n mg/kg :<br>day):<br>ay)-1:               | Pe<br>3-3<br>2.07E+00<br>8.00E-02<br>5.00E+00<br>Y | on Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:           | //A<br>Cal<br>icer Adult<br>3.10E-05<br>9.26E-05                      | <b>Iculated Haza</b><br><b>Non-Ca</b><br>Ingestion:<br>Dermal:<br>Inhalation: | rd/Risk<br>ncer Child<br>3.31E-04<br>9.26E-05             | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | ncer     |
| Analyte:<br>CAS:<br>Concentratior<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d:<br>IUR (μg/m3)-1<br>Mutagen:                     | Toluen<br>108-88<br>n mg/kg :<br>day):<br>ay)-1:               | Pe<br>3-3<br>2.07E+00<br>8.00E-02<br>5.00E+00<br>Y | on Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | //A<br>Cal<br>icer Adult<br>3.10E-05<br>9.26E-05<br>1.24E-04<br>0.04% | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:                      | rd/Risk<br>ncer Child<br>3.31E-04<br>9.26E-05<br>4.24E-04 | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | 0.00E+00 |

| mg/kg                                | Non-Cancer Child | Cancer |     |
|--------------------------------------|------------------|--------|-----|
| Recommended Acceptable Concentration | N/A              | N/A    | N/A |
|                                      |                  |        |     |

## Program: Voluntary Remediation Program (VRP)

| Risk Based | Performance | <u>Criteria</u> |
|------------|-------------|-----------------|
|            |             |                 |

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk (All Chemicals) |
|----------------------|--------------------------------------|---|
| 1                    | 1.00E-06                             | 1.00E-04                                |

# Soil

CAS:

## Analyte: Trimethylbenzene, 1,2,4-

| CAS: 95-63-                         | 6               |              |            |               |            |             |          |
|-------------------------------------|-----------------|--------------|------------|---------------|------------|-------------|----------|
| Concentration mg/kg :               | 1.47E+00        |              | Cal        | lculated Haza | rd/Risk    |             |          |
| RfDo (mg/kg-day):                   | 1.00E-02        | Non-Can      | icer Adult | Non-Ca        | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):                       | 6.00E-02        | Ingestion:   | 1.76E-04   | Ingestion:    | 1.88E-03   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                  |                 | Dermal:      |            | Dermal:       |            | Dermal:     |          |
| IUR (µg/m3)-1:                      |                 | Inhalation:  | 2.96E-03   | Inhalation:   | 2.96E-03   | Inhalation: |          |
| Mutagen:                            |                 | Total:       | 3.14E-03   | Total:        | 4.84E-03   | Total:      | 0.00E+00 |
| VOC:                                | Y               |              |            |               |            |             |          |
| % Contribution to Media Hazard/Risk |                 |              | 1.04%      |               | 0.19%      |             | 0.00%    |
|                                     |                 | mg/kg Non-Ca | ncer Adult | Non-Ca        | ncer Child | Ca          | ncer     |
| Recommended Acceptal                | ble Concentrati | on N         | V/A        | ٨             | I/A        | N           | I/A      |

### Analyte: Trimethylbenzene, 1,3,5-

| 4.00 | <b>C- O</b> |  |
|------|-------------|--|
| 108- | 67-8        |  |

| Concentration mg/kg :               | 4.37E-01 |             | Cal        | lculated Haza | rd/Risk    |             |          |
|-------------------------------------|----------|-------------|------------|---------------|------------|-------------|----------|
| RfDo (mg/kg-day):                   | 1.00E-02 | Non-Can     | cer Adult  | Non-Ca        | ncer Child | Ca          | ncer     |
| RfCi (mg/m3):                       | 6.00E-02 | Ingestion:  | 5.24E-05   | Ingestion:    | 5.59E-04   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                  |          | Dermal:     |            | Dermal:       |            | Dermal:     |          |
| IUR (μg/m3)-1:                      |          | Inhalation: | 1.06E-03   | Inhalation:   | 1.06E-03   | Inhalation: |          |
| Mutagen:                            |          | Total:      | 1.11E-03   | Total:        | 1.62E-03   | Total:      | 0.00E+00 |
| VOC:                                | Y        |             |            |               |            |             |          |
| % Contribution to Media Hazard/Risk |          |             | 0.37%      |               | 0.06%      |             | 0.00%    |
| mg/kg Non-Ca                        |          |             | ncer Adult | Non-Car       | ncer Child | Са          | ncer     |
| Recommended Acceptab                | I/A      | Ν           | I/A        | ٨             | I/A        |             |          |

## Analyte: Vanadium and Compounds

CAS: 7440-62-2

| Concentration mg/kg :               | 4.04E+01 | Calculated Hazard/Risk |           |             |            |             |          |
|-------------------------------------|----------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):                   | 5.00E-03 | Non-Can                | cer Adult | Non-Ca      | ncer Child | Са          | ncer     |
| RfCi (mg/m3):                       | 1.00E-04 | Ingestion:             | 9.68E-03  | Ingestion:  | 1.03E-01   | Ingestion:  |          |
| SFO (mg/kg-day)-1:                  |          | Dermal:                |           | Dermal:     |            | Dermal:     |          |
| IUR (µg/m3)-1:                      |          | Inhalation:            | 2.85E-04  | Inhalation: | 2.85E-04   | Inhalation: |          |
| Mutagen:                            |          | Total:                 | 9.96E-03  | Total:      | 1.03E-01   | Total:      | 0.00E+00 |
| VOC:                                |          |                        |           |             |            |             |          |
| % Contribution to Media Hazard/Risk |          | 3.31%                  |           | 4.11%       |            | 0.00%       |          |

Residential

## Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |   |
|----------------------|--|---|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk (All Chemicals) |
| 1                    | 1.00E-06                               | 1.00E-04                                |
| , il                 |  |   |

# Soil

|   |                           |                 | mg/kg Non-Car   | ncer Adult   | Non-Car  | ncer Child   | Са   | ncer             |
|---|---------------------------|-----------------|---|--|--|--|--|------------------|
| Recommend   | ed Acceptab               | le Concentratio | on N  | V/A  | N  | /A   | ٨  | I/A              |
| Analyte:  | Xylene                    | 5               |   |  |  |  |  |                  |
| CAS:  | 1330-2                    | 0-7             |   |  |  |  |  |                  |
| Concentratior   | n mg/kg :                 | 6.50E+00        |   | Cal  | lculated Haza  | rd/Risk  |  |                  |
| RfDo (mg/kg-o   | day):                     | 2.00E-01        | Non-Can   | ncer Adult   |  | ncer Child   | Ca   | ncer             |
| RfCi (mg/m3):   |                           | 1.00E-01        | Ingestion:  | 3.89E-05   | Ingestion:   | 4.15E-04   | Ingestion:   |                  |
| SFO (mg/kg-d  | ay)-1:                    |                 | Dermal:   |  | Dermal:  |  | Dermal:  |                  |
| IUR (µg/m3)-1   | :                         |                 | Inhalation:   | 1.09E-02   | Inhalation:  | 1.09E-02   | Inhalation:  |                  |
| Mutagen:  |                           |                 | Total:  | 1.09E-02   | Total:   | 1.13E-02   | Total:   | 0.00E+00         |
| VOC:  |                           | Y               |   |  |  |  |  |                  |
|   | % Contrib                 | ution to Media  | a Hazard/Risk   | 3.62%  |  | 0.45%  |  | 0.00%            |
|   |                           |                 | mg/kg Non-Ca  | ncer Adult   | Non-Car  | ncer Child   | Са   | ncer             |
| Recommend   | ed Acceptab               | le Concentratio | on M  | V/A  | N  | /A   | ٨  | I/A              |
| Analyte:  | Zinc an                   | d Compoun       | de  |  |  |  |  |                  |
| CAS:  | 7440-6                    | -               |   |  |  |  |  |                  |
| Concentratior   |                           | 4.97E+01        |   | 0.1  |  |  |  |                  |
|   | · · · · · 6 ·             |                 |   |  |  | ual /Diala   |  |                  |
| KIIJO (M9/KØ-0  | dav).                     |                 | Non Con   |  | Iculated Haza  | •  | 6  | ncor             |
|   |                           | 3.00E-01        |   | ncer Adult   | Non-Ca   | ncer Child   |  | ncer             |
| RfCi (mg/m3):   |                           |                 | Ingestion:  |  | Non-Can<br>Ingestion:  | •  | Ingestion:   | ncer             |
| RfCi (mg/m3):<br>SFO (mg/kg-d   | ay)-1:                    |                 | Ingestion:<br>Dermal:   | ncer Adult   | Non-Car<br>Ingestion:<br>Dermal:                                     | ncer Child   | Ingestion:<br>Dermal:  | ncer             |
| RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1                              | ay)-1:                    |                 | Ingestion:<br>Dermal:<br>Inhalation:  | ncer Adult<br>1.98E-04                             | Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:                      | ncer Child<br>2.12E-03                             | Ingestion:<br>Dermal:<br>Inhalation:                               |                  |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen: | ay)-1:                    |                 | Ingestion:<br>Dermal:   | ncer Adult   | Non-Car<br>Ingestion:<br>Dermal:                                     | ncer Child   | Ingestion:<br>Dermal:  | ncer<br>0.00E+00 |
| RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1                              | ay)-1:<br>.:              | 3.00E-01        | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b>                                   | ncer Adult<br>1.98E-04<br><b>1.98E-04</b>          | Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:                      | 2.12E-03   | Ingestion:<br>Dermal:<br>Inhalation:                               | 0.00E+00         |
| RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen:                  | ay)-1:<br>.:              |                 | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b><br>a Hazard/Risk                  | ncer Adult<br>1.98E-04<br><b>1.98E-04</b><br>0.07% | Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:            | ncer Child<br>2.12E-03<br><b>2.12E-03</b><br>0.08% | Ingestion:<br>Dermal:<br>Inhalation:                               |                  |
| RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen:<br>VOC:          | ay)-1:<br>.:<br>% Contrib | 3.00E-01        | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b><br>a Hazard/Risk<br>mg/kg Non-Cal | ncer Adult<br>1.98E-04<br><b>1.98E-04</b><br>0.07% | Non-Can<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>Non-Can | 2.12E-03   | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b><br><i>Ca</i> | 0.00E+00         |

## Total Calculated Hazard Index/Risk for Soil

| Non-Cance   | er Adult | Non-Cance   | er Child | Cancer      |          |
|-------------|----------|-------------|----------|-------------|----------|
| Ingestion:  | 2.26E-01 | Ingestion:  | 2.41E+00 | Ingestion:  | 1.63E-05 |
| Dermal:     | 6.63E-03 | Dermal:     | 3.97E-02 | Dermal:     | 3.25E-06 |
| Inhalation: | 6.87E-02 | Inhalation: | 6.87E-02 | Inhalation: | 1.03E-06 |
| Total:      | 3.01E-01 | Total:      | 2.52E+00 | Total:      | 2.06E-05 |

### Residential

#### Voluntary Remediation Program (VRP) Program:

Risk Based Performance Criteria

1.00E-06

Default Hazard Index

1

Default Risk for Individual Chemical Default Cumulative Risk (All Chemicals) 1.00E-04

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### Program: Voluntary Remediation Program (VRP)

Default Hazard Index 1 Risk Based Performance Criteria

Default Risk for Individual Chemical 1.00E-06 Default Cumulative Risk (All Chemicals) 1.00E-04

# **Report Summary**

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

## Hazard/Risk Summary for Soil

| Analyte                        | CAS            | Hazard Adult | Hazard Child | Risk     |
|--------------------------------|----------------|--------------|--------------|----------|
| Acenaphthene                   | 83-32-9        | 6.37E-06     | 5.74E-05     | 0.00E+00 |
| Acenaphthylene                 | 208-96-8       | 8.66E-06     | 7.81E-05     | 0.00E+00 |
| Acetone                        | 67-64-1        | 2.29E-06     | 2.44E-05     | 0.00E+00 |
| Acetophenone                   | 98-86-2        | 1.81E-06     | 1.93E-05     | 0.00E+00 |
| Aluminum                       | 7429-90-5      | 1.24E-02     | 1.19E-01     | 0.00E+00 |
| Anthracene                     | 120-12-7       | 1.57E-06     | 1.41E-05     | 0.00E+00 |
| Antimony (metallic)            | 7440-36-0      | 4.03E-03     | 4.29E-02     | 0.00E+00 |
| Arsenic, Inorganic             | 7440-38-2      | 2.60E-02     | 2.52E-01     | 1.30E-05 |
| Barium                         | 7440-39-3      | 5.38E-04     | 4.75E-03     | 0.00E+00 |
| Benz[a]anthracene              | 56-55-3        | 0.00E+00     | 0.00E+00     | 4.26E-07 |
| Benzene                        | 71-43-2        | 4.66E-03     | 6.11E-03     | 4.32E-07 |
| Benzo(g,h,i)perylene           | 191-24-2       | 1.53E-05     | 1.38E-04     | 0.00E+00 |
| Benzo[a]pyrene                 | 50-32-8        | 2.20E-03     | 1.89E-02     | 2.93E-06 |
| Benzo[b]fluoranthene           | 205-99-2       | 0.00E+00     | 0.00E+00     | 5.79E-07 |
| Benzo[k]fluoranthene           | 207-08-9       | 0.00E+00     | 0.00E+00     | 3.14E-08 |
| Benzoic Acid                   | 65-85-0        | 5.11E-07     | 4.75E-06     | 0.00E+00 |
| Beryllium and compounds        | 7440-41-7      | 5.71E-04     | 5.79E-03     | 5.66E-10 |
| Bis(2-ethylhexyl)phthalate     | 117-81-7       | 1.97E-05     | 1.83E-04     | 5.96E-09 |
| Butylbenzene, n-               | 104-51-8       | 3.36E-06     | 3.58E-05     | 0.00E+00 |
| Cadmium (Diet)                 | 7440-43-9-Diet | 4.69E-03     | 4.66E-02     | 1.57E-10 |
| Carbazole                      | 86-74-8        | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Chromium(III), Insoluble Salts | 16065-83-1     | 1.65E-04     | 1.76E-03     | 0.00E+00 |
| Chrysene                       | 218-01-9       | 0.00E+00     | 0.00E+00     | 6.02E-09 |
| Cobalt                         | 7440-48-4      | 4.27E-02     | 4.43E-01     | 2.44E-08 |
| Copper                         | 7440-50-8      | 4.64E-03     | 4.95E-02     | 0.00E+00 |
| Cresol, o-                     | 95-48-7        | 4.43E-06     | 4.11E-05     | 0.00E+00 |
| Cresol, p-chloro-m-            | 59-50-7        | 2.03E-06     | 1.88E-05     | 0.00E+00 |
| Cumene                         | 98-82-8        | 6.69E-05     | 8.63E-05     | 0.00E+00 |
| Cyanide (CN-)                  | 57-12-5        | 2.02E-02     | 3.62E-02     | 0.00E+00 |
| Dibenz[a,h]anthracene          | 53-70-3        | 0.00E+00     | 0.00E+00     | 1.72E-06 |
| Dimethylphenol, 2,4-           | 105-67-9       | 1.70E-05     | 1.58E-04     | 0.00E+00 |
| Ethylbenzene                   | 100-41-4       | 6.60E-05     | 1.45E-04     | 5.91E-08 |

### Residential

## Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

| Default Hazard Index |
|----------------------|
|----------------------|

1

Default Risk for Individual Chemical 1.00E-06 Default Cumulative Risk (All Chemicals) 1.00E-04

## Hazard/Risk Summary for Soil

| Analyte                          | CAS            | Hazard Adult | Hazard Child | Risk     |
|----------------------------------|----------------|--------------|--------------|----------|
| Fluoranthene                     | 206-44-0       | 4.15E-05     | 3.74E-04     | 0.00E+00 |
| Fluorene                         | 86-73-7        | 1.07E-05     | 9.62E-05     | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5       | 0.00E+00     | 0.00E+00     | 2.46E-07 |
| Iron                             | 7439-89-6      | 1.12E-01     | 1.20E+00     | 0.00E+00 |
| isopropyltoluene                 | 99-87-6        | 2.60E-05     | 3.75E-05     | 0.00E+00 |
| Lead and Compounds               | 7439-92-1      | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet | 1.17E-02     | 5.44E-02     | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6      | 4.67E-03     | 4.67E-03     | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3        | 1.02E-05     | 2.12E-05     | 0.00E+00 |
| Methylcyclohexane                | 108-87-2       | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Methylene Chloride               | 75-09-2        | 6.41E-07     | 1.97E-06     | 1.21E-11 |
| Methylnaphthalene, 1-            | 90-12-0        | 5.78E-05     | 5.21E-04     | 1.24E-07 |
| Methylnaphthalene, 2-            | 91-57-6        | 1.63E-03     | 1.47E-02     | 0.00E+00 |
| Naphthalene                      | 91-20-3        | 1.43E-02     | 1.58E-02     | 1.02E-06 |
| Nickel Soluble Salts             | 7440-02-0      | 7.52E-03     | 7.18E-02     | 7.55E-09 |
| Phenanthrene                     | 85-01-8        | 1.05E-04     | 9.46E-04     | 0.00E+00 |
| Pyrene                           | 129-00-0       | 5.43E-05     | 4.90E-04     | 0.00E+00 |
| Toluene                          | 108-88-3       | 1.24E-04     | 4.24E-04     | 0.00E+00 |
| Trimethylbenzene, 1,2,4-         | 95-63-6        | 3.14E-03     | 4.84E-03     | 0.00E+00 |
| Trimethylbenzene, 1,3,5-         | 108-67-8       | 1.11E-03     | 1.62E-03     | 0.00E+00 |
| Vanadium and Compounds           | 7440-62-2      | 9.96E-03     | 1.03E-01     | 0.00E+00 |
| Xylenes                          | 1330-20-7      | 1.09E-02     | 1.13E-02     | 0.00E+00 |
| Zinc and Compounds               | 7440-66-6      | 1.98E-04     | 2.12E-03     | 0.00E+00 |

## Total Hazard Index/Risk for All Media

| Non-Car                      | ncer Adult | Non-Ca      | ncer Child    | Са             | ncer              |
|------------------------------|------------|-------------|---------------|----------------|-------------------|
| Ingestion:                   | 2.26E-01   | Ingestion:  | 2.41E+00      | Ingestion:     | 1.63E-05          |
| Dermal:                      | 6.63E-03   | Dermal:     | 3.97E-02      | Dermal:        | 3.25E-06          |
| Inhalation:                  | 6.87E-02   | Inhalation: | 6.87E-02      | Inhalation:    | 1.03E-06          |
| Total:                       | 3.01E-01   | Total:      | 2.52E+00      | Total:         | 2.06E-05          |
| does not exceed hazard index |            | Exceeds H   | lazard Index! | does not excee | d cumulative risk |

### Residential

### Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

Default Hazard Index

Default Risk for Individual Chemical 1.00E-06 Default Cumulative Risk (All Chemicals) 1.00E-04

# **Residential Exposure Default Values**

| Symbol      | Description   | Value            | Units          |
|-------------|---|------------------|----------------|
| AF0-02      | Soil Adherence Factor - age segment 0-2                             | 0.2              | (mg/cm2)       |
| AF02-06     | Soil Adherence Factor - age segment 2-6                             | 0.2              | (mg/cm2)       |
| AF06-16     | Soil Adherence Factor - age segment 6-16                            | 0.07             | (mg/cm2)       |
| AF16-26     | Soil Adherence Factor - age segment 16-26                           | 0.07             | (mg/cm2)       |
| AFres-a     | Resident Soil Adherence Factor - adult                              | 0.07             | (mg/cm2)       |
| AFres-c     | Resident Soil Adherence Factor - child                              | 0.2              | (mg/cm2)       |
| ۹Tr         | Resident Averaging Time   | 365              | (days/yr)      |
| ATres       | Resident Averaging Time: 365 x LT                                   | 25550            | (days)         |
| ATres-a     | Resident Averaging Time - adult: 365 x EDres                        | 9490             | (days)         |
| ATres-c     | Resident Averaging Time - child: 365 x EDres-c                      | 2190             | (days)         |
| BW0-02      | Body Weight - age segment 0-2                                       | 15               | (kg)           |
| BW02-06     | Body Weight - age segment 2-6                                       | 15               | (kg)           |
| BW06-16     | Body Weight - age segment 6-16                                      | 80               | (kg)           |
| BW16-26     | Body Weight - age segment 16-26                                     | 80               | (kg)           |
| BWres-a     | Resident Body Weight - adult  | 80               | (kg)           |
| BWres-c     | Resident Body Weight - child  | 15               | (kg)           |
| DFSMres-adj | Resident Soil Mutagenic Dermal Contact Factor - age adjusted        | 428260           | (mg/kg)        |
| DFSres-adj  | Resident Soil Dermal Contact Factor - age adjusted                  | 103390           | (mg/kg)        |
| DFWMres-adj | Resident Groundwater Mutagenic Dermal Contact Factor - age adjusted | 8191633.33333333 | (cm2-event/kg) |
| DFWres-adj  | Resident Groundwater Dermal Contact Factor - age adjusted           | 2610650          | (cm2-event/kg) |
| ED0-02      | Exposure Duration - age segment 0-2                                 | 2                | (yrs)          |
| ED02-06     | Exposure Duration - age segment 2-6                                 | 4                | (yrs)          |
| ED06-16     | Exposure Duration -age segment 6-16                                 | 10               | (yrs)          |
| ED16-26     | Exposure Duration -age segment 16-26                                | 10               | (yrs)          |

## Residential

## Program: Voluntary Remediation Program (VRP)

### Risk Based Performance Criteria

| Default Ha         | azard Index Default Risk for Individual Chemical<br>1.00E-06 | Default Cumulative Risl<br>1.00E-04 | -           |
|--------------------|--|-------------------------------------|-------------|
| EDres              | Resident Total Exposure Duration                             | 26                                  | (yrs)       |
| EDres-a            | Resident Exposure Duration - adult                           | 20                                  | (yrs)       |
| EDres-c            | Resident Exposure Duration - child                           | 6                                   | (yrs)       |
| EFres              | Resident Exposure Frequency                                  | 350                                 | (days/yr)   |
| EFres0-02          | Resident Exposure Frequency - age segment 0-2                | 350                                 | (days/yr)   |
| EFres02-06         | Resident Exposure Frequency - age segment 2-6                | 350                                 | (days/yr)   |
| EFres06-16         | Resident Exposure Frequency - age segment 6-16               | 350                                 | (days/yr)   |
| EFres16-26         | Resident Exposure Frequency - age segment 16-26              | 350                                 | (days/yr)   |
| EFres-a            | Resident Exposure Frequency - adult                          | 350                                 | (days/yr)   |
| EFres-c            | Resident Exposure Frequency - child                          | 350                                 | (days/yr)   |
| ETevent-res(0-02)  | Resident Water Exposure Time - age segment 0-2               | 0.54                                | (hrs/event) |
| ETevent-res(02-06) | Resident Water Exposure Time - age segment 2-6               | 0.54                                | (hrs/event) |
| ETevent-res(06-16) | Resident Water Exposure Time - age segment 6-16              | 0.71                                | (hrs/event) |
| ETevent-res(16-26) | Resident Water Exposure Time - age segment 16-26             | 0.71                                | (hrs/event) |
| ETevent-res-a      | Resident Groundwater Exposure Time -adult                    | 0.71                                | (hrs/event) |
| ETevent-res-adj    | Resident Water Exposure Time -age adjusted                   | 0.670769230769231                   | (hrs/event) |
| ETevent-res-c      | Resident Groundwater Exposure Time - child                   | 0.54                                | (hrs/event) |
| ETevent-res-madj   | Resident Water Exposure Time - mutagen age adjusted          | 0.670769230769231                   | (hrs/event) |
| ETrai              | Resident Air Inhalation Exposure Time                        | 24                                  | (hrs/day)   |
| ETres              | Resident Soil Exposure Time                                  | 24                                  | (hrs/day)   |
| ETres0-02          | Resident Exposure Time - age segment 0-2                     | 24                                  | (hrs/day)   |
| ETres02-06         | Resident Exposure Time - age segment 2-6                     | 24                                  | (hrs/day)   |
| ETres06-16         | Resident Exposure Time - age segment 6-16                    | 24                                  | (hrs/day)   |
| ETres16-26         | Resident Exposure Time - age segment 16-26                   | 24                                  | (hrs/day)   |
| ETres-a            | Resident Exposure Time - adult                               | 24                                  | (hrs/day)   |
| ETres-c            | Resident Exposure Time - child                               | 24                                  | (hrs/day)   |

### Residential

### Program: Voluntary Remediation Program (VRP)

#### Default Hazard Index Default Risk for Individual Chemical Default Cumulative Risk (All Chemicals) 1.00E-06 1.00E-04 1 ETres-gwi Resident Groundwater Inhalation Exposure Time 24 (hrs/day) Resident Groundwater Events - adult EVres-a 1 (events/day) Resident Groundwater Events - child EVres-c 1 (events/day) IFSMres-adj Resident Mutagenic Soil Ingestion Rate - age adjusted 166833.3333333333 (mg/kg) Resident Soil Ingestion Rate - age adjusted 36750 (mg/kg) IFSres-adj IFWMres-adj Resident Mutagenic Drinking Groundwater Ingestion Rate - age adjusted 1019.9 (L/kg) IFWres-adj Resident Drinking Groundwater Ingestion Rate - age adjusted 327.95 (L/kg) INHMres-ai-adj Resident Air Inhalation Exposure Duration Mutagen - age adjusted 604800 (hrs) INHMres-gw-adj 25200 Resident Groundwater Inhalation Exposure Duration Mutagen - age adjusted (days) INHMres-s-adj 25200 Resident Soil Inhalation Exposure Duration Mutagen - age adjusted (days) IREres-a Resident Food Eggs Ingestion Rate - Virginia DEQ 150000 (mg/day) IRFres-a Resident Food Fish/Shellfish Ingestion Rate - Exposure Defaults Handbook 54000 (mg/day) IRFVres-a Resident Food Fruit/Vegetables Ingestion Rate - Exposure Defaults Handbook 122000 (mg/day) IRMDres-a Resident Food Meat/Dairy - Virginia DEQ 280000 (mg/day) IRS0-02 Soil/Sediment Ingestion Rate - age segment 0-2 200 (mg/day) IRS02-06 Soil/Sediment Ingestion Rate - age segment 2-6 200 (mg/day) IRS06-16 Soil/Sediment Ingestion Rate - age segment 6-16 (mg/day) 100 IRS16-26 Soil/Sediment Ingestion Rate - age segment 16-26 100 (mg/day) IRSres-a Resident Soil Ingestion Rate - adult 100 (mg/day) Resident Soil Ingestion Rate - child 200 (mg/day) IRSres-c IRW0-02 Drinking Water Ingestion Rate - age segment 0-2 0.78 (L/day) IRW02-06 0.78 (L/day) Drinking Water Ingestion Rate - age segment 2-6 IRW06-16 Drinking Water Ingestion Rate - age segment 6-16 2.5 (L/day) IRW16-26 Drinking Water Ingestion Rate - age segment 16-26 2.5 (L/day) IRWres-a 2.5 (L/day) Resident Drinking Groundwater Ingestion Rate - adult IRWres-c 0.78 (L/day) Resident Drinking Groundwater Ingestion Rate - child

**Risk Based Performance Criteria** 

### Residential

## Program: Voluntary Remediation Program (VRP)

| t Hazard Index<br>1                            | Default Risk for Individual Chemical<br>1.00E-06  |  | e Risk (All Chemicals)<br>00E-04   |
|--|---|--|--|
| Resident Soil Surfa                            | nce Area - adult  | 6032   | (cm2/day)  |
| Resident Water Su                              | ırface Area - adult   | 19652  | (cm2)  |
| Resident Water Su                              | ırface Area - child   | 6365   | (cm2)  |
| Resident Soil Surfa                            | ice Area - child  | 2373   | (cm2/day)  |
| Surface Area Soil/S                            | Sediment - age segment 0-2  | 2373   | (cm2/day)  |
| Surface Area Soil/S                            | Sediment - age segment 2-6  | 2373   | (cm2/day)  |
| Surface Area Soil/S                            | Sediment - age segment 6-16   | 6032   | (cm2/day)  |
| Surface Area Soil/Sediment - age segment 16-26 |   | 6032   | (cm2/day)  |
| Surface Area Wate                              | er - age segment 0-2  | 6365   | (cm2)  |
| Surface Area Wate                              | er - age segment 2-6  | 6365   | (cm2)  |
| Surface Area Wate                              | er - age segment 6- 16  | 19652  | (cm2)  |
| Surface Area Wate                              | er - age segment 16-26  | 19652  | (cm2)  |
|  | 1         Resident Soil Surfa         Resident Water Su         Resident Water Su         Resident Soil Surfa         Surface Area Soil/S         Surface Area Wate         Surface Area Wate         Surface Area Wate         Surface Area Wate | 1       1.00E-06         Resident Soil Surface Area - adult         Resident Water Surface Area - adult         Resident Water Surface Area - child         Resident Soil Surface Area - child         Surface Area Soil/Sediment - age segment 0-2         Surface Area Soil/Sediment - age segment 2-6         Surface Area Soil/Sediment - age segment 6-16 | 11.00E-061.00EResident Soil Surface Area - adult6032Resident Water Surface Area - adult19652Resident Water Surface Area - child6365Resident Soil Surface Area - child2373Surface Area Soil/Sediment - age segment 0-22373Surface Area Soil/Sediment - age segment 2-62373Surface Area Soil/Sediment - age segment 6-166032Surface Area Soil/Sediment - age segment 16-266032Surface Area Water - age segment 0-26365Surface Area Water - age segment 2-66365Surface Area Water - age segment 2-66365 |

### **Risk Based Performance Criteria**

## END OF REPORT

ATTACHMENT 3-2 CONSTRUCTION WORKER

## Virginia Department of Environmental Quality



## Virginia Unified Risk Assessment Model

## **VERSION: 3.2.1**

## **Construction Worker Quantitative Risk Assessment Report**

Site Name: Alexandria

## Program: Voluntary Remediation Program

## Contact Depth to Groundwater: Direct Less than 15ft

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

## Chemical Specific Notes displayed as applicable

Lead

VURAM does not perform an evaluation for lead exposure. Use other approved models for lead modeling.

## All Report Pages are Required for Risk Assessment Submission

| Site Name:  | Alexandria            |                                  | Construction                          |  |  |
|---|-----------------------|----------------------------------|---------------------------------------|--|--|
| Program:  | Voluntary Remediation | on Program                       |                                       |  |  |
| -   | -                     | Risk Based Performance Criteria  |                                       |  |  |
| D   | efault Hazard Index   | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |  |  |
|   | 1                     | 1.00E-06                         | 1.00E-04                              |  |  |
| Contact Depth to Groundwater: Direct Less than 15ft |                       |                                  |                                       |  |  |

# Soil

| Analyte: | Acenaphthene |
|----------|--------------|
| CAS:     | 83-32-9      |

83-32-9

| Concentration mg/kg:    | 2.06E-01 |             |             | Calculated Hazard/Risk |          |
|-------------------------|----------|-------------|-------------|------------------------|----------|
| RfDo:                   | 2.00E-01 | Non-Ca      | ancer Adult | c                      | Cancer   |
| RfCi:                   |          | Ingestion:  | 1.52E-06    | Ingestion:             |          |
| SFO:                    |          | Dermal:     | 6.32E-07    | Dermal:                |          |
| IUR:                    |          | Inhalation: |             | Inhalation:            |          |
| Mutagen:                |          | Total:      | 2.15E-06    | Total:                 | 0.00E+00 |
| VOC:                    | Y        |             |             |                        |          |
| % Contribution to Media | Risk     |             | 0.00%       |                        | 0.00%    |

#### Analyte: Acenaphthylene

#### CAS: 208-96-8

| Concentration mg/kg:      | 1.40E-01 |             |             | Calculated Hazard/Risk |          |
|---------------------------|----------|-------------|-------------|------------------------|----------|
| RfDo:                     | 3.00E-01 | Non-Ca      | ancer Adult | С                      | ancer    |
| RfCi:                     |          | Ingestion:  | 6.87E-07    | Ingestion:             |          |
| SFO:                      |          | Dermal:     | 2.87E-07    | Dermal:                |          |
| IUR:                      |          | Inhalation: |             | Inhalation:            |          |
| Mutagen:                  |          | Total:      | 9.74E-07    | Total:                 | 0.00E+00 |
| VOC:                      | Y        |             |             |                        |          |
| % Contribution to Media I | Risk     |             | 0.00%       |                        | 0.00%    |

#### Analyte: Acetone

67-64-1 CAS:

| Concentration mg/kg:    | 1.72E+00 |             | Calculated Hazard/Risk |             |              |
|-------------------------|----------|-------------|------------------------|-------------|--------------|
| RfDo:                   | 1.00E+00 | Non-Ca      | ncer Adult             | Cancer      |              |
| RfCi:                   | 3.09E+01 | Ingestion:  | 2.53E-06               | Ingestion:  |              |
| SFO:                    |          | Dermal:     |                        | Dermal:     |              |
| IUR:                    |          | Inhalation: | 5.24E-12               | Inhalation: |              |
| Mutagen:                |          | Total:      | 2.53E-06               | Total: 0.00 | E <b>+00</b> |
| VOC:                    | Y        |             |                        |             |              |
| % Contribution to Madia | Dick     |             | 0.00%                  | 0.000/      |              |

% Contribution to Media Risk

| Site Name: | Alexandria          |  | Construction                          |
|------------|---------------------|--|---------------------------------------|
| Program:   | Voluntary Remediat  | tion Program                           |                                       |
| U U        | •                   | <b>Risk Based Performance Criteria</b> |                                       |
| De         | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                   | 1.00E-06                               | 1.00E-04                              |
|            | Contact             | Depth to Groundwater: Direct Less than | 15ft                                  |

# Soil

### Analyte: Acetophenone

CAS: 98-86-2

| Concentration mg/kg:    | 1.51E-01 |             | Calcula      | ated Hazard/Risk |
|-------------------------|----------|-------------|--------------|------------------|
| RfDo:                   | 8.00E-01 | Non-C       | Cancer Adult | Cancer           |
| RfCi:                   |          | Ingestion:  | 2.78E-07     | Ingestion:       |
| SFO:                    |          | Dermal:     |              | Dermal:          |
| IUR:                    |          | Inhalation: |              | Inhalation:      |
| Mutagen:                |          | Total:      | 2.78E-07     | Total: 0.00E+00  |
| VOC:                    | Y        |             |              |                  |
| % Contribution to Media | Risk     |             | 0.00%        | 0.00%            |

#### Analyte: Aluminum

CAS:

7429-90-5

| Concentration mg/kg:    | 9.23E+03 |             |            | Calculated Hazard/Risk |             |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 1.00E+00 | Non-Ca      | ncer Adult |                        | Car         | ncer     |
| RfCi:                   | 5.00E-03 | Ingestion:  | 1.36E-02   | Inge                   | stion:      |          |
| SFO:                    |          | Dermal:     |            | Dern                   | nal:        |          |
| IUR:                    |          | Inhalation: | 1.73E-04   | Inha                   | lation:     |          |
| Mutagen:                |          | Total:      | 1.38E-02   | Tota                   | ı <b>l:</b> | 0.00E+00 |
| VOC:                    |          |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 5.66%      |                        | 0           | 0.00%    |

#### Analyte: Anthracene

| / linary cer | /        |
|--------------|----------|
| CAS:         | 120-12-7 |

| Concentration mg/kg:    | 2.53E-01 |             |            | Calculated Hazard/Risk |          |
|-------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                   | 1.00E+00 | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                   | 1.00E-02 | Ingestion:  | 3.73E-07   | Ingestion:             |          |
| SFO:                    |          | Dermal:     | 1.55E-07   | Dermal:                |          |
| IUR:                    |          | Inhalation: | 2.38E-09   | Inhalation             | :        |
| Mutagen:                |          | Total:      | 5.30E-07   | Total:                 | 0.00E+00 |
| VOC:                    | Y        |             |            |                        |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        | 0.00%    |

% Contribution to Media Risk

| Site Name: | Alexandria           |                                  | Construction                          |
|------------|----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediatio | n Program                        |                                       |
| -          | -                    | Risk Based Performance Criteria  |                                       |
| D          | efault Hazard Index  | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                    | 1.00E-06                         | 1.00E-04                              |
|            |                      |                                  |                                       |

# Soil

CAS:

### Analyte: Antimony (metallic)

| CAS:          | 7440-36-0      |          |             |            |                        |             |          |
|---------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration | mg/kg:         | 1.34E+00 | Ţ           |            | Calculated Hazard/Risk |             |          |
| RfDo:         |                | 4.00E-04 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:         |                | 1.00E-03 | Ingestion:  | 4.95E-03   |                        | Ingestion:  |          |
| SFO:          |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:          |                |          | Inhalation: | 1.26E-07   |                        | Inhalation: |          |
| Mutagen:      |                |          | Total:      | 4.95E-03   |                        | Total:      | 0.00E+00 |
| VOC:          |                |          |             |            |                        |             |          |
| % Contributio | n to Media Ris | k        |             | 2.03%      |                        |             | 0.00%    |

| Analyte: | Arsenic, | Inorganic |
|----------|----------|-----------|
|----------|----------|-----------|

7440-38-2

| Concentration mg/kg:    | 8.80E+00 |             |            | Calculated Hazard/Risk |             |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 3.00E-04 | Non-Ca      | ncer Adult |                        | С           | ancer    |
| RfCi:                   | 1.50E-05 | Ingestion:  | 2.59E-02   |                        | Ingestion:  | 2.66E-07 |
| SFO:                    | 1.50E+00 | Dermal:     | 4.16E-03   |                        | Dermal:     | 2.56E-08 |
| IUR:                    | 4.30E-03 | Inhalation: | 5.51E-05   |                        | Inhalation: | 4.87E-11 |
| Mutagen:                |          | Total:      | 3.01E-02   |                        | Total:      | 2.92E-07 |
| VOC:                    |          |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 12.38%     |                        |             | 90.91%   |

Analyte: Barium

CAS: 7440-39-3

| Concentration mg/kg:    | 7.27E+01 | Calculated Hazard/Risk |                  |             |          |
|-------------------------|----------|------------------------|------------------|-------------|----------|
| RfDo:                   | 2.00E-01 | Non-Ca                 | Non-Cancer Adult |             | Cancer   |
| RfCi:                   | 5.00E-03 | Ingestion:             | 5.36E-04         | Ingestion:  |          |
| SFO:                    |          | Dermal:                |                  | Dermal:     |          |
| IUR:                    |          | Inhalation:            | 1.37E-06         | Inhalation: |          |
| Mutagen:                |          | Total:                 | 5.37E-04         | Total:      | 0.00E+00 |
| VOC:                    |          |                        |                  |             |          |
| % Contribution to Media | Risk     |                        | 0.22%            |             | 0.00%    |

% Contribution to Media Risk

| Site Name: | Alexandria            |                                  | Construction                          |
|------------|-----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediatior | n Program                        |                                       |
| -          | -                     | Risk Based Performance Criteria  |                                       |
| C          | Default Hazard Index  | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                         | 1.00E-04                              |
|            |                       |                                  |                                       |

# Soil

### Analyte: Benz[a]anthracene 56-55-3

CAS:

| Concentration mg/kg:    | 4.82E-01 | Calculated Hazard/Risk |          |        |             |          |
|-------------------------|----------|------------------------|----------|--------|-------------|----------|
| RfDo:                   |          | Non-Cancer Adult       |          | Cancer |             |          |
| RfCi:                   |          | Ingestion:             |          |        | Ingestion:  | 9.73E-10 |
| SFO:                    | 1.00E-01 | Dermal:                |          |        | Dermal:     | 4.05E-10 |
| IUR:                    | 6.00E-05 | Inhalation:            |          |        | Inhalation: | 3.72E-14 |
| Mutagen:                | Y        | Total:                 | 0.00E+00 |        | Total:      | 1.38E-09 |
| VOC:                    | Y        |                        |          |        |             |          |
| % Contribution to Media | Risk     |                        | 0.00%    |        |             | 0.43%    |

### Analyte: Benzene CAS:

71-43-2

| Concentration mg/kg:      | 5.00E-01 |             |            | Calculated Hazard/Risk |             |          |
|---------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                     | 1.00E-02 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:                     | 8.00E-02 | Ingestion:  | 7.37E-05   |                        | Ingestion:  | 5.55E-10 |
| SFO:                      | 5.50E-02 | Dermal:     |            |                        | Dermal:     |          |
| IUR:                      | 7.80E-06 | Inhalation: | 5.87E-10   |                        | Inhalation: | 5.02E-15 |
| Mutagen:                  |          | Total:      | 7.37E-05   |                        | Total:      | 5.55E-10 |
| VOC:                      | Y        |             |            |                        |             |          |
| % Contribution to Media I | Risk     |             | 0.03%      |                        |             | 0.17%    |

#### Analyte: Benzo(g,h,i)perylene

CAS: 191-24-2

| Concentration mg/kg:    | 2.47E-01 | Calculated Hazard/Risk |          |             |          |
|-------------------------|----------|------------------------|----------|-------------|----------|
| RfDo:                   | 3.00E-01 | Non-Cancer Adult       |          | C           | ancer    |
| RfCi:                   |          | Ingestion:             | 1.21E-06 | Ingestion:  |          |
| SFO:                    |          | Dermal:                | 5.06E-07 | Dermal:     |          |
| IUR:                    |          | Inhalation:            |          | Inhalation: |          |
| Mutagen:                |          | Total:                 | 1.72E-06 | Total:      | 0.00E+00 |
| VOC:                    | Y        |                        |          |             |          |
| % Contribution to Media | Rick     |                        | 0.00%    |             | 0.00%    |

% Contribution to Media Risk

| Site Name: | Alexandria            |                                  | Construction                          |
|------------|-----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | n Program                        |                                       |
|            |                       | Risk Based Performance Criteria  |                                       |
| C          | Default Hazard Index  | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                         | 1.00E-04                              |
|            |                       |                                  | _                                     |

# Soil

| Analyte: | Benzo[a]pyrene |
|----------|----------------|
| CAS:     | 50-32-8        |

50-32-8

| Concentration mg/kg:    | 3.36E-01 |             |            | Calculated Hazard/Risk |             |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 3.00E-04 | Non-Ca      | ncer Adult |                        | С           | Cancer   |
| RfCi:                   | 2.00E-06 | Ingestion:  | 1.65E-03   |                        | Ingestion:  | 6.78E-09 |
| SFO:                    | 1.00E+00 | Dermal:     | 6.88E-04   |                        | Dermal:     | 2.83E-09 |
| IUR:                    | 6.00E-04 | Inhalation: | 1.58E-05   |                        | Inhalation: | 2.60E-13 |
| Mutagen:                | Y        | Total:      | 2.35E-03   |                        | Total:      | 9.61E-09 |
| VOC:                    |          |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 0.97%      |                        |             | 2.99%    |

#### Analyte: Benzo[b]fluoranthene

CAS: 205-99-2

| Concentration mg/kg:    | 6.65E-01 | Calculated Hazard/Risk |              |  |             |          |
|-------------------------|----------|------------------------|--------------|--|-------------|----------|
| RfDo:                   |          | Non-                   | Cancer Adult |  | C           | ancer    |
| RfCi:                   |          | Ingestion:             |              |  | Ingestion:  | 1.34E-09 |
| SFO:                    | 1.00E-01 | Dermal:                |              |  | Dermal:     | 5.59E-10 |
| IUR:                    | 6.00E-05 | Inhalation:            |              |  | Inhalation: | 5.14E-14 |
| Mutagen:                | Y        | Total:                 | 0.00E+00     |  | Total:      | 1.90E-09 |
| VOC:                    |          |                        |              |  |             |          |
| % Contribution to Media | Risk     |                        | 0.00%        |  |             | 0.59%    |

#### Analyte: Benzo[k]fluoranthene

CAS: 207-08-9

| Concentration mg/kg:    | 3.61E-01 | Calculated Hazard/Risk |               |             |          |
|-------------------------|----------|------------------------|---------------|-------------|----------|
| RfDo:                   |          | Non-                   | -Cancer Adult | Са          | ncer     |
| RfCi:                   |          | Ingestion:             |               | Ingestion:  | 7.29E-11 |
| SFO:                    | 1.00E-02 | Dermal:                |               | Dermal:     | 3.04E-11 |
| IUR:                    | 6.00E-06 | Inhalation:            |               | Inhalation: | 2.79E-15 |
| Mutagen:                | Y        | Total:                 | 0.00E+00      | Total:      | 1.03E-10 |
| VOC:                    |          |                        |               |             |          |
| % Contribution to Madia | Diele    |                        | 0.00%         | (           | 0.00/    |

% Contribution to Media Risk

0.00%

0.03%

| Site Name:  | Alexandria           |  | Construction                          |  |  |  |
|---|----------------------|--|---------------------------------------|--|--|--|
| Program:  | Voluntary Remediatio | n Program<br>Risk Based Performance Criteria |                                       |  |  |  |
| [   | Default Hazard Index | Default Risk Individual Chemical             | Default Cumulative Risk-All Chemicals |  |  |  |
|   | 1                    | 1.00E-06                                     | 1.00E-04                              |  |  |  |
| Contact Depth to Groundwater: Direct Loss than 15ft |                      |  |                                       |  |  |  |

# Soil

CAS:

| Analyte: | Benzoic Acid |
|----------|--------------|
| CAS:     | 65-85-0      |

| Concentration mg/kg:    | 1.20E+00 |             |            | Calculated Hazard/Risk |          |
|-------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                   | 4.00E+00 | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                   | 2.00E-03 | Ingestion:  | 4.42E-07   | Ingestion:             |          |
| SFO:                    |          | Dermal:     | 1.42E-07   | Dermal:                |          |
| IUR:                    |          | Inhalation: | 5.64E-08   | Inhalation:            |          |
| Mutagen:                |          | Total:      | 6.40E-07   | Total:                 | 0.00E+00 |
| VOC:                    |          |             |            |                        |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        | 0.00%    |

## Analyte: Beryllium and compounds

7440-41-7

| Concentration mg/kg:    | 9.00E-01 |             |            | Calculated Hazard/Risk |          |          |
|-------------------------|----------|-------------|------------|------------------------|----------|----------|
| RfDo:                   | 5.00E-03 | Non-Ca      | ncer Adult |                        | Car      | ncer     |
| RfCi:                   | 2.00E-05 | Ingestion:  | 2.65E-04   | Inge                   | estion:  |          |
| SFO:                    |          | Dermal:     |            | Der                    | mal:     |          |
| IUR:                    | 2.40E-03 | Inhalation: | 4.23E-06   | Inha                   | alation: | 2.78E-12 |
| Mutagen:                |          | Total:      | 2.69E-04   | Tot                    | al:      | 2.78E-12 |
| VOC:                    |          |             |            |                        |          |          |
| % Contribution to Media | Risk     |             | 0.11%      |                        | 0        | .00%     |

## Analyte: Bis(2-ethylhexyl)phthalate

| CAS:       | 117-81-7          |          |             |            |                        |             |          |
|------------|-------------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentra  | tion mg/kg:       | 2.31E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:      |                   | 2.00E-02 | Non-Ca      | ncer Adult |                        | С           | Cancer   |
| RfCi:      |                   | 1.17E-01 | Ingestion:  | 1.70E-05   |                        | Ingestion:  | 6.53E-11 |
| SFO:       |                   | 1.40E-02 | Dermal:     | 5.46E-06   |                        | Dermal:     | 2.09E-11 |
| IUR:       |                   | 2.40E-06 | Inhalation: | 1.86E-10   |                        | Inhalation: | 7.14E-16 |
| Mutagen:   |                   |          | Total:      | 2.25E-05   |                        | Total:      | 8.62E-11 |
| VOC:       |                   |          |             |            |                        |             |          |
| % Contribu | ution to Media Ri | sk       |             | 0.01%      |                        |             | 0.03%    |

| Site Name: Alexandria        |  | Construction                          |
|------------------------------|--|---------------------------------------|
| Program: Voluntary Remediati | on Program                             |                                       |
| <b>C</b> .                   | <b>Risk Based Performance Criteria</b> |                                       |
| Default Hazard Index         | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
| 1                            | 1.00E-06                               | 1.00E-04                              |
| Contact I                    | Depth to Groundwater: Direct Less than | 15ft                                  |

# Soil

Γ

| Analyte: | Butylbenzene, n- |
|----------|------------------|
| CAS:     | 104-51-8         |

104-51-8

| Concentration mg/kg:    | 1.40E-01 | Calculated Hazard/Risk |             |                 |  |
|-------------------------|----------|------------------------|-------------|-----------------|--|
| RfDo:                   | 1.00E-01 | Non-Ca                 | ancer Adult | Cancer          |  |
| RfCi:                   |          | Ingestion:             | 2.06E-06    | Ingestion:      |  |
| SFO:                    |          | Dermal:                |             | Dermal:         |  |
| IUR:                    |          | Inhalation:            |             | Inhalation:     |  |
| Mutagen:                |          | Total:                 | 2.06E-06    | Total: 0.00E+00 |  |
| VOC:                    | Y        |                        |             |                 |  |
| % Contribution to Media | Risk     |                        | 0.00%       | 0.00%           |  |

| Analyte: | Cadmium (Diet) |
|----------|----------------|
| CAS:     | 7440-43-9-Diet |

| 7440-43-9-Diet |  |
|----------------|--|
|----------------|--|

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| Concentration mg/kg:      | 3.33E-01 |             |            | Calculated Hazard/Risk |             |          |
|---------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                     | 5.00E-04 | Non-Ca      | ncer Adult |                        | Ca          | ancer    |
| RfCi:                     | 1.00E-05 | Ingestion:  | 9.81E-04   |                        | Ingestion:  |          |
| SFO:                      |          | Dermal:     | 1.26E-04   |                        | Dermal:     |          |
| IUR:                      | 1.80E-03 | Inhalation: | 3.13E-06   |                        | Inhalation: | 7.72E-13 |
| Mutagen:                  |          | Total:      | 1.11E-03   |                        | Total:      | 7.72E-13 |
| VOC:                      |          |             |            |                        |             |          |
| % Contribution to Media I | Risk     |             | 0.46%      |                        |             | 0.00%    |

#### Analyte: Carbazole

| ,, , |         |
|------|---------|
| CAS: | 86-74-8 |

| Concentration mg/kg:      | 2.42E-01 | Calculated Hazard/Risk |          |  |             |          |
|---------------------------|----------|------------------------|----------|--|-------------|----------|
| RfDo:                     |          | Non-Cancer Adult       |          |  | Cancer      |          |
| RfCi:                     |          | Ingestion:             |          |  | Ingestion:  |          |
| SFO:                      |          | Dermal:                |          |  | Dermal:     |          |
| IUR:                      |          | Inhalation:            |          |  | Inhalation: |          |
| Mutagen:                  |          | Total:                 | 0.00E+00 |  | Total:      | 0.00E+00 |
| VOC:                      |          |                        |          |  |             |          |
| % Contribution to Media R | Risk     |                        | 0.00%    |  |             | 0.00%    |

| Site Name: | Alexandria            |                                  | Construction                          |
|------------|-----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | n Program                        |                                       |
|            |                       | Risk Based Performance Criteria  |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                         | 1.00E-04                              |
|            |                       |                                  |                                       |

# Soil

#### Analyte: Chromium(III), Insoluble Salts

| CAS:           | 16065-83-1     | L        |             |            |                        |             |          |
|----------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration  | mg/kg:         | 2.06E+02 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:          |                | 1.50E+00 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:          |                | 5.00E-03 | Ingestion:  | 2.02E-04   |                        | Ingestion:  |          |
| SFO:           |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:           |                |          | Inhalation: | 3.87E-06   |                        | Inhalation: |          |
| Mutagen:       |                |          | Total:      | 2.06E-04   |                        | Total:      | 0.00E+00 |
| VOC:           |                |          |             |            |                        |             |          |
| % Contributior | n to Media Ris | k        |             | 0.08%      |                        |             | 0.00%    |

| Analyte:     | Chrysene        |          |             |            |                        |             |          |
|--------------|-----------------|----------|-------------|------------|------------------------|-------------|----------|
| CAS:         | 218-01-9        |          | т           |            |                        |             |          |
| Concentratio | on mg/kg:       | 6.91E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:        |                 | 1.50E+00 | Non-Ca      | ncer Adult |                        | С           | ancer    |
| RfCi:        |                 | 5.00E-03 | Ingestion:  | 6.79E-07   |                        | Ingestion:  | 1.39E-11 |
| SFO:         |                 | 1.00E-03 | Dermal:     | 2.83E-07   |                        | Dermal:     | 5.81E-12 |
| IUR:         |                 | 6.00E-07 | Inhalation: | 1.30E-08   |                        | Inhalation: | 5.34E-16 |
| Mutagen:     |                 | Y        | Total:      | 9.75E-07   |                        | Total:      | 1.98E-11 |
| VOC:         |                 |          |             |            |                        |             |          |
| % Contributi | on to Media Ris | sk       |             | 0.00%      |                        |             | 0.01%    |

0.00%

#### Analyte: Cobalt

```
CAS:
           7440-48-4
```

| Concentration mg/kg:    | 1.04E+01 | Calculated Hazard/Risk |            |   |            |          |
|-------------------------|----------|------------------------|------------|---|------------|----------|
| RfDo:                   | 3.00E-03 | Non-Ca                 | ncer Adult |   | (          | Cancer   |
| RfCi:                   | 2.00E-05 | Ingestion:             | 5.09E-03   | I | ngestion:  |          |
| SFO:                    |          | Dermal:                |            | [ | Dermal:    |          |
| IUR:                    | 9.00E-03 | Inhalation:            | 4.87E-05   | I | nhalation: | 1.20E-10 |
| Mutagen:                |          | Total:                 | 5.14E-03   | I | Fotal:     | 1.20E-10 |
| VOC:                    |          |                        |            |   |            |          |
| % Contribution to Media | Rick     |                        | 7 11%      |   |            | 0.04%    |

% Contribution to Media Risk

0.04%

| Site Name:<br>Program: | Alexandria<br>Voluntary Remediatio                  |  | Construction                          |  |
|------------------------|---|--|---------------------------------------|--|
|                        |   | <u>Risk Based Performance Criteria</u> |                                       |  |
| I                      | Default Hazard Index                                | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |
|                        | 1   | 1.00E-06                               | 1.00E-04                              |  |
|                        | Contact Depth to Groundwater: Direct Less than 15ft |  |                                       |  |
| Soil                   |   |  |                                       |  |

Analyte: Copper CAS:

7440-50-8

| Concentration mg/kg:    | 1.55E+02 | Calculated Hazard/Risk |             |             |          |
|-------------------------|----------|------------------------|-------------|-------------|----------|
| RfDo:                   | 1.00E-02 | Non-C                  | ancer Adult | C           | ancer    |
| RfCi:                   |          | Ingestion:             | 2.28E-02    | Ingestion:  |          |
| SFO:                    |          | Dermal:                |             | Dermal:     |          |
| IUR:                    |          | Inhalation:            |             | Inhalation: |          |
| Mutagen:                |          | Total:                 | 2.28E-02    | Total:      | 0.00E+00 |
| VOC:                    |          |                        |             |             |          |
| % Contribution to Media | Risk     |                        | 9.38%       |             | 0.00%    |

### Analyte: Cresol, o-CAS:

95-48-7

| Concentration mg/kg:         | 1.30E-01 | Calculated Hazard/Risk |            |           |          |
|------------------------------|----------|------------------------|------------|-----------|----------|
| RfDo:                        | 2.00E-01 | Non-Ca                 | ncer Adult |           | Cancer   |
| RfCi:                        | 6.00E-01 | Ingestion:             | 9.58E-07   | Ingestio  | n:       |
| SFO:                         |          | Dermal:                | 3.07E-07   | Dermal:   |          |
| IUR:                         |          | Inhalation:            | 2.04E-11   | Inhalatio | on:      |
| Mutagen:                     |          | Total:                 | 1.26E-06   | Total:    | 0.00E+00 |
| VOC:                         |          |                        |            |           |          |
| % Contribution to Media Risk |          | (                      | 0.00%      |           | 0.00%    |

### Analyte: Cresol, p-chloro-m-

CAS: 59-50-7

| Concentration mg/kg:      | 1.19E-01 | Calculated Hazard/Risk |                  |      |         |          |
|---------------------------|----------|------------------------|------------------|------|---------|----------|
| RfDo:                     | 1.00E-01 | Non-Ca                 | Non-Cancer Adult |      | Cancer  |          |
| RfCi:                     |          | Ingestion:             | 1.75E-06         | Inge | estion: |          |
| SFO:                      |          | Dermal:                | 5.62E-07         | Dern | nal:    |          |
| IUR:                      |          | Inhalation:            |                  | Inha | lation: |          |
| Mutagen:                  |          | Total:                 | 2.32E-06         | Tota | al:     | 0.00E+00 |
| VOC:                      |          |                        |                  |      |         |          |
| % Contribution to Media I | Risk     |                        | 0.00%            |      | 0       | 0.00%    |

| Site Name:  | Alexandria          |  | Construction                          |  |
|---|---------------------|--|---------------------------------------|--|
| Program:  | Voluntary Remediati | on Program                             |                                       |  |
| -   |                     | <b>Risk Based Performance Criteria</b> |                                       |  |
| D   | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |
|   | 1                   | 1.00E-06                               | 1.00E-04                              |  |
| Contact Depth to Groundwater: Direct Less than 15ft |                     |  |                                       |  |

# Soil

| Analyte: | Cumene  |
|----------|---------|
| CAS:     | 98-82-8 |

|                         |          | Т           |            |                     |          |
|-------------------------|----------|-------------|------------|---------------------|----------|
| Concentration mg/kg:    | 1.68E-01 |             | Calo       | culated Hazard/Risk |          |
| RfDo:                   | 4.00E-01 | Non-Ca      | ncer Adult | c                   | ancer    |
| RfCi:                   | 9.00E-02 | Ingestion:  | 6.19E-07   | Ingestion:          |          |
| SFO:                    |          | Dermal:     |            | Dermal:             |          |
| IUR:                    |          | Inhalation: | 1.75E-10   | Inhalation:         |          |
| Mutagen:                |          | Total:      | 6.19E-07   | Total:              | 0.00E+00 |
| VOC:                    | Y        |             |            |                     |          |
| % Contribution to Media | Risk     |             | 0.00%      |                     | 0.00%    |

## Analyte: Cyanide (CN-)

| CAS: | 57-12-5 |
|------|---------|
| CAJ. | J/-12-J |

| Concentration mg/kg:    | 8.26E-01 | Calculated Hazard/Risk |            |           |          |
|-------------------------|----------|------------------------|------------|-----------|----------|
| RfDo:                   | 2.00E-02 | Non-Ca                 | ncer Adult |           | Cancer   |
| RfCi:                   | 8.00E-04 | Ingestion:             | 6.08E-05   | Ingestion | ו:       |
| SFO:                    |          | Dermal:                |            | Dermal:   |          |
| IUR:                    |          | Inhalation:            | 5.85E-04   | Inhalatio | on:      |
| Mutagen:                |          | Total:                 | 6.46E-04   | Total:    | 0.00E+00 |
| VOC:                    | Y        |                        |            |           |          |
| % Contribution to Media | Risk     |                        | 0.27%      |           | 0.00%    |

## Analyte: Dibenz[a,h]anthracene

CAS: 53-70-3

| Concentration mg/kg:         | 1.98E-01 | Calculated Hazard/Risk |          |        |             |          |
|------------------------------|----------|------------------------|----------|--------|-------------|----------|
| RfDo:                        |          | Non-Cancer Adult       |          | Cancer |             |          |
| RfCi:                        |          | Ingestion:             |          |        | Ingestion:  | 4.00E-09 |
| SFO:                         | 1.00E+00 | Dermal:                |          |        | Dermal:     | 1.67E-09 |
| IUR:                         | 6.00E-04 | Inhalation:            |          |        | Inhalation: | 1.53E-13 |
| Mutagen:                     | Y        | Total:                 | 0.00E+00 |        | Total:      | 5.66E-09 |
| VOC:                         |          |                        |          |        |             |          |
| % Contribution to Media Risk |          |                        | 0.00%    |        |             | 1.76%    |

| Site Name: | Alexandria            |                                  | Construction                          |
|------------|-----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation |                                  |                                       |
|            |                       | Risk Based Performance Criteria  |                                       |
| C          | Default Hazard Index  | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                         | 1.00E-04                              |
|            |                       |                                  |                                       |

# Soil

CAS:

## Analyte: Dimethylphenol, 2,4-

CAS: 105-67-9 Concentration mg/kg: 2.00E-01 **Calculated Hazard/Risk** RfDo: 5.00E-02 Non-Cancer Adult Cancer RfCi: Ingestion: 5.89E-06 Ingestion: SFO: Dermal: 1.89E-06 Dermal: IUR: Inhalation: Inhalation: Mutagen: Total: 7.78E-06 Total: 0.00E+00 VOC: % Contribution to Media Risk 0.00% 0.00%

## Analyte: Ethylbenzene

100-41-4

| Concentration mg/kg:    | 3.42E-01 |             |            | Calculated Hazard/Risk |             |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 5.00E-02 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:                   | 9.00E+00 | Ingestion:  | 1.01E-05   |                        | Ingestion:  | 7.59E-11 |
| SFO:                    | 1.10E-02 | Dermal:     |            |                        | Dermal:     |          |
| IUR:                    | 2.50E-06 | Inhalation: | 3.57E-12   |                        | Inhalation: | 1.10E-15 |
| Mutagen:                |          | Total:      | 1.01E-05   |                        | Total:      | 7.59E-11 |
| VOC:                    | Y        |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        |             | 0.02%    |

### Analyte: Fluoranthene

| CAS:        | 206-44-0         |          |             |            |                        |             |          |
|-------------|------------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentrat  | ion mg/kg:       | 8.95E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:       |                  | 1.00E-01 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:       |                  |          | Ingestion:  | 1.32E-05   |                        | Ingestion:  |          |
| SFO:        |                  |          | Dermal:     | 5.50E-06   |                        | Dermal:     |          |
| IUR:        |                  |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:    |                  |          | Total:      | 1.87E-05   |                        | Total:      | 0.00E+00 |
| VOC:        |                  |          |             |            |                        |             |          |
| 0/ Contribu | tion to Modia Di |          | _           | 0.010/     |                        |             | 0.000/   |

% Contribution to Media Risk

0.01%

| Site Name:  | Alexandria          |  | Construction                          |  |  |  |
|---|---------------------|--|---------------------------------------|--|--|--|
| Program:  | Voluntary Remedia   | tion Program                           |                                       |  |  |  |
| U U   | •                   | <b>Risk Based Performance Criteria</b> |                                       |  |  |  |
| D   | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |  |
|   | 1                   | 1.00E-06                               | 1.00E-04                              |  |  |  |
| Contact Depth to Groundwater: Direct Less than 15ft |                     |  |                                       |  |  |  |

# Soil

CAS:

Analyte: Fluorene CAS:

86-73-7

| Concentration mg/kg:         | 2.30E-01 |             |                  | Calculated Hazard/Risk |          |
|------------------------------|----------|-------------|------------------|------------------------|----------|
| RfDo:                        | 4.00E-01 | Non-Ca      | Non-Cancer Adult |                        | Cancer   |
| RfCi:                        |          | Ingestion:  | 8.47E-07         | Ingestion:             |          |
| SFO:                         |          | Dermal:     | 3.53E-07         | Dermal:                |          |
| IUR:                         |          | Inhalation: |                  | Inhalation             | :        |
| Mutagen:                     |          | Total:      | 1.20E-06         | Total:                 | 0.00E+00 |
| VOC:                         | Y        |             |                  |                        |          |
| % Contribution to Media Risk |          |             | 0.00%            |                        | 0.00%    |

| Analyte: Indeno[1,2,3-cd]py |
|-----------------------------|
|-----------------------------|

|   | _ | -  | _ | -          |   |
|---|---|----|---|------------|---|
| 1 | a | 3- | 2 | <b>a</b> _ | 5 |
| - | _ | J- | - | J-         | - |

| Concentration mg/kg:    | 2.82E-01 |             |            | Calculated Hazard/Risk |             |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 4.00E-01 | Non-Ca      | ncer Adult |                        | С           | ancer    |
| RfCi:                   |          | Ingestion:  | 1.04E-06   |                        | Ingestion:  | 5.69E-10 |
| SFO:                    | 1.00E-01 | Dermal:     | 4.33E-07   |                        | Dermal:     | 2.37E-10 |
| IUR:                    | 6.00E-05 | Inhalation: |            |                        | Inhalation: | 2.18E-14 |
| Mutagen:                | Y        | Total:      | 1.47E-06   |                        | Total:      | 8.06E-10 |
| VOC:                    |          |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        |             | 0.25%    |

#### Analyte: Iron

CAS: 7439-89-6

| Concentration mg/kg:         | 6.57E+04 | Calculated Hazard/Risk |          |        |        |          |
|------------------------------|----------|------------------------|----------|--------|--------|----------|
| RfDo:                        | 7.00E-01 | Non-Cancer Adult       |          |        | Cancer |          |
| RfCi:                        |          | Ingestion:             | 1.38E-01 | Ingest | tion:  |          |
| SFO:                         |          | Dermal:                |          | Derm   | al:    |          |
| IUR:                         |          | Inhalation:            |          | Inhala | ation: |          |
| Mutagen:                     |          | Total:                 | 1.38E-01 | Total: | :      | 0.00E+00 |
| VOC:                         |          |                        |          |        |        |          |
| % Contribution to Media Risk |          | 56.81%                 |          |        | 0.00%  |          |

| Site Name:  | Alexandria          |  | Construction                          |  |  |  |
|---|---------------------|--|---------------------------------------|--|--|--|
| Program:  | Voluntary Remediat  | tion Program                           |                                       |  |  |  |
| U U   | •                   | <b>Risk Based Performance Criteria</b> |                                       |  |  |  |
| De  | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |  |
|   | 1                   | 1.00E-06                               | 1.00E-04                              |  |  |  |
| Contact Depth to Groundwater: Direct Less than 15ft |                     |  |                                       |  |  |  |

# Soil

| Analyte: | isopropyltoluene |
|----------|------------------|
| CAS:     | 99-87-6          |

CAS:

| Concentration mg/kg:    | 9.93E-02 |             |            | Calculated Hazard/Risk |          |
|-------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                   | 4.00E-01 | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                   | 9.00E-02 | Ingestion:  | 3.66E-07   | Ingestion:             |          |
| SFO:                    |          | Dermal:     |            | Dermal:                |          |
| IUR:                    |          | Inhalation: | 5.05E-06   | Inhalation:            |          |
| Mutagen:                |          | Total:      | 5.42E-06   | Total:                 | 0.00E+00 |
| VOC:                    | Y        |             |            |                        |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        | 0.00%    |

#### Analyte: Lead and Compounds

CAS: 7439-92-1

| Concentration mg/kg:       | 2.05E+01 | Calculated Hazard/Risk |                  |  |             |          |  |
|----------------------------|----------|------------------------|------------------|--|-------------|----------|--|
| RfDo:                      |          | Non                    | Non-Cancer Adult |  |             | Cancer   |  |
| RfCi:                      |          | Ingestion:             |                  |  | Ingestion:  |          |  |
| SFO:                       |          | Dermal:                |                  |  | Dermal:     |          |  |
| IUR:                       |          | Inhalation:            |                  |  | Inhalation: |          |  |
| Mutagen:                   |          | Total:                 | 0.00E+00         |  | Total:      | 0.00E+00 |  |
| VOC:                       |          |                        |                  |  |             |          |  |
| % Contribution to Media Ri | isk      |                        | 0.00%            |  |             | 0.00%    |  |

#### Analyte: Manganese (Diet) CAS: 7439-96-5-Diet

|                         |          | -           |            |                        |          |
|-------------------------|----------|-------------|------------|------------------------|----------|
| Concentration mg/kg:    | 5.16E+02 |             |            | Calculated Hazard/Risk |          |
| RfDo:                   | 1.40E-01 | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                   | 5.00E-05 | Ingestion:  | 5.43E-03   | Ingestion              | n:       |
| SFO:                    |          | Dermal:     |            | Dermal:                |          |
| IUR:                    |          | Inhalation: | 9.71E-04   | Inhalatic              | on:      |
| Mutagen:                |          | Total:      | 6.40E-03   | Total:                 | 0.00E+00 |
| VOC:                    |          |             |            |                        |          |
| % Contribution to Media | Risk     |             | 2.63%      |                        | 0.00%    |

| Site Name: | Alexandria           |  | Construction                          |
|------------|----------------------|--|---------------------------------------|
| Program:   | Voluntary Remediatio | <b>U</b>                               |                                       |
|            |                      | <u>Risk Based Performance Criteria</u> |                                       |
| D          | efault Hazard Index  | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                    | 1.00E-06                               | 1.00E-04                              |
|            | Contact D            | onth to Groundwator: Direct Loss than  | 1 C f+                                |

# Soil

CAS:

#### Analyte: Mercury (elemental)

CAS: 7439-97-6

| Concentration mg/kg:    | 5.07E-02 |             |            | Calculated Hazard/Risk |       |          |
|-------------------------|----------|-------------|------------|------------------------|-------|----------|
| RfDo:                   |          | Non-Ca      | ncer Adult |                        | Cano  | er       |
| RfCi:                   | 3.00E-04 | Ingestion:  |            | Ingest                 | ion:  |          |
| SFO:                    |          | Dermal:     |            | Derma                  | əl:   |          |
| IUR:                    |          | Inhalation: | 1.25E-04   | Inhala                 | tion: |          |
| Mutagen:                |          | Total:      | 1.25E-04   | Total:                 |       | 0.00E+00 |
| VOC:                    | Y        |             |            |                        |       |          |
| % Contribution to Media | Risk     |             | 0.05%      |                        | 0.0   | 00%      |

#### Analyte: Methyl Ethyl Ketone (2-Butanone)

78-93-3

| Concentration mg/kg:    | 5.73E-01 |             |            | Calculated Hazard/Risk |          |
|-------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                   | 2.00E+00 | Non-Ca      | ncer Adult | C                      | Cancer   |
| RfCi:                   | 1.00E+00 | Ingestion:  | 4.22E-07   | Ingestion:             |          |
| SFO:                    |          | Dermal:     |            | Dermal:                |          |
| IUR:                    |          | Inhalation: | 5.39E-11   | Inhalation:            |          |
| Mutagen:                |          | Total:      | 4.22E-07   | Total:                 | 0.00E+00 |
| VOC:                    | Y        |             |            |                        |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        | 0.00%    |

#### Analyte: Methylcyclohexane

CAS: 108-87-2

| Concentration mg/kg:       | 7.39E+00 | Calculated Hazard/Risk |                  |  |             |          |  |
|----------------------------|----------|------------------------|------------------|--|-------------|----------|--|
| RfDo:                      |          | Non-                   | Non-Cancer Adult |  |             | Cancer   |  |
| RfCi:                      |          | Ingestion:             |                  |  | Ingestion:  |          |  |
| SFO:                       |          | Dermal:                | Dermal:          |  | Dermal:     |          |  |
| IUR:                       |          | Inhalation:            |                  |  | Inhalation: |          |  |
| Mutagen:                   |          | Total:                 | 0.00E+00         |  | Total:      | 0.00E+00 |  |
| VOC:                       |          |                        |                  |  |             |          |  |
| % Contribution to Media Ri | ck       |                        | 0.00%            |  |             | 0.00%    |  |

% Contribution to Media Risk

| Site Name: | Alexandria            |                                  | Construction                          |
|------------|-----------------------|----------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | on Program                       |                                       |
|            |                       | Risk Based Performance Criteria  |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                         | 1.00E-04                              |
|            |                       |                                  |                                       |

# Soil

#### Analyte: **Methylene Chloride**

| CAS:         | 75-09-2        |          |             |            |                        |             |          |
|--------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentratio | on mg/kg:      | 6.90E-04 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:        |                | 6.00E-02 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:        |                | 1.04E+00 | Ingestion:  | 1.69E-08   |                        | Ingestion:  | 2.78E-14 |
| SFO:         |                | 2.00E-03 | Dermal:     |            |                        | Dermal:     |          |
| IUR:         |                | 1.00E-08 | Inhalation: | 6.22E-14   |                        | Inhalation: | 8.88E-21 |
| Mutagen:     |                | Y        | Total:      | 1.69E-08   |                        | Total:      | 2.78E-14 |
| VOC:         |                | Y        |             |            |                        |             |          |
| % Contributi | on to Media Ri | isk      |             | 0.00%      |                        |             | 0.00%    |

#### Analyte: Methylnaphthalene, 1-

| CAS:       | 90-12-0         |          |             |            |                        |             |          |
|------------|-----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentrat | ion mg/kg:      | 2.18E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:      |                 | 7.00E-02 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:      |                 | 1.04E+00 | Ingestion:  | 4.59E-05   |                        | Ingestion:  | 1.28E-09 |
| SFO:       |                 | 2.90E-02 | Dermal:     | 1.91E-05   |                        | Dermal:     | 5.32E-10 |
| IUR:       |                 |          | Inhalation: | 1.97E-10   |                        | Inhalation: |          |
| Mutagen:   |                 |          | Total:      | 6.50E-05   |                        | Total:      | 1.81E-09 |
| VOC:       |                 | Y        |             |            |                        |             |          |
| % Contribu | tion to Media R | isk      |             | 0.03%      |                        |             | 0.56%    |

#### Analyte: Methylnaphthalene, 2-

| CAS: | 91-57-6 |
|------|---------|

| Concentration mg/kg:    | 3.51E+00 | Calculated Hazard/Risk  |          |                 |  |  |
|-------------------------|----------|-------------------------|----------|-----------------|--|--|
| RfDo:                   | 4.00E-03 | Non-Cancer Adult Cancer |          |                 |  |  |
| RfCi:                   |          | Ingestion:              | 1.29E-03 | Ingestion:      |  |  |
| SFO:                    |          | Dermal:                 | 5.39E-04 | Dermal:         |  |  |
| IUR:                    |          | Inhalation:             |          | Inhalation:     |  |  |
| Mutagen:                |          | Total:                  | 1.83E-03 | Total: 0.00E+00 |  |  |
| VOC:                    | Y        |                         |          |                 |  |  |
| % Contribution to Media | Risk     |                         | 0 75%    | 0.00%           |  |  |

% Contribution to Media Risk

0.75%

| Site Name:<br>Program: | Alexandria<br>Voluntary Remediation   | Program                          | Construction                          |
|------------------------|---------------------------------------|----------------------------------|---------------------------------------|
|                        | · · · · · · · · · · · · · · · · · · · | Risk Based Performance Criteria  |                                       |
| [                      | Default Hazard Index                  | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
|                        | 1                                     | 1.00E-06                         | 1.00E-04                              |
|                        |                                       |                                  |                                       |

# Soil

CAS:

| Analyte: | Naphthalene |
|----------|-------------|
| CAS:     | 91-20-3     |

| Concentration mg/kg:    | 2.05E+00 |             |            | Calculated Hazard/Risk | C           |          |
|-------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                   | 6.00E-01 | Non-Ca      | ncer Adult |                        | Ca          | ancer    |
| RfCi:                   | 3.00E-03 | Ingestion:  | 5.02E-06   |                        | Ingestion:  | 4.95E-09 |
| SFO:                    | 1.20E-01 | Dermal:     | 2.09E-06   |                        | Dermal:     | 2.07E-09 |
| IUR:                    | 3.40E-05 | Inhalation: | 6.41E-08   |                        | Inhalation: | 8.96E-14 |
| Mutagen:                |          | Total:      | 7.18E-06   |                        | Total:      | 7.02E-09 |
| VOC:                    | Y        |             |            |                        |             |          |
| % Contribution to Media | Risk     |             | 0.00%      |                        |             | 2.19%    |

7440-02-0

| Concentration mg/kg:         | 1.11E+02 | Calculated Hazard/Risk |                    |  |             |          |
|------------------------------|----------|------------------------|--------------------|--|-------------|----------|
| RfDo:                        | 2.00E-02 | Non-Ca                 | Non-Cancer Adult C |  |             | Cancer   |
| RfCi:                        | 2.00E-04 | Ingestion:             | 8.17E-03           |  | Ingestion:  |          |
| SFO:                         |          | Dermal:                |                    |  | Dermal:     |          |
| IUR:                         | 2.60E-04 | Inhalation:            | 5.21E-05           |  | Inhalation: | 3.71E-11 |
| Mutagen:                     |          | Total:                 | 8.22E-03           |  | Total:      | 3.71E-11 |
| VOC:                         |          |                        |                    |  |             |          |
| % Contribution to Media Risk |          |                        | 3.38%              |  |             | 0.01%    |

#### Analyte: Phenanthrene

| CAS: | 85-01-8 |
|------|---------|
|      |         |

| Concentration mg/kg:    | 1.70E+00 | Calculated Hazard/Risk  |          |                 |  |  |
|-------------------------|----------|-------------------------|----------|-----------------|--|--|
| RfDo:                   | 3.00E-01 | Non-Cancer Adult Cancer |          |                 |  |  |
| RfCi:                   |          | Ingestion:              | 8.33E-06 | Ingestion:      |  |  |
| SFO:                    |          | Dermal:                 | 3.47E-06 | Dermal:         |  |  |
| IUR:                    |          | Inhalation:             |          | Inhalation:     |  |  |
| Mutagen:                |          | Total:                  | 1.18E-05 | Total: 0.00E+00 |  |  |
| VOC:                    | Y        |                         |          |                 |  |  |
| % Contribution to Media | Rick     |                         | 0.00%    | 0.00%           |  |  |

% Contribution to Media Risk

0.00%

| Site Name: | Alexandria                |  | Construction                          |
|------------|---------------------------|--|---------------------------------------|
| Program:   | <b>Voluntary Remediat</b> | ion Program                            |                                       |
| U          | •                         | <b>Risk Based Performance Criteria</b> |                                       |
| De         | fault Hazard Index        | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                         | 1.00E-06                               | 1.00E-04                              |
|            | Contact I                 | Depth to Groundwater: Direct Less than | 15ft                                  |

# Soil

Analyte: Pyrene CAS:

129-00-0

|                              | 0 705 04 |             |                        |                 |  |  |  |
|------------------------------|----------|-------------|------------------------|-----------------|--|--|--|
| Concentration mg/kg:         | 8.78E-01 |             | Calculated Hazard/Risk |                 |  |  |  |
| RfDo:                        | 3.00E-01 | Non-Ca      | ancer Adult            | Cancer          |  |  |  |
| RfCi:                        |          | Ingestion:  | 4.31E-06               | Ingestion:      |  |  |  |
| SFO:                         |          | Dermal:     | 1.80E-06               | Dermal:         |  |  |  |
| IUR:                         |          | Inhalation: |                        | Inhalation:     |  |  |  |
| Mutagen:                     |          | Total:      | 6.11E-06               | Total: 0.00E+00 |  |  |  |
| VOC:                         | Y        |             |                        |                 |  |  |  |
| % Contribution to Media Risk |          |             | 0.00%                  | 0.00%           |  |  |  |

### Analyte: Toluene CAS:

108-88-3

| Concentration mg/kg:         | 2.07E+00 | Calculated Hazard/Risk |            |            |          |  |
|------------------------------|----------|------------------------|------------|------------|----------|--|
| RfDo:                        | 8.00E-01 | Non-Ca                 | ncer Adult |            | Cancer   |  |
| RfCi:                        | 5.00E+00 | Ingestion:             | 3.81E-06   | Ingestion  | :        |  |
| SFO:                         |          | Dermal:                |            | Dermal:    |          |  |
| IUR:                         |          | Inhalation:            | 3.89E-11   | Inhalatior | n:       |  |
| Mutagen:                     |          | Total:                 | 3.81E-06   | Total:     | 0.00E+00 |  |
| VOC:                         | Y        |                        |            |            |          |  |
| % Contribution to Media Risk |          |                        | 0.00%      |            | 0.00%    |  |

#### Analyte: Trimethylbenzene, 1,2,4-

CAS: 95-63-6

| Concentration mg/kg:         | 1.47E+00 | Calculated Hazard/Risk |                         |            |          |  |
|------------------------------|----------|------------------------|-------------------------|------------|----------|--|
| RfDo:                        | 4.00E-02 | Non-Ca                 | Non-Cancer Adult Cancer |            |          |  |
| RfCi:                        | 2.00E-01 | Ingestion:             | 5.40E-05                | Ingestion: |          |  |
| SFO:                         |          | Dermal:                |                         | Dermal:    |          |  |
| IUR:                         |          | Inhalation:            | 6.89E-10                | Inhalation | :        |  |
| Mutagen:                     |          | Total:                 | 5.40E-05                | Total:     | 0.00E+00 |  |
| VOC:                         | Y        |                        |                         |            |          |  |
| % Contribution to Media Risk |          |                        | 0.02%                   |            | 0.00%    |  |

| Site Name: | Alexandria            |  | Construction                          |
|------------|-----------------------|--|---------------------------------------|
| Program:   | Voluntary Remediation |  |                                       |
|            |                       | <u>Risk Based Performance Criteria</u> |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                               | 1.00E-04                              |
|            |                       |  |                                       |

# Soil

CAS:

## Analyte: Trimethylbenzene, 1,3,5-

CAS: 108-67-8 Concentration mg/kg: 4.37E-01 **Calculated Hazard/Risk** RfDo: 4.00E-02 Non-Cancer Adult Cancer RfCi: 2.00E-01 Ingestion: 1.61E-05 Ingestion: SFO: Dermal: Dermal: IUR: Inhalation: 2.05E-10 Inhalation: Mutagen: Total: 1.61E-05 Total: 0.00E+00 VOC: Y % Contribution to Media Risk 0.01% 0.00%

### Analyte: Vanadium and Compounds

| Concentration mg/kg:         | 4.04E+01 | Calculated Hazard/Risk |                  |            |          |  |
|------------------------------|----------|------------------------|------------------|------------|----------|--|
| RfDo:                        | 1.00E-02 | Non-Ca                 | Non-Cancer Adult |            | Cancer   |  |
| RfCi:                        | 1.00E-04 | Ingestion:             | 5.95E-03         | Ingestion  | :        |  |
| SFO:                         |          | Dermal:                |                  | Dermal:    |          |  |
| IUR:                         |          | Inhalation:            | 3.79E-05         | Inhalatior | ı:       |  |
| Mutagen:                     |          | Total:                 | 5.98E-03         | Total:     | 0.00E+00 |  |
| VOC:                         |          |                        |                  |            |          |  |
| % Contribution to Media Risk |          |                        | 2.46%            |            | 0.00%    |  |

## Analyte: Xylenes

CAS: 1330-20-7

| Concentration mg/kg:         | 6.50E+00 | Calculated Hazard/Risk |            |        |       |          |
|------------------------------|----------|------------------------|------------|--------|-------|----------|
| RfDo:                        | 4.00E-01 | Non-Ca                 | ncer Adult |        | Cano  | cer      |
| RfCi:                        | 4.00E-01 | Ingestion:             | 2.39E-05   | Ingest | ion:  |          |
| SFO:                         |          | Dermal:                |            | Derma  | al:   |          |
| IUR:                         |          | Inhalation:            | 1.53E-09   | Inhala | tion: |          |
| Mutagen:                     |          | Total:                 | 2.39E-05   | Total: |       | 0.00E+00 |
| VOC:                         | Y        |                        |            |        |       |          |
| % Contribution to Media Risk |          |                        | 0.01%      |        | 0.0   | 00%      |

| Site Name:           | Alexandria            |                                       | Construction                          |
|----------------------|-----------------------|---------------------------------------|---------------------------------------|
| Program:             | Voluntary Remediation |                                       |                                       |
| U                    | ·                     | Risk Based Performance Criteria       |                                       |
| Default Hazard Index |                       | Default Risk Individual Chemical      | Default Cumulative Risk-All Chemicals |
| 1                    |                       | 1.00E-06                              | 1.00E-04                              |
|                      | Contact D             | epth to Groundwater: Direct Less than | 15ft                                  |

# Soil

## Analyte: Zinc and Compounds

CAS: 7440-66-6

| Concentration mg/kg:         | 4.97E+01 | Calculated Hazard/Risk |            |            |          |
|------------------------------|----------|------------------------|------------|------------|----------|
| RfDo:                        | 3.00E-01 | Non-Ca                 | ncer Adult |            | Cancer   |
| RfCi:                        | 7.67E-02 | Ingestion:             | 2.44E-04   | Ingestion  |          |
| SFO:                         |          | Dermal:                |            | Dermal:    |          |
| IUR:                         |          | Inhalation:            | 6.09E-08   | Inhalatior | 1:       |
| Mutagen:                     |          | Total:                 | 2.44E-04   | Total:     | 0.00E+00 |
| VOC:                         |          |                        |            |            |          |
| % Contribution to Media Risk |          |                        | 0.10%      |            | 0.00%    |

# Total Calculated Hazard Index/Risk for Soil

| Non-Canc    | er Adult | Canc        |
|-------------|----------|-------------|
| Ingestion:  | 2.36E-01 | Ingestion:  |
| Dermal:     | 5.55E-03 | Dermal:     |
| Inhalation: | 2.08E-03 | Inhalation: |
| Total:      | 2.43E-01 | Total:      |

| Site Name:           | Alexandria            |  | Construction                          |
|----------------------|-----------------------|--|---------------------------------------|
| Program:             | Voluntary Remediation |  |                                       |
| -                    | -                     | <b>Risk Based Performance Criteria</b> |                                       |
| Default Hazard Index |                       | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
| 1                    |                       | 1.00E-06                               | 1.00E-04                              |
|                      | Contact D             | epth to Groundwater: Direct Less than  | 15ft                                  |

# Groundwater

Acenaphthene

Analyte:

| CAS:       | 83-32-9          |          |             |             |                        |             |          |
|------------|------------------|----------|-------------|-------------|------------------------|-------------|----------|
| Concentrat | tion µg/L :      | 5.18E-01 |             |             | Calculated Hazard/Risk |             |          |
| RfDo:      |                  | 2.00E-01 | Non-Ca      | ancer Adult |                        |             | Cancer   |
| RfCi:      |                  |          | Ingestion:  | 2.31E-07    |                        | Ingestion:  |          |
| SFO:       |                  |          | Dermal:     |             |                        | Dermal:     |          |
| IUR:       |                  |          | Inhalation: |             |                        | Inhalation: |          |
| Mutagen:   |                  |          | Total:      | 2.31E-07    |                        | Total:      | 0.00E+00 |
| VOC:       |                  | Y        |             |             |                        |             |          |
| % Contribu | ition to Media R | isk      |             | 0.00%       |                        |             | 0.00%    |

#### CAS: 208-96-8

| Concentration $\mu$ g/L :    | 1.50E-01 | Calculated Hazard/Risk |             |             |          |  |
|------------------------------|----------|------------------------|-------------|-------------|----------|--|
| RfDo:                        | 3.00E-01 | Non-Ca                 | ancer Adult | Ca          | Cancer   |  |
| RfCi:                        |          | Ingestion:             | 4.48E-08    | Ingestion:  |          |  |
| SFO:                         |          | Dermal:                | 4.11E-06    | Dermal:     |          |  |
| IUR:                         |          | Inhalation:            |             | Inhalation: |          |  |
| Mutagen:                     |          | Total:                 | 4.16E-06    | Total:      | 0.00E+00 |  |
| VOC:                         | Y        |                        |             |             |          |  |
| % Contribution to Media Risk |          |                        | 0.00%       |             | 0.00%    |  |

#### Analyte: Acetone

CAS: 67-64-1

| Concentration $\mu$ g/L : | 6.62E+00 | Calculated Hazard/Risk |             |                 |  |  |
|---------------------------|----------|------------------------|-------------|-----------------|--|--|
| RfDo:                     | 1.00E+00 | Non-Ca                 | ancer Adult | Cancer          |  |  |
| RfCi:                     | 3.09E+01 | Ingestion:             | 5.91E-07    | Ingestion:      |  |  |
| SFO:                      |          | Dermal:                |             | Dermal:         |  |  |
| IUR:                      |          | Inhalation:            |             | Inhalation:     |  |  |
| Mutagen:                  |          | Total:                 | 5.91E-07    | Total: 0.00E+00 |  |  |
| VOC:                      | Y        |                        |             |                 |  |  |
| % Contribution to Media   | Rick     |                        | 0.00%       | 0.00%           |  |  |

% Contribution to Media Risk

0.00%

| Site Name:  | Alexandria  |                                  | Construction                          |  |  |  |
|---|---|----------------------------------|---------------------------------------|--|--|--|
| Program:  | am: Voluntary Remediation Program<br><u>Risk Based Performance Criteria</u> |                                  |                                       |  |  |  |
| Default Hazard Index                                |   | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |  |  |  |
|   | 1   | 1.00E-06                         | 1.00E-04                              |  |  |  |
| Contact Depth to Groundwater: Direct Less than 15ft |   |                                  |                                       |  |  |  |
| Group   | adwatar   |                                  |                                       |  |  |  |

## Groundwater Analyte:

Aluminum

| CAS:          | 7429-90-5      |          | _           |            |                        |             |          |
|---------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration | ημg/L :        | 2.53E+03 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:         |                | 1.00E+00 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:         |                | 5.00E-03 | Ingestion:  | 2.26E-04   |                        | Ingestion:  |          |
| SFO:          |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:          |                |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:      |                |          | Total:      | 2.26E-04   |                        | Total:      | 0.00E+00 |
| VOC:          |                |          |             |            |                        |             |          |
| % Contributio | n to Media Ris | k        |             | 0.03%      |                        |             | 0.00%    |

CAS:

120-12-7

| Concentration $\mu$ g/L : | 9.93E-02 |             |             | Calculated Hazard/Risk |          |
|---------------------------|----------|-------------|-------------|------------------------|----------|
| RfDo:                     | 1.00E+00 | Non-Ca      | ancer Adult |                        | Cancer   |
| RfCi:                     | 1.00E-02 | Ingestion:  | 8.87E-09    | Ingest                 | ion:     |
| SFO:                      |          | Dermal:     |             | Derma                  | al:      |
| IUR:                      |          | Inhalation: |             | Inhala                 | ition:   |
| Mutagen:                  |          | Total:      | 8.87E-09    | Total:                 | 0.00E+00 |
| VOC:                      | Y        |             |             |                        |          |
| % Contribution to Media R | isk      |             | 0.00%       |                        | 0.00%    |

### Analyte: Antimony (metallic) CAS: 7440-36-0

|                             |          | _           |            |                        |             |          |
|-----------------------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration µg/L :        | 5.50E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:                       | 4.00E-04 | Non-Ca      | ncer Adult |                        | (           | Cancer   |
| RfCi:                       | 1.00E-03 | Ingestion:  | 1.23E-04   |                        | Ingestion:  |          |
| SFO:                        |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:                        |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:                    |          | Total:      | 1.23E-04   |                        | Total:      | 0.00E+00 |
| VOC:                        |          |             |            |                        |             |          |
| % Contribution to Media Ris | sk       |             | 0.02%      |                        |             | 0.00%    |

Wednesday, December 6, 2023

| Site Name: | Alexandria            |                                       | Construction                          |
|------------|-----------------------|---------------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | on Program                            |                                       |
| U U        | •                     | Risk Based Performance Criteria       |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical      | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                              | 1.00E-04                              |
|            | Contact D             | epth to Groundwater: Direct Less than | 15ft                                  |

# Groundwater

| Analyte:<br>CAS: | Arsenic, In<br>7440-38-2 | •        |             |            |                        |             |          |
|------------------|--------------------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentratio     | nμg/L :                  | 5.50E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:            |                          | 3.00E-04 | Non-Ca      | ncer Adult |                        | С           | Cancer   |
| RfCi:            |                          | 1.50E-05 | Ingestion:  | 1.64E-03   |                        | Ingestion:  | 1.01E-08 |
| SFO:             |                          | 1.50E+00 | Dermal:     |            |                        | Dermal:     |          |
| IUR:             |                          | 4.30E-03 | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:         |                          |          | Total:      | 1.64E-03   |                        | Total:      | 1.01E-08 |
| VOC:             |                          |          |             |            |                        |             |          |
| % Contributio    | on to Media Ris          | sk       |             | 0.22%      |                        |             | 0.52%    |

### Analyte: Barium CAS:

7440-39-3

| Concentration $\mu$ g/L : | 1.06E+02 |             |            | Calculated Hazard/Risk |             |          |
|---------------------------|----------|-------------|------------|------------------------|-------------|----------|
| RfDo:                     | 2.00E-01 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:                     | 5.00E-03 | Ingestion:  | 4.73E-05   |                        | Ingestion:  |          |
| SFO:                      |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:                      |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:                  |          | Total:      | 4.73E-05   |                        | Total:      | 0.00E+00 |
| VOC:                      |          |             |            |                        |             |          |
| % Contribution to Media R | isk      |             | 0.01%      |                        |             | 0.00%    |

### Analyte: Benz[a]anthracene CAS:

| CAS:      | 56-55-3     |          |             |              |                        |             |          |
|-----------|-------------|----------|-------------|--------------|------------------------|-------------|----------|
| Concentra | tion µg/L : | 7.93E-02 |             |              | Calculated Hazard/Risk |             |          |
| RfDo:     |             |          | Non-0       | Cancer Adult |                        | Ca          | ancer    |
| RfCi:     |             |          | Ingestion:  |              |                        | Ingestion:  | 9.70E-12 |
| SFO:      |             | 1.00E-01 | Dermal:     |              |                        | Dermal:     |          |
| IUR:      |             | 6.00E-05 | Inhalation: |              |                        | Inhalation: | 4.05E-09 |
| Mutagen:  |             | Y        | Total:      | 0.00E+00     |                        | Total:      | 4.06E-09 |
| VOC:      |             | Y        |             |              |                        |             |          |
|           |             |          |             | 0.000/       |                        |             | 0.040/   |

% Contribution to Media Risk

0.00%

0.21%

| Site Name:  | Alexandria            |  | Construction                          |  |  |
|---|-----------------------|--|---------------------------------------|--|--|
| Program:  | Voluntary Remediation | on Program                             |                                       |  |  |
| -   | -                     | <b>Risk Based Performance Criteria</b> |                                       |  |  |
| Default Hazard Index                                |                       | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |
|   | 1                     | 1.00E-06                               | 1.00E-04                              |  |  |
| Contact Depth to Groundwater: Direct Less than 15ft |                       |  |                                       |  |  |

# Groundwater

Benzene

Analyte:

CAS:

| CAS:          | 71-43-2         |          |             |            |                        |             |          |
|---------------|-----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration | ημg/L :         | 1.16E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:         |                 | 1.00E-02 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:         |                 | 8.00E-02 | Ingestion:  | 1.04E-05   |                        | Ingestion:  | 7.80E-11 |
| SFO:          |                 | 5.50E-02 | Dermal:     |            |                        | Dermal:     |          |
| IUR:          |                 | 7.80E-06 | Inhalation: | 8.06E-03   |                        | Inhalation: | 6.89E-08 |
| Mutagen:      |                 |          | Total:      | 8.07E-03   |                        | Total:      | 6.90E-08 |
| VOC:          |                 | Y        |             |            |                        |             |          |
| % Contributio | on to Media Ris | ik       |             | 1.07%      |                        |             | 3.53%    |

| Analyte: | Benzo(g,h,i)perylene |
|----------|----------------------|
|----------|----------------------|

| 1 | g | 1.         | -2  | Δ_ | 2 |
|---|---|------------|-----|----|---|
| - | _ | - <b>L</b> | - 6 | -  | ~ |

| Concentration $\mu$ g/L : | 1.10E-01 |             |            | Calculated Hazard/Risk |          |
|---------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                     | 3.00E-01 | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                     |          | Ingestion:  | 3.27E-08   | Ingestio               | n:       |
| SFO:                      |          | Dermal:     | 4.25E-05   | Dermal:                | :        |
| IUR:                      |          | Inhalation: |            | Inhalati               | on:      |
| Mutagen:                  |          | Total:      | 4.26E-05   | Total:                 | 0.00E+00 |
| VOC:                      | Y        |             |            |                        |          |
| % Contribution to Media F | Risk     |             | 0.01%      |                        | 0.00%    |

# Analyte: Benzo[a]pyrene

| CAS: 5              | 0-32-8       |       |             |             |                        |             |          |
|---------------------|--------------|-------|-------------|-------------|------------------------|-------------|----------|
| Concentration $\mu$ | g/L : 6.0    | 8E-02 |             |             | Calculated Hazard/Risk |             |          |
| RfDo:               | 3.0          | 0E-04 | Non-Ca      | ancer Adult |                        | (           | Cancer   |
| RfCi:               | 2.0          | 0E-06 | Ingestion:  | 1.81E-05    |                        | Ingestion:  | 7.43E-11 |
| SFO:                | 1.00         | 0E+00 | Dermal:     |             |                        | Dermal:     |          |
| IUR:                | 6.0          | 0E-04 | Inhalation: |             |                        | Inhalation: |          |
| Mutagen:            |              | Y     | Total:      | 1.81E-05    |                        | Total:      | 7.43E-11 |
| VOC:                |              |       |             |             |                        |             |          |
| % Contribution t    | o Media Risk |       |             | 0.00%       |                        |             | 0.00%    |

| Site Name: | Alexandria            |                                      | Construction                          |
|------------|-----------------------|--------------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | n Program                            |                                       |
|            |                       | Risk Based Performance Criteria      |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical     | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                             | 1.00E-04                              |
|            | Contact Do            | nth to Croundwater: Direct Loss then | 1                                     |

Contact Depth to Groundwater: Direct Less than 15ft

# Groundwater

### Analyte: Benzo[b]fluoranthene

| CAS:         | 205-99-2        |          |             |             |                        |             |          |
|--------------|-----------------|----------|-------------|-------------|------------------------|-------------|----------|
| Concentratio | on µg/L :       | 2.00E-01 |             |             | Calculated Hazard/Risk |             |          |
| RfDo:        |                 |          | Non-Ca      | ancer Adult |                        | C           | Cancer   |
| RfCi:        |                 |          | Ingestion:  |             |                        | Ingestion:  | 2.45E-11 |
| SFO:         |                 | 1.00E-01 | Dermal:     |             |                        | Dermal:     |          |
| IUR:         |                 | 6.00E-05 | Inhalation: |             |                        | Inhalation: |          |
| Mutagen:     |                 | Y        | Total:      | 0.00E+00    |                        | Total:      | 2.45E-11 |
| VOC:         |                 |          |             |             |                        |             |          |
| % Contribut  | ion to Media Ri | sk       |             | 0.00%       |                        |             | 0.00%    |

| Analyte: | Benzo[k]fluoranthene |
|----------|----------------------|
|----------|----------------------|

CAS: 207-08-9

| Concentration $\mu$ g/L : | 7.84E-02 |             |               | Calculated Hazard/Risk | -           |          |
|---------------------------|----------|-------------|---------------|------------------------|-------------|----------|
| RfDo:                     |          | Non         | -Cancer Adult |                        | С           | Cancer   |
| RfCi:                     |          | Ingestion:  |               |                        | Ingestion:  | 9.59E-13 |
| SFO:                      | 1.00E-02 | Dermal:     |               |                        | Dermal:     |          |
| IUR:                      | 6.00E-06 | Inhalation: |               |                        | Inhalation: |          |
| Mutagen:                  | Y        | Total:      | 0.00E+00      |                        | Total:      | 9.59E-13 |
| VOC:                      |          |             |               |                        |             |          |
| % Contribution to Media I | Risk     |             | 0.00%         |                        |             | 0.00%    |

### Analyte:

### **Beryllium and compounds** CAS: 7440-41-7 Concentration $\mu$ g/L : 1.71E+00 **Calculated Hazard/Risk** RfDo: 5.00E-03 **Non-Cancer Adult** Cancer RfCi: 2.00E-05 Ingestion: 3.05E-05 Ingestion: SFO: Dermal: Dermal: IUR: 2.40E-03 Inhalation: Inhalation: Mutagen: Total: 3.05E-05 Total: 0.00E+00 VOC: % Contribution to Media Risk 0.00% 0.00%

| Site Name:   | Alexandr                    | ia         |                                 |                 |               |                      | Construction       |
|--------------|-----------------------------|------------|---------------------------------|-----------------|---------------|----------------------|--------------------|
| Program:     | Voluntary                   | y Remediat | t <b>ion Program</b><br>Risk Ba | sed Performan   | ce Criteria   |                      |                    |
| [            | Default Hazar               | d Index    |                                 | Risk Individual |               | Default Cumulative F | Risk-All Chemicals |
|              | 1                           |            |                                 | 1.00E-06        |               | 1.00E-               | -04                |
|              |                             | Contact    | Depth to Grou                   | ndwater: Dire   | ect Less than | 15ft                 |                    |
| Analyte:     | ndwat<br><sub>Cadmium</sub> |            |                                 |                 |               |                      |                    |
| CAS:         | 7440-43-9                   | -Water     |                                 |                 |               |                      |                    |
| Concentratio | nμg/L :                     | 2.64E+00   |                                 |                 | Calculated Ha | azard/Risk           |                    |
| RfDo:        |                             | 5.00E-04   | Non-Ca                          | ncer Adult      |               | C                    | Cancer             |
| RfCi:        |                             | 1.00E-05   | Ingestion:                      | 4.71E-04        |               | Ingestion:           |                    |
| SFO:         |                             |            | Dermal:                         |                 |               | Dermal:              |                    |

| IUR:                        | 1.80E-03 | Inhalation: |          | Inhalation: |          |
|-----------------------------|----------|-------------|----------|-------------|----------|
| Mutagen:                    |          | Total:      | 4.71E-04 | Total:      | 0.00E+00 |
| VOC:                        |          |             |          |             |          |
| % Contribution to Media Ris | k        |             | 0.06%    | C           | ).00%    |

### Analyte: Carbazole

CAS: 86-74-8

| Concentration µg/L : 9.00    | DE-01 | Calculated Hazard/Risk |             |  |             |          |
|------------------------------|-------|------------------------|-------------|--|-------------|----------|
| RfDo:                        |       | Non-C                  | ancer Adult |  |             | Cancer   |
| RfCi:                        |       | Ingestion:             |             |  | Ingestion:  |          |
| SFO:                         |       | Dermal:                |             |  | Dermal:     |          |
| IUR:                         |       | Inhalation:            |             |  | Inhalation: |          |
| Mutagen:                     |       | Total:                 | 0.00E+00    |  | Total:      | 0.00E+00 |
| VOC:                         |       |                        |             |  |             |          |
| % Contribution to Media Risk |       |                        | 0.00%       |  |             | 0.00%    |

### Analyte: Chlorobenzene

| CAS:          | 108-90-7       |          |             |            |                        |             |          |
|---------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration | nμg/L :        | 1.00E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:         |                | 7.00E-02 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:         |                | 5.00E-01 | Ingestion:  | 1.28E-06   |                        | Ingestion:  |          |
| SFO:          |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:          |                |          | Inhalation: | 9.19E-04   |                        | Inhalation: |          |
| Mutagen:      |                |          | Total:      | 9.21E-04   |                        | Total:      | 0.00E+00 |
| VOC:          |                | Y        |             |            |                        |             |          |
| % Contributio | on to Media Ri | sk       |             | 0.12%      |                        |             | 0.00%    |

| Site Name | e: Alexandria        |   | Construction                          |
|-----------|----------------------|---|---------------------------------------|
| Program:  | Voluntary Remediati  | on Program<br>Risk Based Performance Criteria |                                       |
|           | Default Hazard Index | Default Risk Individual Chemical              | Default Cumulative Risk-All Chemicals |
|           | 1                    | 1.00E-06                                      | 1.00E-04                              |
|           |                      |   |                                       |

Contact Depth to Groundwater: Direct Less than 15ft

# Groundwater

### Analyte: Chromium(III), Insoluble Salts

| CAS:           | 16065-83-1     | L        |             |            |                        |             |          |
|----------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration  | μg/L :         | 4.33E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:          |                | 1.50E+00 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:          |                | 5.00E-03 | Ingestion:  | 2.58E-07   |                        | Ingestion:  |          |
| SFO:           |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:           |                |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:       |                |          | Total:      | 2.58E-07   |                        | Total:      | 0.00E+00 |
| VOC:           |                |          |             |            |                        |             |          |
| % Contributior | n to Media Ris | k        |             | 0.00%      |                        |             | 0.00%    |

| Analyte: | Chrysene |
|----------|----------|
| CAS:     | 218-01-9 |

| Concentration $\mu$ g/L :    | 8.14E-02 | Calculated Hazard/Risk |          |                  |             |          |
|------------------------------|----------|------------------------|----------|------------------|-------------|----------|
| RfDo:                        | 1.50E+00 | Non-Cancer Adult       |          | Non-Cancer Adult |             | Cancer   |
| RfCi:                        | 5.00E-03 | Ingestion:             | 4.85E-09 |                  | Ingestion:  | 9.96E-14 |
| SFO:                         | 1.00E-03 | Dermal:                |          |                  | Dermal:     |          |
| IUR:                         | 6.00E-07 | Inhalation:            |          |                  | Inhalation: |          |
| Mutagen:                     | Y        | Total:                 | 4.85E-09 |                  | Total:      | 9.96E-14 |
| VOC:                         |          |                        |          |                  |             |          |
| % Contribution to Media Risk |          |                        | 0.00%    |                  |             | 0.00%    |

### Analyte: Cobalt

| CAS: | 7440-48-4 |
|------|-----------|
| LAJ. | /440-40-4 |

| Concentration µg/L :    | 2.38E+02 |                        | 0-1      | and the stand (D's) |   |
|-------------------------|----------|------------------------|----------|---------------------|---|
| Concentration µg/L :    | 2.301+02 | Calculated Hazard/Risk |          |                     |   |
| RfDo:                   | 3.00E-03 | Non-Ca                 | Cancer   |                     |   |
| RfCi:                   | 2.00E-05 | Ingestion:             | 7.08E-03 | Ingestion:          |   |
| SFO:                    |          | Dermal:                |          | Dermal:             |   |
| IUR:                    | 9.00E-03 | Inhalation:            |          | Inhalation:         |   |
| Mutagen:                |          | Total:                 | 7.08E-03 | Total: 0.00E+00     | ) |
| VOC:                    |          |                        |          |                     |   |
| % Contribution to Madia | Dick     |                        | 0.04%    | 0.00%               |   |

% Contribution to Media Risk

0.94%

0.00%

| Site Name:   | Alexandr   | -                                | tion Due   |   |                               |  |                            |
|--|--|----------------------------------|--|---|-------------------------------|--|----------------------------|
| Program:   | voluntar   | y Remedia                        | <b>tion Program</b><br>Risk Ba                           | I<br>Ised Performance Criter                              | ia                            |  |                            |
| D  | efault Hazar   | rd Index                         |  | Risk Individual Chemica                                   |                               | umulative F                                  | Risk-All Chemicals         |
|  | 1  |                                  |  | 1.00E-06  |                               | 1.00E-                                       | 04                         |
|  |  | Contact                          | Depth to Grou  | undwater: Direct Less t                                   | han 15ft                      |  |                            |
| Groun  | dwat   | or                               |  |   |                               |  |                            |
|  |  |                                  |  |   |                               |  |                            |
| Analyte:   | Copper   |                                  |  |   |                               |  |                            |
| CAS:   | 7440-50-8  | <b>b</b>                         | T  |   |                               |  |                            |
| Concentration  | μg/L :   | 1.85E+01                         |  | Calculate   | ed Hazard/Risk                |  |                            |
| RfDo:  |  | 1.00E-02                         | Non-Ca   | ncer Adult  |                               | C  | ancer                      |
| RfCi:  |  |                                  | Ingestion:   | 1.65E-04  | I                             | ngestion:                                    |                            |
| SFO:   |  |                                  | Dermal:  |   | C                             | Dermal:                                      |                            |
| IUR:   |  |                                  | Inhalation:  |   | I                             | nhalation:                                   |                            |
| Mutagen:   |  |                                  | Total:   | 1.65E-04  | Т                             | Total:                                       | 0.00E+00                   |
| VOC:   |  |                                  |  |   |                               |  |                            |
| % Contribution   |  | isk                              | 1  | 0.02%   |                               |  | 0.00%                      |
| Analyte:   | n to Media Ri<br>Cresol, o-<br>95-48-7                                     | isk                              | 1  | 0.02%   |                               |  | 0.00%                      |
| Analyte:<br>CAS:   | Cresol, o-<br>95-48-7  | isk<br>1.36E+00                  | Ĩ  |   | ed Hazard/Risk                |  | 0.00%                      |
| Analyte:<br>CAS:<br>Concentration  | Cresol, o-<br>95-48-7  |                                  |  |   | ed Hazard/Risk                | C  | 0.00%                      |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:   | Cresol, o-<br>95-48-7  | 1.36E+00                         |  | Calculat  |                               | C<br>ngestion:                               |                            |
| % Contribution<br>Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:  | Cresol, o-<br>95-48-7  | 1.36E+00<br>2.00E-01             | Non-Ca   | Calculat<br>ncer Adult                                    | I                             | -  |                            |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:  | Cresol, o-<br>95-48-7  | 1.36E+00<br>2.00E-01             | Non-Ca<br>Ingestion:                                     | Calculat<br>ncer Adult                                    | l<br>C                        | ngestion:                                    |                            |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:  | Cresol, o-<br>95-48-7  | 1.36E+00<br>2.00E-01             | <b>Non-Ca</b><br>Ingestion:<br>Dermal:                   | Calculat<br>ncer Adult                                    | <br>[<br>                     | ngestion:<br>Dermal:                         |                            |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:  | Cresol, o-<br>95-48-7  | 1.36E+00<br>2.00E-01             | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | Calculat<br>ncer Adult<br>6.07E-07                        | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:           | ancer                      |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:  | <b>Cresol, o-</b><br><b>95-48-7</b><br>μg/L :                              | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07                        | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:           | ancer                      |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:  | <b>Cresol, o-</b><br><b>95-48-7</b><br>μg/L :                              | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07<br><b>6.07E-07</b>     | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:           | ancer<br>0.00E+00          |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:<br>% Contribution                                      | <b>Cresol, o-</b><br><b>95-48-7</b><br>μg/L :<br>n to Media Ri             | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07<br><b>6.07E-07</b>     | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:           | ancer<br>0.00E+00          |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:<br>% Contribution<br>Analyte:                          | <b>Cresol, o-</b><br><b>95-48-7</b><br>μg/L :                              | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07<br><b>6.07E-07</b>     | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:           | ancer<br>0.00E+00          |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:<br>% Contribution<br>Analyte:<br>CAS:                  | Cresol, ο-<br>95-48-7<br>μg/L :<br>n to Media Ri<br>Cresol, p-<br>106-44-5 | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07<br>6.07E-07<br>0.00%   | ן<br>נ<br>ד                   | ngestion:<br>Dermal:<br>nhalation:           | ancer<br>0.00E+00          |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:<br>% Contribution<br>Analyte:<br>CAS:<br>Concentration | Cresol, ο-<br>95-48-7<br>μg/L :<br>n to Media Ri<br>Cresol, p-<br>106-44-5 | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculate<br>ncer Adult<br>6.07E-07<br>0.00%<br>Calculate | <br>[<br>                     | ngestion:<br>Dermal:<br>nhalation:<br>Fotal: | ancer<br>0.00E+00<br>0.00% |
| Analyte:<br>CAS:<br>Concentration<br>RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen:<br>VOC:  | Cresol, ο-<br>95-48-7<br>μg/L :<br>n to Media Ri<br>Cresol, p-<br>106-44-5 | 1.36E+00<br>2.00E-01<br>6.00E-01 | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | Calculat<br>ncer Adult<br>6.07E-07<br>6.07E-07<br>0.00%   | ן<br>ד<br>ד<br>ed Hazard/Risk | ngestion:<br>Dermal:<br>nhalation:<br>Fotal: | ancer<br>0.00E+00          |

2.68E-05

0.00%

Inhalation:

Total:

% Contribution to Media Risk

IUR:

VOC:

Mutagen:

0.00E+00

0.00%

Inhalation:

Total:

| Site Name:       | Alexandr              | ia        |              |                       |             |                    | Construction         |
|------------------|-----------------------|-----------|--------------|-----------------------|-------------|--------------------|----------------------|
| Program:         | Voluntar              | y Remedia | tion Program | l<br>Ised Performance | Criteria    |                    |                      |
| D                | efault Hazaı          | rd Index  |              | Risk Individual C     |             | Default Cumulative | e Risk-All Chemicals |
| Ľ                | 1                     |           |              | 1.00E-06              |             |                    | )E-04                |
|                  |                       | Contact   | Depth to Gro | undwater: Direct      | : Less than | 15ft               |                      |
| Grour            | ndwat                 | er        |              |                       |             |                    |                      |
| Analyte:<br>CAS: | Cresol, p-<br>59-50-7 |           |              |                       |             |                    |                      |
| Concentration    | ημg/L :               | 8.00E-01  | Ţ            | C                     | alculated H | azard/Risk         |                      |
| RfDo:            |                       | 1.00E-01  | Non-Ca       | ncer Adult            |             |                    | Cancer               |
| RfCi:            |                       |           | Ingestion:   | 7.14E-07              |             | Ingestion:         |                      |
| SFO:             |                       |           | Dermal:      |                       |             | Dermal:            |                      |
| IUR:             |                       |           | Inhalation:  |                       |             | Inhalation:        |                      |
| Mutagen:         |                       |           | Total:       | 7.14E-07              |             | Total:             | 0.00E+00             |
| VOC:             |                       |           |              |                       |             |                    |                      |
| % Contributio    | n to Media Ri         | isk       |              | 0.00%                 |             |                    | 0.00%                |
| Analyte:<br>CAS: | Cumene<br>98-82-8     |           |              |                       |             |                    |                      |
| Concentration    | ημg/L :               | 1.00E+00  |              | C                     | alculated H | lazard/Risk        |                      |
| RfDo:            |                       | 4.00E-01  | Non-Ca       | ncer Adult            |             | -                  | Cancer               |
| RfCi:            |                       | 9.00E-02  | Ingestion:   | 2.23E-07              |             | Ingestion:         |                      |
| SFO:             |                       |           | Dermal:      |                       |             | Dermal:            |                      |
| IUR:             |                       |           | Inhalation:  | 5.01E-03              |             | Inhalation:        |                      |

| Mutagen:                     |   | Total: | 5.0   | 01E-03 | Total: |
|------------------------------|---|--------|-------|--------|--------|
| VOC:                         | Y |        |       |        |        |
| % Contribution to Media Risk |   |        | 0.66% | I.     |        |

### Analyte: Dibenz[a,h]anthracene

CAS: 53-70-3

| Concentration $\mu$ g/L : | 4.54E-02 |                  | Calculated Hazard/Risk |  |                         |          |  |       |
|---------------------------|----------|------------------|------------------------|--|-------------------------|----------|--|-------|
| RfDo:                     |          | Non-Cancer Adult |                        |  | Non-Cancer Adult Cancer |          |  | ancer |
| RfCi:                     |          | Ingestion:       |                        |  | Ingestion:              | 5.55E-11 |  |       |
| SFO:                      | 1.00E+00 | Dermal:          |                        |  | Dermal:                 |          |  |       |
| IUR:                      | 6.00E-04 | Inhalation:      |                        |  | Inhalation:             |          |  |       |
| Mutagen:                  | Y        | Total:           | 0.00E+00               |  | Total:                  | 5.55E-11 |  |       |
| VOC:                      |          |                  |                        |  |                         |          |  |       |
| % Contribution to Media   | Risk     |                  | 0.00%                  |  |                         | 0.00%    |  |       |

0.00E+00

0.00%

| Site Name:    | Alexand           | ria            |               |   |                   |             | Constructio       |
|---------------|-------------------|----------------|---------------|---|-------------------|-------------|-------------------|
| Program:      | Voluntai          | ry Remedia     | tion Program  |   | tovia             |             |                   |
|               | . <b>(</b> . 1. 1 |                |               | sed Performance Cri<br>Risk Individual Chem |                   |             |                   |
| D             | efault Haza       | ird Index      | Default       | 1.00E-06                                    | iicai Default     |             | isk-All Chemicals |
|               | 1                 | <b>•</b> • • • |               |   |                   | 1.00E-0     | J4                |
|               |                   | Contact        | Depth to Grou | undwater: Direct Les                        | s than 15ft       |             |                   |
| Grour         | ndwat             | ter            |               |   |                   |             |                   |
| Analyte:      |                   |                |               |   |                   |             |                   |
| CAS:          | 106-93-4          | ethane, 1,2    | -             |   |                   |             |                   |
|               |                   |                | Ţ             |   |                   |             |                   |
| Concentration | ημg/L :           | 4.00E-01       |               | Calcu                                       | lated Hazard/Risk |             |                   |
| RfDo:         |                   | 9.00E-03       | Non-Ca        | ncer Adult                                  |                   | Ca          | ancer             |
| RfCi:         |                   | 2.00E-03       | Ingestion:    | 3.97E-06                                    |                   | Ingestion:  | 9.78E-10          |
| SFO:          |                   | 2.00E+00       | Dermal:       |   |                   | Dermal:     |                   |
| IUR:          |                   | 6.00E-04       | Inhalation:   | 6.70E-02                                    |                   | Inhalation: | 1.10E-06          |
| Mutagen:      |                   |                | Total:        | 6.70E-02                                    |                   | Total:      | 1.10E-06          |
| VOC:          |                   | Y              |               |   |                   |             |                   |
| % Contributio | n to Media R      | Risk           |               | 8.87%                                       |                   |             | 56.39%            |
|               | Ex                | xceeds Risk    | !             |   |                   |             |                   |
| Analyte:      | Dibutyl P         | hthalato       |               |   |                   |             |                   |
| CAS:          | 84-74-2           | minalate       |               |   |                   |             |                   |
|               |                   |                | 1             |   |                   |             |                   |
| Concentration | ημg/L :           | 3.00E+00       |               |   | lated Hazard/Risk |             |                   |
| RfDo:         |                   | 1.00E+00       |               | ncer Adult                                  |                   |             | ancer             |
| RfCi:         |                   |                | Ingestion:    | 2.68E-07                                    |                   | Ingestion:  |                   |
| SFO:          |                   |                | Dermal:       |   |                   | Dermal:     |                   |
| IUR:          |                   |                | Inhalation:   |   |                   | Inhalation: |                   |
| Mutagen:      |                   |                | Total:        | 2.68E-07                                    |                   | Total:      | 0.00E+00          |
| VOC:          |                   |                |               |   |                   |             |                   |
| % Contributio | n to Media R      | Risk           |               | 0.00%                                       |                   |             | 0.00%             |
|               |                   |                |               |   |                   |             |                   |
| Analyte:      | Dichloroe         | ethylene, 1,   | 1-            |   |                   |             |                   |
| CAS:          | 75-35-4           | ,,=,           |               |   |                   |             |                   |
|               |                   | 2 705 04       | ]             |   |                   |             |                   |
| Concentration | ημg/L :           | 3.70E-01       |               |   | lated Hazard/Risk |             |                   |
| RfDo:         |                   | 9.00E-03       | Non-Ca        | ncer Adult                                  |                   | C           | ancer             |

| RfDo:                        | 9.00E-03 | Non-Cancer Adult |          | Cancer          |
|------------------------------|----------|------------------|----------|-----------------|
| RfCi:                        | 2.00E-01 | Ingestion:       | 3.67E-06 | Ingestion:      |
| SFO:                         |          | Dermal:          |          | Dermal:         |
| IUR:                         |          | Inhalation:      | 9.31E-04 | Inhalation:     |
| Mutagen:                     |          | Total:           | 9.35E-04 | Total: 0.00E+00 |
| VOC:                         | Y        |                  |          |                 |
| % Contribution to Media Risk |          |                  | 0.12%    | 0.00%           |

| Site Name: | Alexandria            |                                       | Construction                          |
|------------|-----------------------|---------------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | on Program                            |                                       |
| U U        | •                     | Risk Based Performance Criteria       |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical      | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                              | 1.00E-04                              |
|            | Contact D             | epth to Groundwater: Direct Less than | 15ft                                  |

# Groundwater

### Analyte: Diisopropyl Ether

CAS: 108-20-3

Г

| : | 108-20-3 |
|---|----------|
|   |          |

7

| Concentration µg/L :    | 1.06E+00 | Calculated Hazard/Risk |            |             |          |
|-------------------------|----------|------------------------|------------|-------------|----------|
| RfDo:                   |          | Non-Ca                 | ncer Adult |             | Cancer   |
| RfCi:                   | 7.00E-01 | Ingestion:             |            | Ingestion:  |          |
| SFO:                    |          | Dermal:                |            | Dermal:     |          |
| IUR:                    |          | Inhalation:            | 7.28E-04   | Inhalation: |          |
| Mutagen:                |          | Total:                 | 7.28E-04   | Total:      | 0.00E+00 |
| VOC:                    | Y        |                        |            |             |          |
| % Contribution to Media | Risk     |                        | 0.10%      |             | 0.00%    |

### Analyte: Dimethylphenol, 2,4-

| CAS:           | 105-67-9     |          |             |            |                        |             |          |
|----------------|--------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration  | µg/L :       | 9.00E+00 | Ţ           |            | Calculated Hazard/Risk |             |          |
| RfDo:          |              | 5.00E-02 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:          |              |          | Ingestion:  | 1.61E-05   |                        | Ingestion:  |          |
| SFO:           |              |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:           |              |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:       |              |          | Total:      | 1.61E-05   |                        | Total:      | 0.00E+00 |
| VOC:           |              |          |             |            |                        |             |          |
| % Contribution | to Media Ris | k        |             | 0.00%      |                        |             | 0.00%    |

## Analyte: Ethylbenzene

| CAS:         | 100-41-4        |          |             |            |                        |             |          |
|--------------|-----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentratio | on μg/L :       | 8.76E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:        |                 | 5.00E-02 | Non-Ca      | ncer Adult |                        | С           | ancer    |
| RfCi:        |                 | 9.00E+00 | Ingestion:  | 1.56E-06   |                        | Ingestion:  | 1.18E-11 |
| SFO:         |                 | 1.10E-02 | Dermal:     |            |                        | Dermal:     |          |
| IUR:         |                 | 2.50E-06 | Inhalation: | 4.66E-05   |                        | Inhalation: | 1.44E-08 |
| Mutagen:     |                 |          | Total:      | 4.81E-05   |                        | Total:      | 1.44E-08 |
| VOC:         |                 | Y        |             |            |                        |             |          |
| % Contributi | on to Media Ris | sk       |             | 0.01%      |                        |             | 0.73%    |

| Site Name: Alexa   |                      | _                    |                            | Construct                          |
|--|----------------------|----------------------|----------------------------|------------------------------------|
| Program: Volun   | tary Remediation     |                      | sed Performance Criteria   |                                    |
| Dofault H  | azard Index          |                      | Risk Individual Chemical   | Default Cumulative Risk-All Chemic |
|  | 1                    | Delault              | 1.00E-06                   | 1.00E-04                           |
|  |                      |                      |                            |                                    |
|  | Contact D            | epth to Grou         | Indwater: Direct Less thar | า 15ft                             |
| Groundwa<br>Analyte: Fluorad   | nthene               |                      |                            |                                    |
| Analyte: Fluora<br>CAS: 206-44   | nthene               |                      | Calculated F               | lazard/Risk                        |
| Analyte: Fluora  | nthene<br>-0         | Non-Ca               | Calculated F<br>ncer Adult | lazard/Risk<br>Cancer              |
| Analyte:       Fluoration         CAS:       206-44         Concentration μg/L       :                       | 1.30E-01<br>1.00E-01 | Non-Ca<br>Ingestion: |                            | •                                  |
| Analyte:       Fluoration         CAS:       206-44         Concentration μg/L       :         RfDo:       : | 1.30E-01<br>1.00E-01 |                      | ncer Adult                 | Cancer                             |
| Analyte:     Fluoration       CAS:     206-44       Concentration μg/L     :       RfDo:     RfCi:           | 1.30E-01<br>1.00E-01 | Ingestion:           | ncer Adult                 | Cancer<br>Ingestion:               |

VOC:

% Contribution to Media Risk

### Analyte: Fluorene CAS:

86-73-7

| Concentration µg/L :      | 4.87E-01 |                  |          | Calculated Hazard/Risk |          |
|---------------------------|----------|------------------|----------|------------------------|----------|
| RfDo:                     | 4.00E-01 | Non-Cancer Adult |          |                        | Cancer   |
| RfCi:                     |          | Ingestion:       | 1.09E-07 | Ingestion              | :        |
| SFO:                      |          | Dermal:          |          | Dermal:                |          |
| IUR:                      |          | Inhalation:      |          | Inhalatio              | n:       |
| Mutagen:                  |          | Total:           | 1.09E-07 | Total:                 | 0.00E+00 |
| VOC:                      | Y        |                  |          |                        |          |
| % Contribution to Media R | lisk     |                  | 0.00%    |                        | 0.00%    |

0.00%

### Analyte: Indeno[1,2,3-cd]pyrene

CAS: 193-39-5

| Concentration $\mu$ g/L : | 1.10E-01 |             | Calc       | ulated Hazard/Risk |          |
|---------------------------|----------|-------------|------------|--------------------|----------|
| RfDo:                     | 4.00E-01 | Non-Ca      | ncer Adult | (                  | Cancer   |
| RfCi:                     |          | Ingestion:  | 2.46E-08   | Ingestion:         | 1.35E-11 |
| SFO:                      | 1.00E-01 | Dermal:     |            | Dermal:            |          |
| IUR:                      | 6.00E-05 | Inhalation: |            | Inhalation:        |          |
| Mutagen:                  | Y        | Total:      | 2.46E-08   | Total:             | 1.35E-11 |
| VOC:                      |          |             |            |                    |          |
| % Contribution to Madia   | Diele    |             | 0.00%      |                    | 0.000/   |

% Contribution to Media Risk

0.00%

0.00%

0.00%

| Site Name:                | Alexandri         | а                    |                                |                         | Const                           | truction |
|---------------------------|-------------------|----------------------|--------------------------------|-------------------------|---------------------------------|----------|
| Program:                  | Voluntary         | Remedia              | tion Program<br><u>Risk Ba</u> | sed Performance Criter  | ia                              |          |
| C                         | efault Hazar      | d Index              | Default                        | Risk Individual Chemica | Default Cumulative Risk-All Che | emicals  |
|                           | 1                 |                      |                                | 1.00E-06                | 1.00E-04                        |          |
|                           |                   | Contact              | Depth to Grou                  | Indwater: Direct Less t | han 15ft                        |          |
| Grour<br>Analyte:<br>CAS: | Iron<br>7439-89-6 | •••                  |                                |                         |                                 |          |
| CAJ.                      | 7455-65-0         |                      | т                              |                         |                                 |          |
| Concentration             |                   | 6.89E+04             |                                | Calculat                | ed Hazard/Risk                  |          |
|                           |                   | 6.89E+04<br>7.00E-01 | Non-Ca                         | Calculat                | ed Hazard/Risk<br>Cancer        |          |
| Concentration             |                   |                      | Non-Ca<br>Ingestion:           |                         |                                 |          |

8.78E-03

4.55E-07

4.89E-05

9.67E-03

9.72E-03

1.16%

**Non-Cancer Adult** 

1.29%

Inhalation:

Ingestion:

Inhalation:

Dermal:

Total:

Total:

| Analy  | to. | heal | and | Com   | pounds |
|--------|-----|------|-----|-------|--------|
| Allaly | ie. | Leau | anu | COIII | pounus |

| CAS: | 7439-92-1              |
|------|------------------------|
| CAU. | / <del>-</del> 35 52 1 |

% Contribution to Media Risk

IUR:

VOC:

Mutagen:

Analyte:

CAS:

RfDo:

RfCi:

SFO:

IUR:

VOC:

Mutagen:

% Contribution to Media Risk

Concentration  $\mu$ g/L :

isopropyltoluene

2.04E+00

4.00E-01

9.00E-02

Y

99-87-6

| Concentration µg/L :         | 7.52E+00 | Calculated Hazard/Risk |          |  |             |          |
|------------------------------|----------|------------------------|----------|--|-------------|----------|
| RfDo:                        |          | Non-Cancer Adult       |          |  |             | Cancer   |
| RfCi:                        |          | Ingestion:             |          |  | Ingestion:  |          |
| SFO:                         |          | Dermal:                |          |  | Dermal:     |          |
| IUR:                         |          | Inhalation:            |          |  | Inhalation: |          |
| Mutagen:                     |          | Total:                 | 0.00E+00 |  | Total:      | 0.00E+00 |
| VOC:                         |          |                        |          |  |             |          |
| % Contribution to Media Risk |          |                        | 0.00%    |  |             | 0.00%    |

% Contribution to Media Risk

0.00%

Inhalation:

Ingestion:

Inhalation:

Dermal:

Total:

0.00E+00

0.00E+00

0.00%

Cancer

0.00%

Total:

**Calculated Hazard/Risk** 

| Site Name: | Alexandria          |  | Construction                          |
|------------|---------------------|--|---------------------------------------|
| Program:   | Voluntary Remedia   | tion Program                           |                                       |
| U U        | •                   | <b>Risk Based Performance Criteria</b> |                                       |
| D          | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                   | 1.00E-06                               | 1.00E-04                              |
|            | Contact             | Depth to Groundwater: Direct Less than | 15ft                                  |

# Groundwater

Manganese (Diet)

Analyte:

| CAS:           | 7439-96-5-     | Diet     |             |            |                        |             |          |
|----------------|----------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentration  | μg/L :         | 1.24E+04 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:          |                | 1.40E-01 | Non-Ca      | ncer Adult |                        |             | Cancer   |
| RfCi:          |                | 5.00E-05 | Ingestion:  | 7.91E-03   |                        | Ingestion:  |          |
| SFO:           |                |          | Dermal:     |            |                        | Dermal:     |          |
| IUR:           |                |          | Inhalation: |            |                        | Inhalation: |          |
| Mutagen:       |                |          | Total:      | 7.91E-03   |                        | Total:      | 0.00E+00 |
| VOC:           |                |          |             |            |                        |             |          |
| % Contribution | n to Media Ris | k        |             | 1.05%      |                        |             | 0.00%    |

| Analyte: | Mercury (elemental) |
|----------|---------------------|
|----------|---------------------|

CAS: 7439-97-6

| Concentration $\mu$ g/L : | 7.42E-02 |             |            | Calculated Hazard/Risk |          |
|---------------------------|----------|-------------|------------|------------------------|----------|
| RfDo:                     |          | Non-Ca      | ncer Adult |                        | Cancer   |
| RfCi:                     | 3.00E-04 | Ingestion:  |            | Ingestion:             |          |
| SFO:                      |          | Dermal:     |            | Dermal:                |          |
| IUR:                      |          | Inhalation: | 8.62E-02   | Inhalation:            |          |
| Mutagen:                  |          | Total:      | 8.62E-02   | Total:                 | 0.00E+00 |
| VOC:                      | Y        |             |            |                        |          |
| % Contribution to Media R | isk      |             | 11.42%     |                        | 0.00%    |

### Analyte: Methyl Ethyl Ketone (2-Butanone)

CAS: 78-93-3

| Concentration $\mu$ g/L : | 2.58E+00 |             |            | Calculated Hazard/Risk |       |          |
|---------------------------|----------|-------------|------------|------------------------|-------|----------|
| RfDo:                     | 2.00E+00 | Non-Ca      | ncer Adult |                        | Can   | ncer     |
| RfCi:                     | 1.00E+00 | Ingestion:  | 1.15E-07   | Ingest                 | ion:  |          |
| SFO:                      |          | Dermal:     |            | Derma                  | il:   |          |
| IUR:                      |          | Inhalation: | 7.21E-04   | Inhala                 | tion: |          |
| Mutagen:                  |          | Total:      | 7.21E-04   | Total:                 |       | 0.00E+00 |
| VOC:                      | Y        |             |            |                        |       |          |
| % Contribution to Media   | Risk     |             | 0 10%      |                        | 0     | 00%      |

% Contribution to Media Risk

0.10%

0.00%

| Site Name: | Alexandria            |                                       | Construction                          |
|------------|-----------------------|---------------------------------------|---------------------------------------|
| Program:   | Voluntary Remediation | on Program                            |                                       |
| U U        | •                     | Risk Based Performance Criteria       |                                       |
| D          | efault Hazard Index   | Default Risk Individual Chemical      | Default Cumulative Risk-All Chemicals |
|            | 1                     | 1.00E-06                              | 1.00E-04                              |
|            | Contact D             | enth to Groundwater: Direct Less than | 15ft                                  |

Contact Depth to Groundwater: Direct Less than 15ft

# Groundwater

### Analyte: Methylcyclohexane

CAS: 108-87-2

| Concentration µg/L : 3       | 3.00E-01 |             |              | Calculated Hazard/Risk | C C C C C C C C C C C C C C C C C C C |          |
|------------------------------|----------|-------------|--------------|------------------------|---------------------------------------|----------|
| RfDo:                        |          | Non-        | Cancer Adult |                        |                                       | Cancer   |
| RfCi:                        |          | Ingestion:  |              |                        | Ingestion:                            |          |
| SFO:                         |          | Dermal:     |              |                        | Dermal:                               |          |
| IUR:                         |          | Inhalation: |              |                        | Inhalation:                           |          |
| Mutagen:                     |          | Total:      | 0.00E+00     |                        | Total:                                | 0.00E+00 |
| VOC:                         |          |             |              |                        |                                       |          |
| % Contribution to Media Risk |          |             | 0.00%        |                        |                                       | 0.00%    |

### Analyte: Methylnaphthalene, 1-

| CAS:        | 90-12-0         |          |             |             |                        |             |          |
|-------------|-----------------|----------|-------------|-------------|------------------------|-------------|----------|
| Concentrati | on μg/L :       | 9.29E-01 |             |             | Calculated Hazard/Risk |             |          |
| RfDo:       |                 | 7.00E-02 | Non-Ca      | ancer Adult |                        | c           | Cancer   |
| RfCi:       |                 | 1.04E+00 | Ingestion:  | 1.19E-06    |                        | Ingestion:  | 3.30E-11 |
| SFO:        |                 | 2.90E-02 | Dermal:     |             |                        | Dermal:     |          |
| IUR:        |                 |          | Inhalation: |             |                        | Inhalation: |          |
| Mutagen:    |                 |          | Total:      | 1.19E-06    |                        | Total:      | 3.30E-11 |
| VOC:        |                 | Y        |             |             |                        |             |          |
| % Contribut | ion to Media Ri | isk      |             | 0.00%       |                        |             | 0.00%    |

### Analyte: Methylnaphthalene, 2-

CAS: 91-57-6

| Concentration µg/L :    | 5.98E-01 |             | Calculated | l Hazard/Risk   |
|-------------------------|----------|-------------|------------|-----------------|
| RfDo:                   | 4.00E-03 | Non-Ca      | Cancer     |                 |
| RfCi:                   |          | Ingestion:  | 1.34E-05   | Ingestion:      |
| SFO:                    |          | Dermal:     |            | Dermal:         |
| IUR:                    |          | Inhalation: |            | Inhalation:     |
| Mutagen:                |          | Total:      | 1.34E-05   | Total: 0.00E+00 |
| VOC:                    | Y        |             |            |                 |
| % Contribution to Modia | Pick     |             | 0.00%      | 0.00%           |

% Contribution to Media Risk

0.00%

| Site Name: | Alexandria           |  | Construction                          |
|------------|----------------------|--|---------------------------------------|
| Program:   | Voluntary Remediatio | n Program                              |                                       |
| -          | -                    | <b>Risk Based Performance Criteria</b> |                                       |
| D          | efault Hazard Index  | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                    | 1.00E-06                               | 1.00E-04                              |
|            | Contact De           | onth to Groundwater: Direct Loss than  | 1 E f+                                |

Contact Depth to Groundwater: Direct Less than 15ft

# Groundwater

Naphthalene

Analyte:

| CAS:                         | 91-20-3 |          |             |            |                        |             |          |
|------------------------------|---------|----------|-------------|------------|------------------------|-------------|----------|
| Concentratio                 | nμg/L : | 4.16E+00 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:                        |         | 6.00E-01 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:                        |         | 3.00E-03 | Ingestion:  | 6.19E-07   |                        | Ingestion:  | 6.11E-10 |
| SFO:                         |         | 1.20E-01 | Dermal:     |            |                        | Dermal:     |          |
| IUR:                         |         | 3.40E-05 | Inhalation: | 5.39E-01   |                        | Inhalation: | 7.53E-07 |
| Mutagen:                     |         |          | Total:      | 5.39E-01   |                        | Total:      | 7.54E-07 |
| VOC:                         |         | Y        |             |            |                        |             |          |
| % Contribution to Media Risk |         |          | 71.37%      |            |                        | 38.56%      |          |

| Analyte: Nickel Soluble Sa | lts |
|----------------------------|-----|
|----------------------------|-----|

| CAS:          | 7440-02-0       |          |             |             |                        |             |          |
|---------------|-----------------|----------|-------------|-------------|------------------------|-------------|----------|
| Concentration | ημg/L :         | 7.48E+01 |             |             | Calculated Hazard/Risk |             |          |
| RfDo:         |                 | 2.00E-02 | Non-Ca      | incer Adult |                        |             | Cancer   |
| RfCi:         |                 | 2.00E-04 | Ingestion:  | 3.34E-04    |                        | Ingestion:  |          |
| SFO:          |                 |          | Dermal:     |             |                        | Dermal:     |          |
| IUR:          |                 | 2.60E-04 | Inhalation: |             |                        | Inhalation: |          |
| Mutagen:      |                 |          | Total:      | 3.34E-04    |                        | Total:      | 0.00E+00 |
| VOC:          |                 |          |             |             |                        |             |          |
| % Contributio | on to Media Ris | sk       |             | 0.04%       |                        |             | 0.00%    |

### Analyte: Phenanthrene

| CAS: | 85-01-8 |
|------|---------|
| CAJ. | 02-01-0 |

| Concentration $\mu$ g/L : | 2.21E-01 | Calculated Hazard/Risk  |          |                 |   |
|---------------------------|----------|-------------------------|----------|-----------------|---|
| RfDo:                     | 3.00E-01 | Non-Cancer Adult Cancer |          |                 |   |
| RfCi:                     |          | Ingestion:              | 6.58E-08 | Ingestion:      |   |
| SFO:                      |          | Dermal:                 | 9.17E-06 | Dermal:         |   |
| IUR:                      |          | Inhalation:             |          | Inhalation:     |   |
| Mutagen:                  |          | Total:                  | 9.23E-06 | Total: 0.00E+00 | ) |
| VOC:                      | Y        |                         |          |                 |   |
| % Contribution to Media   | Risk     |                         | 0.00%    | 0.00%           |   |

| Program:                                   | Voluntary    | v Remedia            | tion Program  |                            |   |                 |
|--|--------------|----------------------|---|----------------------------|---|-----------------|
| . ogi unit                                 | , orantary   | memedia              |   | sed Performance Criteria   |   |                 |
| De   | efault Hazar | d Index              | Default   | Risk Individual Chemical   | Default Cumulative Risk                               | K-All Chemica   |
|  | 1            |                      |   | 1.00E-06                   | 1.00E-04  |                 |
|  |              | Contact              | Depth to Grou   | undwater: Direct Less thar | 15ft  |                 |
| _  | _            |                      |   |                            |   |                 |
| Groun                                      | Idwat        | er                   |   |                            |   |                 |
| Analyte:                                   | Pyrene       |                      |   |                            |   |                 |
| CAS:                                       | 129-00-0     |                      |   |                            |   |                 |
|  |              |                      | Т   |                            |   |                 |
| <u> </u>                                   | /1           | 2 5 6 5 04           |   |                            |   |                 |
| Concentration                              | µg/L :       | 3.56E-01             |   | Calculated H               | lazard/Risk   |                 |
| Concentration<br>RfDo:                     | µg/L :       | 3.56E-01<br>3.00E-01 | Non-Ca  | Calculated H<br>ncer Adult | lazard/Risk<br>Can                                    | cer             |
|  | µg/L :       |                      | Non-Ca<br>Ingestion:                                  |                            | •   | cer             |
| RfDo:                                      | μg/L :       |                      |   | ncer Adult                 | Can   | cer             |
| RfDo:<br>RfCi:                             | μg/L :       |                      | Ingestion:  | ncer Adult                 | Can<br>Ingestion:                                     | cer             |
| RfDo:<br>RfCi:<br>SFO:                     | μg/L :       |                      | Ingestion:<br>Dermal:                                 | ncer Adult                 | Cano<br>Ingestion:<br>Dermal:                         | cer<br>0.00E+00 |
| RfDo:<br>RfCi:<br>SFO:<br>IUR:             | μg/L :       |                      | Ingestion:<br>Dermal:<br>Inhalation:                  | ncer Adult<br>1.06E-07     | Can<br>Ingestion:<br>Dermal:<br>Inhalation:           |                 |
| RfDo:<br>RfCi:<br>SFO:<br>IUR:<br>Mutagen: |              | 3.00E-01<br>Y        | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | ncer Adult<br>1.06E-07     | Can<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: |                 |

| Concentration $\mu$ g/L : | 8.74E+00 | Calculated Hazard/Risk |             |  |             |          |
|---------------------------|----------|------------------------|-------------|--|-------------|----------|
| RfDo:                     | 5.00E-03 | Non-Ca                 | ancer Adult |  |             | Cancer   |
| RfCi:                     | 2.00E-02 | Ingestion:             | 1.56E-04    |  | Ingestion:  |          |
| SFO:                      |          | Dermal:                |             |  | Dermal:     |          |
| IUR:                      |          | Inhalation:            |             |  | Inhalation: |          |
| Mutagen:                  |          | Total:                 | 1.56E-04    |  | Total:      | 0.00E+00 |
| VOC:                      |          |                        |             |  |             |          |
| % Contribution to Media   | Risk     |                        | 0.02%       |  |             | 0.00%    |

## Analyte: Silver

Г

CAS: 7440-22-4

| Concentration $\mu$ g/L : | 1.27E-01 | Calculated Hazard/Risk |                  |        |         |          |  |
|---------------------------|----------|------------------------|------------------|--------|---------|----------|--|
| RfDo:                     | 5.00E-03 | Non-Ca                 | Non-Cancer Adult |        |         | Cancer   |  |
| RfCi:                     |          | Ingestion:             | 2.27E-06         | Inges  | stion:  |          |  |
| SFO:                      |          | Dermal:                |                  | Derm   | nal:    |          |  |
| IUR:                      |          | Inhalation:            |                  | Inhala | lation: |          |  |
| Mutagen:                  |          | Total:                 | 2.27E-06         | Total  | l:      | 0.00E+00 |  |
| VOC:                      |          |                        |                  |        |         |          |  |
| % Contribution to Media   | Risk     | 0.00%                  |                  |        | 0.0     | 00%      |  |

| Site Name: | Alexandria           |  | Construction                          |
|------------|----------------------|--|---------------------------------------|
| Program:   | Voluntary Remediat   | ion Program                            |                                       |
| Ū          | •                    | Risk Based Performance Criteria        |                                       |
| C          | Default Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                    | 1.00E-06                               | 1.00E-04                              |
|            | Contact              | Depth to Groundwater: Direct Less than | 15ft                                  |

# Groundwater

### Analyte: Tetrachloroethylene

| CAS:        | 127-18-4         |          |             |            |                        |             |          |
|-------------|------------------|----------|-------------|------------|------------------------|-------------|----------|
| Concentrati | ion μg/L :       | 8.80E-01 |             |            | Calculated Hazard/Risk |             |          |
| RfDo:       |                  | 8.00E-03 | Non-Ca      | ncer Adult |                        | C           | Cancer   |
| RfCi:       |                  | 4.07E-02 | Ingestion:  | 9.82E-06   |                        | Ingestion:  | 2.26E-12 |
| SFO:        |                  | 2.10E-03 | Dermal:     |            |                        | Dermal:     |          |
| IUR:        |                  | 2.60E-07 | Inhalation: | 8.32E-03   |                        | Inhalation: | 1.21E-09 |
| Mutagen:    |                  |          | Total:      | 8.33E-03   |                        | Total:      | 1.21E-09 |
| VOC:        |                  | Y        |             |            |                        |             |          |
| % Contribut | tion to Media Ri | sk       |             | 1.10%      |                        |             | 0.06%    |

### Analyte: Toluene CAS:

108-88-3

| Concentration $\mu$ g/L : | 5.43E-01 |             |                  | Calculated Hazard/Risk |          |  |
|---------------------------|----------|-------------|------------------|------------------------|----------|--|
| RfDo:                     | 8.00E-01 | Non-Ca      | Non-Cancer Adult |                        | Cancer   |  |
| RfCi:                     | 5.00E+00 | Ingestion:  | 6.06E-08         | Ingestion              | ו:       |  |
| SFO:                      |          | Dermal:     |                  | Dermal:                |          |  |
| IUR:                      |          | Inhalation: | 5.57E-05         | Inhalatic              | on:      |  |
| Mutagen:                  |          | Total:      | 5.58E-05         | Total:                 | 0.00E+00 |  |
| VOC:                      | Y        |             |                  |                        |          |  |
| % Contribution to Media   | Risk     |             | 0.01%            |                        | 0.00%    |  |

### Analyte: Vanadium and Compounds

| CAS: | 7440-62-2  |
|------|------------|
| CAJ. | / ++0-02-2 |

| Concentration $\mu$ g/L :          | 7.26E+00 | Calculated Hazard/Risk |                  |           |          |  |
|------------------------------------|----------|------------------------|------------------|-----------|----------|--|
| RfDo:                              | 1.00E-02 | Non-Ca                 | Non-Cancer Adult |           | Cancer   |  |
| RfCi:                              | 1.00E-04 | Ingestion:             | 6.48E-05         | Ingestion | :        |  |
| SFO:                               |          | Dermal:                |                  | Dermal:   |          |  |
| IUR:                               |          | Inhalation:            |                  | Inhalatio | n:       |  |
| Mutagen:                           |          | Total:                 | 6.48E-05         | Total:    | 0.00E+00 |  |
| VOC:                               |          |                        |                  |           |          |  |
| % Contribution to Media Risk 0.01% |          | 0.01%                  |                  | 0.00%     |          |  |

| Site Name:       | Alexandr             | ia                     |                                |                           |                      | Construction       |  |
|------------------|----------------------|------------------------|--------------------------------|---------------------------|----------------------|--------------------|--|
| Program:         | Voluntary            | y Remedia <sup>.</sup> | tion Program<br><u>Risk Ba</u> | sed Performance Criteria  |                      |                    |  |
| De               | efault Hazar         | d Index                | Default                        | Risk Individual Chemical  | Default Cumulative F | Risk-All Chemicals |  |
|                  | 1                    |                        |                                | 1.00E-06                  | 1.00E-               | 04                 |  |
|                  |                      | Contact                | Depth to Grou                  | Indwater: Direct Less tha | n 15ft               |                    |  |
| Groun            | dwat                 | or                     |                                |                           |                      |                    |  |
|                  |                      |                        |                                |                           |                      |                    |  |
| Analyte:<br>CAS: | Xylenes<br>1330-20-7 | ,                      |                                |                           |                      |                    |  |
|                  |                      |                        | Ţ                              |                           |                      |                    |  |
| Concentration    | μg/L :               | 1.09E+00               |                                | Calculated                | Hazard/Risk          |                    |  |
| RfDo:            |                      | 4.00E-01               | Non-Ca                         | ncer Adult                | Cancer               |                    |  |
| RfCi:            |                      | 4.00E-01               | Ingestion:                     | 2.43E-07                  | Ingestion:           |                    |  |
| SFO:             |                      |                        | Dermal:                        |                           | Dermal:              |                    |  |
| IUR:             |                      |                        | Inhalation:                    | 1.30E-03                  | Inhalation:          |                    |  |
| Mutagen:         |                      |                        | Total:                         | 1.30E-03                  | Total:               | 0.00E+00           |  |
| VOC:             |                      | Y                      |                                |                           |                      |                    |  |
| % Contribution   | n to Media Ri        | sk                     |                                | 0.17%                     |                      | 0.00%              |  |
|                  |                      |                        |                                |                           |                      |                    |  |
| Analyte:         | Zinc and C           | Compound               | 5                              |                           |                      |                    |  |
| CAS:             | 7440-66-6            | •                      | -                              |                           |                      |                    |  |
| Concentration    | μg/L :               | 1.27E+02               |                                | Calculated                | Hazard/Risk          |                    |  |

| Concentration $\mu$ g/L :    | 1.27E+02 |             |             | Calculated Hazard/Risk |          |
|------------------------------|----------|-------------|-------------|------------------------|----------|
| RfDo:                        | 3.00E-01 | Non-Ca      | ancer Adult |                        | Cancer   |
| RfCi:                        | 7.67E-02 | Ingestion:  | 3.78E-05    | Ingestion:             |          |
| SFO:                         |          | Dermal:     |             | Dermal:                |          |
| IUR:                         |          | Inhalation: |             | Inhalatior             | ı:       |
| Mutagen:                     |          | Total:      | 3.78E-05    | Total:                 | 0.00E+00 |
| VOC:                         |          |             |             |                        |          |
| % Contribution to Media Risk |          |             | 0.01%       |                        | 0.00%    |

# Total Calculated Hazard Index/Risk for Groundwater

| Non-Canc    | er Adult | Can         | cer      |
|-------------|----------|-------------|----------|
| Ingestion:  | 2.72E-02 | Ingestion:  | 1.20E-08 |
| Dermal:     | 1.05E-04 | Dermal:     | 0.00E+00 |
| Inhalation: | 7.28E-01 | Inhalation: | 1.94E-06 |
| Total:      | 7.55E-01 | Total:      | 1.96E-06 |

1

1.00E-06

1.00E-04

Contact Depth to Groundwater: Direct Less than 15ft

# **Report Summary**

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

## Hazard/Risk Summary for Soil

| Analyte                        | CAS            | Hazard   | Risk     |
|--------------------------------|----------------|----------|----------|
| Acenaphthene                   | 83-32-9        | 2.15E-06 | 0.00E+00 |
| Acenaphthylene                 | 208-96-8       | 9.74E-07 | 0.00E+00 |
| Acetone                        | 67-64-1        | 2.53E-06 | 0.00E+00 |
| Acetophenone                   | 98-86-2        | 2.78E-07 | 0.00E+00 |
| Aluminum                       | 7429-90-5      | 1.38E-02 | 0.00E+00 |
| Anthracene                     | 120-12-7       | 5.30E-07 | 0.00E+00 |
| Antimony (metallic)            | 7440-36-0      | 4.95E-03 | 0.00E+00 |
| Arsenic, Inorganic             | 7440-38-2      | 3.01E-02 | 2.92E-07 |
| Barium                         | 7440-39-3      | 5.37E-04 | 0.00E+00 |
| Benz[a]anthracene              | 56-55-3        | 0.00E+00 | 1.38E-09 |
| Benzene                        | 71-43-2        | 7.37E-05 | 5.55E-10 |
| Benzo(g,h,i)perylene           | 191-24-2       | 1.72E-06 | 0.00E+00 |
| Benzo[a]pyrene                 | 50-32-8        | 2.35E-03 | 9.61E-09 |
| Benzo[b]fluoranthene           | 205-99-2       | 0.00E+00 | 1.90E-09 |
| Benzo[k]fluoranthene           | 207-08-9       | 0.00E+00 | 1.03E-10 |
| Benzoic Acid                   | 65-85-0        | 6.40E-07 | 0.00E+00 |
| Beryllium and compounds        | 7440-41-7      | 2.69E-04 | 2.78E-12 |
| Bis(2-ethylhexyl)phthalate     | 117-81-7       | 2.25E-05 | 8.62E-11 |
| Butylbenzene, n-               | 104-51-8       | 2.06E-06 | 0.00E+00 |
| Cadmium (Diet)                 | 7440-43-9-Diet | 1.11E-03 | 7.72E-13 |
| Carbazole                      | 86-74-8        | 0.00E+00 | 0.00E+00 |
| Chromium(III), Insoluble Salts | 16065-83-1     | 2.06E-04 | 0.00E+00 |
| Chrysene                       | 218-01-9       | 9.75E-07 | 1.98E-11 |
| Cobalt                         | 7440-48-4      | 5.14E-03 | 1.20E-10 |
| Copper                         | 7440-50-8      | 2.28E-02 | 0.00E+00 |
| Cresol, o-                     | 95-48-7        | 1.26E-06 | 0.00E+00 |
| Cresol, p-chloro-m-            | 59-50-7        | 2.32E-06 | 0.00E+00 |
| Cumene                         | 98-82-8        | 6.19E-07 | 0.00E+00 |
| Cyanide (CN-)                  | 57-12-5        | 6.46E-04 | 0.00E+00 |
| Dibenz[a,h]anthracene          | 53-70-3        | 0.00E+00 | 5.66E-09 |
| Dimethylphenol, 2,4-           | 105-67-9       | 7.78E-06 | 0.00E+00 |
| Ethylbenzene                   | 100-41-4       | 1.01E-05 | 7.59E-11 |

Construction

Default Hazard Index

Default Risk Individual Chemical

Default Cumulative Risk-All Chemicals 1.00E-04

1

1.00E-06

Contact Depth to Groundwater: Direct Less than 15ft

## Hazard/Risk Summary for Soil

| Analyte                          | CAS            | Hazard   | Risk     |
|----------------------------------|----------------|----------|----------|
| Fluoranthene                     | 206-44-0       | 1.87E-05 | 0.00E+00 |
| Fluorene                         | 86-73-7        | 1.20E-06 | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5       | 1.47E-06 | 8.06E-10 |
| Iron                             | 7439-89-6      | 1.38E-01 | 0.00E+00 |
| isopropyltoluene                 | 99-87-6        | 5.42E-06 | 0.00E+00 |
| Lead and Compounds               | 7439-92-1      | 0.00E+00 | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet | 6.40E-03 | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6      | 1.25E-04 | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3        | 4.22E-07 | 0.00E+00 |
| Methylcyclohexane                | 108-87-2       | 0.00E+00 | 0.00E+00 |
| Methylene Chloride               | 75-09-2        | 1.69E-08 | 2.78E-14 |
| Methylnaphthalene, 1-            | 90-12-0        | 6.50E-05 | 1.81E-09 |
| Methylnaphthalene, 2-            | 91-57-6        | 1.83E-03 | 0.00E+00 |
| Naphthalene                      | 91-20-3        | 7.18E-06 | 7.02E-09 |
| Nickel Soluble Salts             | 7440-02-0      | 8.22E-03 | 3.71E-11 |
| Phenanthrene                     | 85-01-8        | 1.18E-05 | 0.00E+00 |
| Pyrene                           | 129-00-0       | 6.11E-06 | 0.00E+00 |
| Toluene                          | 108-88-3       | 3.81E-06 | 0.00E+00 |
| Trimethylbenzene, 1,2,4-         | 95-63-6        | 5.40E-05 | 0.00E+00 |
| Trimethylbenzene, 1,3,5-         | 108-67-8       | 1.61E-05 | 0.00E+00 |
| Vanadium and Compounds           | 7440-62-2      | 5.98E-03 | 0.00E+00 |
| Xylenes                          | 1330-20-7      | 2.39E-05 | 0.00E+00 |
| Zinc and Compounds               | 7440-66-6      | 2.44E-04 | 0.00E+00 |

## Hazard/Risk Summary for Groundwater

| Analyte              | CAS       | Hazard   | Risk     |
|----------------------|-----------|----------|----------|
| Acenaphthene         | 83-32-9   | 2.31E-07 | 0.00E+00 |
| Acenaphthylene       | 208-96-8  | 4.16E-06 | 0.00E+00 |
| Acetone              | 67-64-1   | 5.91E-07 | 0.00E+00 |
| Aluminum             | 7429-90-5 | 2.26E-04 | 0.00E+00 |
| Anthracene           | 120-12-7  | 8.87E-09 | 0.00E+00 |
| Antimony (metallic)  | 7440-36-0 | 1.23E-04 | 0.00E+00 |
| Arsenic, Inorganic   | 7440-38-2 | 1.64E-03 | 1.01E-08 |
| Barium               | 7440-39-3 | 4.73E-05 | 0.00E+00 |
| Benz[a]anthracene    | 56-55-3   | 0.00E+00 | 4.06E-09 |
| Benzene              | 71-43-2   | 8.07E-03 | 6.90E-08 |
| Benzo(g,h,i)perylene | 191-24-2  | 4.26E-05 | 0.00E+00 |

### Site Name: Alexandria Program: Voluntary Remediation Program Risk Based Performance Criteria

Default Hazard Index

Default Risk Individual Chemical

1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

Contact Depth to Groundwater: Direct Less than 15ft

## Hazard/Risk Summary for Groundwater

| Analyte                          | CAS             | Hazard   | Risk     |
|----------------------------------|-----------------|----------|----------|
| Benzo[a]pyrene                   | 50-32-8         | 1.81E-05 | 7.43E-11 |
| Benzo[b]fluoranthene             | 205-99-2        | 0.00E+00 | 2.45E-11 |
| Benzo[k]fluoranthene             | 207-08-9        | 0.00E+00 | 9.59E-13 |
| Beryllium and compounds          | 7440-41-7       | 3.05E-05 | 0.00E+00 |
| Cadmium (Water)                  | 7440-43-9-Water | 4.71E-04 | 0.00E+00 |
| Carbazole                        | 86-74-8         | 0.00E+00 | 0.00E+00 |
| Chlorobenzene                    | 108-90-7        | 9.21E-04 | 0.00E+00 |
| Chromium(III), Insoluble Salts   | 16065-83-1      | 2.58E-07 | 0.00E+00 |
| Chrysene                         | 218-01-9        | 4.85E-09 | 9.96E-14 |
| Cobalt                           | 7440-48-4       | 7.08E-03 | 0.00E+00 |
| Copper                           | 7440-50-8       | 1.65E-04 | 0.00E+00 |
| Cresol, o-                       | 95-48-7         | 6.07E-07 | 0.00E+00 |
| Cresol, p-                       | 106-44-5        | 2.68E-05 | 0.00E+00 |
| Cresol, p-chloro-m-              | 59-50-7         | 7.14E-07 | 0.00E+00 |
| Cumene                           | 98-82-8         | 5.01E-03 | 0.00E+00 |
| Dibenz[a,h]anthracene            | 53-70-3         | 0.00E+00 | 5.55E-11 |
| Dibromoethane, 1,2-              | 106-93-4        | 6.70E-02 | 1.10E-06 |
| Dibutyl Phthalate                | 84-74-2         | 2.68E-07 | 0.00E+00 |
| Dichloroethylene, 1,1-           | 75-35-4         | 9.35E-04 | 0.00E+00 |
| Diisopropyl Ether                | 108-20-3        | 7.28E-04 | 0.00E+00 |
| Dimethylphenol, 2,4-             | 105-67-9        | 1.61E-05 | 0.00E+00 |
| Ethylbenzene                     | 100-41-4        | 4.81E-05 | 1.44E-08 |
| Fluoranthene                     | 206-44-0        | 1.16E-07 | 0.00E+00 |
| Fluorene                         | 86-73-7         | 1.09E-07 | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5        | 2.46E-08 | 1.35E-11 |
| Iron                             | 7439-89-6       | 8.78E-03 | 0.00E+00 |
| isopropyltoluene                 | 99-87-6         | 9.72E-03 | 0.00E+00 |
| Lead and Compounds               | 7439-92-1       | 0.00E+00 | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet  | 7.91E-03 | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6       | 8.62E-02 | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3         | 7.21E-04 | 0.00E+00 |
| Methylcyclohexane                | 108-87-2        | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene, 1-            | 90-12-0         | 1.19E-06 | 3.30E-11 |
| Methylnaphthalene, 2-            | 91-57-6         | 1.34E-05 | 0.00E+00 |
| Naphthalene                      | 91-20-3         | 5.39E-01 | 7.54E-07 |
| Nickel Soluble Salts             | 7440-02-0       | 3.34E-04 | 0.00E+00 |
| Phenanthrene                     | 85-01-8         | 9.23E-06 | 0.00E+00 |

| Site Name: | Alexandria          |  | Construction                          |
|------------|---------------------|--|---------------------------------------|
| Program:   | Voluntary Remediat  | ion Program                            |                                       |
| U U        | •                   | Risk Based Performance Criteria        |                                       |
| D          | efault Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
|            | 1                   | 1.00E-06                               | 1.00E-04                              |
|            | Contact             | Depth to Groundwater: Direct Less than | 15ft                                  |

## Hazard/Risk Summary for Groundwater

| Analyte                | CAS       | Hazard   | Risk     |
|------------------------|-----------|----------|----------|
| Pyrene                 | 129-00-0  | 1.06E-07 | 0.00E+00 |
| Selenium               | 7782-49-2 | 1.56E-04 | 0.00E+00 |
| Silver                 | 7440-22-4 | 2.27E-06 | 0.00E+00 |
| Tetrachloroethylene    | 127-18-4  | 8.33E-03 | 1.21E-09 |
| Toluene                | 108-88-3  | 5.58E-05 | 0.00E+00 |
| Vanadium and Compounds | 7440-62-2 | 6.48E-05 | 0.00E+00 |
| Xylenes                | 1330-20-7 | 1.30E-03 | 0.00E+00 |
| Zinc and Compounds     | 7440-66-6 | 3.78E-05 | 0.00E+00 |

## Total Hazard Index/Risk for All Media

| Non-Cancer Adult             |          | Can             | Cancer          |  |
|------------------------------|----------|-----------------|-----------------|--|
| Ingestion:                   | 2.63E-01 | Ingestion:      | 2.99E-07        |  |
| Dermal:                      | 5.66E-03 | Dermal:         | 3.40E-08        |  |
| Inhalation:                  | 7.30E-01 | Inhalation:     | 1.94E-06        |  |
| Total:                       | 9.99E-01 | Total:          | 2.28E-06        |  |
| does not exceed hazard index |          | does not exceed | cumulative risk |  |

## **Construction Exposure Default Values**

| Description  | Value  | Units   |
|--|--|---|
| Construction Worker Soil Inhalation Dispersion Constant - Philadelphia | 14.0111  | (unitless)  |
| Construction Worker Soil Adherence Factor                              | 0.3  | (mg/cm2)  |
| Areal extent of the site or contamination                              | 0.5  | (acres)   |
| Construction Worker Averaging Time: 365 x LT                           | 25550  | (days)  |
| Construction Worker Averaging Time                                     | 365  | (days/yr)   |
| Construction Worker Averaging Time: EWcw x 7 x EDcw                    | 350  | (days)  |
| Construction Worker Soil Inhalation Dispersion Constant - Philadelphia | 19.6154  | (unitless)  |
| Construction Worker Body Weight  | 80   | (kg)  |
| Construction Worker Soil Inhalation Dispersion Constant - Philadelphia | 225.3397   | (unitless)  |
| Construction Worker Days Worked  | 5  | (days/week)   |
|  | Construction Worker Soil Inhalation Dispersion Constant - PhiladelphiaConstruction Worker Soil Adherence FactorAreal extent of the site or contaminationConstruction Worker Averaging Time: 365 x LTConstruction Worker Averaging TimeConstruction Worker Averaging Time: EWcw x 7 x EDcwConstruction Worker Soil Inhalation Dispersion Constant - PhiladelphiaConstruction Worker Body WeightConstruction Worker Soil Inhalation Dispersion Constant - Philadelphia | Construction Worker Soil Inhalation Dispersion Constant - Philadelphia14.0111Construction Worker Soil Adherence Factor0.3Areal extent of the site or contamination0.5Construction Worker Averaging Time: 365 x LT25550Construction Worker Averaging Time365Construction Worker Averaging Time: EWcw x 7 x EDcw350Construction Worker Soil Inhalation Dispersion Constant - Philadelphia19.6154Construction Worker Body Weight80Construction Worker Soil Inhalation Dispersion Constant - Philadelphia225.3397 |

EDcw

### Construction

### **Voluntary Remediation Program** Program:

Risk Based Performance Criteria

1.00E-06

Contact Depth to Groundwater: Direct Less than 15ft

Default Cumulative Risk-All Chemicals 1.00E-04

1 (yrs)

## Default Risk Individual Chemical Default Hazard Index 1

Construction Worker Exposure Duration

| EDCW     |   | L L               | (915)                |
|----------|---|-------------------|----------------------|
| EFcw     | Construction Worker Exposure Frequency  | 250               | (days/yrs)           |
| EFcw-a   | Construction Worker Air Exposure Frequency  | 250               | (days/yr)            |
| EFcw-s   | Construction Worker Soil Exposure Frequency   | 250               | (days/yr)            |
| EFcw-vrp | Construction Worker Soil Exposure Frequency - VRP ONLY - Virginia DEQ   | 125               | (days/yr)            |
| ETcw     | Construction Worker Exposure Time   | 8                 | (hrs/day)            |
| ETcw-s   | Construction Worker Soil Exposure Time  | 8                 | (hrs/day)            |
| EWcw     | Construction Worker Weeks Worked  | 50                | (weeks/yr)           |
| F(x)     | Function Dependent on 0.886 × (Ut/Um)   | 0.194             | (unitless)           |
| Fd       | Dispersion Correction Factor  | 0.185             | (unitless)           |
| IRcw     | Construction Worker Soil Ingestion Rate   | 330               | (mg/day)             |
| n        | Total soil porosity: 1-(pb/ps)  | 0.433962264150943 | (unitless)           |
| PEFsc    | Particulate Emission Factor Subchronic - Virginia DEQ calculated  | 1266503136.97919  | (m3/kg)              |
| Q/C      | Inverse of the ratio of the 1-h geometric mean concentration to the emission flux along a straight road segment bisecting a square site - Virginia DEQ calculated | 87.3689772162309  | (g/m2-s per<br>kg/m) |
| SAcw     | Construction Worker Surface Area  | 3527              | (cm2/day)            |
| Тс       | Total time over which construction occurs:<br>EDcw*EWcw*7days/wk*24hrs/day*3600s/hr   | 30240000          | (s)                  |
| TR-ACH   | Trench Air Changes per Hour - Virginia DEQ  | 2                 | (h)-1                |
| TR-ACvad | Trench Advection Coefficient Groundwater greater than 15ft - Virginia DEQ   | 0.25              | (cm3/cm3)            |
| TR-CF1   | Trench Conversion Factor-1  | 0.001             | (L/cm3)              |
| TR-CF2   | Trench Conversion Factor-2  | 10000             | (cm2/m2)             |
| TR-CF3   | Trench Conversion Factor-3  | 3600              | (s/hr)               |
| TR-CF4   | Trench Conversion Factor-4  | 1000000           | (cm3/m3)             |
| TR-D-dir | Trench Depth - groundwater less Than 15ft - Virginia DEQ  | 2.44              | (m)                  |
| TR-D-ind | Trench Depth - groundwater greater than 15ft - Virginia DEQ   | 4.57              | (m)                  |
| TR-Dsg   | Trench - Depth to soil gas vapor source - Virginia DEQ  | 1                 | (cm)                 |
| TR-EFcw  | Trench Construction Worker Exposure Frequency - Virginia DEQ  | 125               | (days/yr)            |
|          |   | 1                 | 1                    |

## Voluntary Remediation Program Risk Based Performance Criteria Program:

Default Hazard Index 1

Default Risk Individual Chemical 1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

### Construction

|           | contact Depth to Groundwater. Direct Less than 15h                                     |                   |                |
|-----------|--|-------------------|----------------|
| TR-ETcw   | Trench Construction Worker Exposure Time - Virginia DEQ                                | 4                 | (hrs/day)      |
| TR-EVcw   | Trench Construction Worker Events - Virginia DEQ                                       | 1                 | (events/day)   |
| TR-F      | Trench Fraction of floor through which contaminant can enter - Virginia DEQ            | 1                 | (unitless)     |
| TR-HV     | Trench Thickness of Vadose Zone - groundwater greater than 15 ft - Virginia DEQ        | 30                | (cm)           |
| TR-IRcw   | Trench Construction Worker Groundwater Ingestion Rate - Virginia DEQ                   | 0.02              | (L/day)        |
| TR-KGH2O  | Trench Gas-phase mass transfer coefficient of water vapor at 25deg C - Virginia<br>DEQ | 0.833             | (cm/s)         |
| TR-KLO2   | Trench Liquid-phase mass transfer coefficient of oxygen at 25deg C - Virginia DEQ      | 0.002             | (cm/s)         |
| TR-L      | Trench Length - Virginia DEQ   | 2.44              | (m)            |
| TR-Lgw    | Trench Depth to groundwater - Virginia DEQ   | 488               | (cm)           |
| TR-MWH2O  | Trench Molecular Weight of Water - Virginia DEQ  | 18                | (unitless)     |
| TR-MWO2   | Trench Molecular Weight of Oxygen - Virginia DEQ                                       | 32                | (unitless)     |
| TR-Porvad | Trench Porosity in Vadose Zone - groundwater greater than 15ft - Virginia DEQ          | 0.44              | (cm3/cm3)      |
| TR-R      | Trench Ideal Gas Constant - Virginia DEQ   | 0.000082          | (atm-m3/mol-K) |
| TR-Temp-F | Trench Temperature Fahrenheit - Virginia DEQ   | 77                | (F)            |
| TR-Temp-K | Trench Temperature - Virginia DEQ  | 298               | (К)            |
| TR-W      | Trench Width - Virginia DEQ  | 0.91              | (m)            |
| TR-W/D    | Trench Width to Depth Ratio - Virginia DEQ   | 0.38              | (unitless)     |
| Um        | Mean Annual Wind Speed   | 4.69              | (m/s)          |
| Ut        | Equivalent Threshold Value of Wind Speed at 7m   | 11.32             | (m/s)          |
| V         | V Fraction of Vegetative Cover   | 0.5               | (unitless)     |
| Θа        | Air filled soil porosity: n-Ow   | 0.133962264150943 | (unitless)     |
| Θw        | Water filled soil porosity   | 0.3               | (unitless)     |
| ρb        | Dry soil bulk density  | 1.5               | (kg/L)         |
| ρs        | Soil particle density  | 2.65              | (kg/L)         |
|           |  |                   |                |

## **END OF REPORT**

ATTACHMENT 3-3 COMPOSITE WORKER

## **Virginia Department of Environmental Quality**



## Virginia Unified Risk Assessment Model

## **VERSION: 3.2.1**

## Industrial/Commercial Worker Quantitative Risk Assessment Report

## **Program: Voluntary Remediation Program (VRP)**

## Site Name: Alexandria

## **Groundwater Declaration Restricted Use**

Restricted use of groundwater is for onsite use ONLY. Potential offsite risks and receptors are evaluated separately. The nature and extent of the groundwater plume is sufficiently characterized. Concentrations along the vertical and horizontal migration of the plume are stable.

No COPCs evaluated in Groundwater

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

## **Chemical Specific Notes Displayed as Applicable**

Lead

VURAM does not perform an evaluation for lead exposure. Use other approved models for lead modeling.

## All Report Pages are Required for Risk Assessment Submission

### Voluntary Remediation Program (VRP) **Program:**

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil Analyte: Acenaphthene CAS: 83-32-9

Concentration mg/kg: 2.06E-01 **Calculated Hazard/Risk** RfDo (mg/kg-day): 6.00E-02 Non-Cancer Adult Cancer RfCi (mg/m3): Ingestion: 2.94E-06 Ingestion: SFO (mg/kg-day)-1: Dermal: Dermal: 1.62E-06 IUR (µg/m3)-1: Inhalation: Inhalation: Mutagen: Total: 4.56E-06 Total: 0.00E+00 VOC: Y % Contribution to Media Risk 0.00% 0.00% mg/kg Non-Cancer Adult Cancer Recommended Acceptable Concentration N/A N/A Analyte: Acenaphthylene CAS: 208-96-8

| Concentration mg/kg: | 1.40E-01        |               |             | Calculated Hazard/Risk |             |          |
|----------------------|-----------------|---------------|-------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-02        | Non-Ca        | ancer Adult |                        | C           | Cancer   |
| RfCi (mg/m3):        |                 | Ingestion:    | 4.00E-06    |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                 | Dermal:       | 2.20E-06    |                        | Dermal:     |          |
| IUR (μg/m3)-1:       |                 | Inhalation:   |             |                        | Inhalation: |          |
| Mutagen:             |                 | Total:        | 6.19E-06    |                        | Total:      | 0.00E+00 |
| VOC:                 | Y               |               |             |                        |             |          |
|                      | % Contribution  | to Media Risk | 0.00%       |                        |             | 0.00%    |
|                      |                 | mg/kg Non-C   | ancer Adult |                        | (           | Cancer   |
| Recommended Acceptal | ble Concentrati | on            | N/A         |                        |             | N/A      |

### Analyte: Acetone

| CAS: | 67-64-1 |
|------|---------|
|------|---------|

| Concentration mg/kg: | 1.72E+00       |               |             | Calculated Hazard/Risk |        |         |
|----------------------|----------------|---------------|-------------|------------------------|--------|---------|
| RfDo (mg/kg-day):    | 9.00E-01       | Non-Ca        | incer Adult |                        | Cancer |         |
| RfCi (mg/m3):        |                | Ingestion:    | 1.64E-06    | Ingest                 | tion:  |         |
| SFO (mg/kg-day)-1:   |                | Dermal:       |             | Derm                   | al:    |         |
| IUR (µg/m3)-1:       |                | Inhalation:   |             | Inhala                 | ation: |         |
| Mutagen:             |                | Total:        | 1.64E-06    | Total                  | : 0    | .00E+00 |
| VOC:                 | Y              |               |             |                        |        |         |
|                      | % Contribution | to Media Risk | 0.00%       |                        |        | 0.00%   |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

|                  |                     |              | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
|------------------|---------------------|--------------|---------------|------------|------------------------|-------------|----------|
| Recommended A    | Acceptable          | Concentrati  | on I          | V/A        |                        |             | N/A      |
|                  | cetophen<br>3-86-2  | one          |               |            |                        |             |          |
| Concentration m  | g/kg:               | 1.51E-01     |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day) | :                   | 1.00E-01     | Non-Car       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):    |                     |              | Ingestion:    | 1.29E-06   |                        | Ingestion:  |          |
| SFO (mg/kg-day)- | 1:                  |              | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1:   |                     |              | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:         |                     |              | Total:        | 1.29E-06   |                        | Total:      | 0.00E+00 |
| VOC:             |                     | Y            |               |            |                        |             |          |
|                  | % (                 | Contribution | to Media Risk | 0.00%      |                        |             | 0.00%    |
|                  |                     |              | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Recommended A    | Acceptable          | Concentrati  | on I          | V/A        |                        |             | N/A      |
| ,                | luminum<br>129-90-5 |              |               |            |                        |             |          |
| Concentration ma | g/kg:               | 9.23E+03     |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day) | :                   | 1.00E+00     | Non-Car       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):    |                     | 5.00E-03     | Ingestion:    | 7.90E-03   |                        | Ingestion:  |          |
| SFO (mg/kg-day)- | 1:                  |              | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1:   |                     |              | Inhalation:   | 3.10E-04   |                        | Inhalation: |          |
| Mutagen:         |                     |              | Total:        | 8.21E-03   |                        | Total:      | 0.00E+00 |
| VOC:             |                     |              |               |            |                        |             |          |
|                  | % (                 | Contribution | to Media Risk | 4.52%      |                        |             | 0.00%    |
|                  |                     |              | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Decomposeded     | Accentable          | Concentrati  | on l          | V/A        |                        |             | N/A      |

### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

## Soil Analyte:

nalyte: Anthracene

| CAS:             | 120-12-7            | ,                    |               |                              |                        |             |                           |
|------------------|---------------------|----------------------|---------------|------------------------------|------------------------|-------------|---------------------------|
| Concentration    | mg/kg:              | 2.53E-01             |               |                              | Calculated Hazard/Risk |             |                           |
| RfDo (mg/kg-d    | lay):               | 3.00E-01             | Non-Can       | cer Adult                    | , -                    |             | Cancer                    |
| RfCi (mg/m3):    |                     |                      | Ingestion:    | 7.22E-07                     |                        | Ingestion:  |                           |
| SFO (mg/kg-da    | ay)-1:              |                      | Dermal:       | 3.97E-07                     |                        | Dermal:     |                           |
| IUR (µg/m3)-1:   | :                   |                      | Inhalation:   |                              |                        | Inhalation: |                           |
| Mutagen:         |                     |                      | Total:        | 1.12E-06                     |                        | Total:      | 0.00E+00                  |
| VOC:             |                     | Y                    |               |                              |                        |             |                           |
|                  |                     | % Contribution       | to Media Risk | 0.00%                        |                        |             | 0.00%                     |
|                  |                     |                      | mg/kg Non-Ca  | ncer Adult                   |                        |             | Cancer                    |
| Recommende       | ed Acceptab         | ole Concentrati      | on I          | V/A                          |                        |             | N/A                       |
| Analyte:<br>CAS: | Antimon<br>7440-36- | iy (metallic)<br>-0  |               |                              |                        |             |                           |
| Concentration    |                     | 1.34E+00             |               |                              | Calculated Hazard/Risk |             |                           |
| RfDo (mg/kg-d    | lay):               | 4.00E-04             | Non-Can       | cer Adult                    |                        |             | Cancer                    |
| RfCi (mg/m3):    |                     | 3.00E-04             | Ingestion:    | 2.87E-03                     |                        | Ingestion:  |                           |
| SFO (mg/kg-da    | ay)-1:              |                      | Dermal:       |                              |                        | Dermal:     |                           |
| IUR (µg/m3)-1:   | :                   |                      | Inhalation:   | 7.52E-07                     |                        | Inhalation: |                           |
| Mutagen:         |                     |                      | Total:        | 2.88E-03                     |                        | Total:      | 0.00E+00                  |
| VOC:             |                     |                      |               |                              |                        |             |                           |
|                  |                     | % Contribution       | to Media Risk | 1.58%                        |                        |             | 0.00%                     |
|                  |                     |                      | mg/kg Non-Ca  | ncer Adult                   |                        |             | Cancer                    |
| Recommende       | ed Acceptab         | ole Concentrati      | on I          | V/A                          |                        |             | N/A                       |
| Analyte:         | Arsenic,            | Inorganic            |               |                              |                        |             |                           |
| CAS:             | 7440-38-            | -2                   |               |                              |                        |             |                           |
| CAS:             | / 110 00            |                      |               |                              |                        |             |                           |
| Concentration    |                     | 8.80E+00             |               |                              | Calculated Hazard/Risk |             |                           |
|                  | mg/kg:              | 8.80E+00<br>3.00E-04 | Non-Can       | cer Adult                    | Calculated Hazard/Risk |             | Cancer                    |
| Concentration    | mg/kg:<br>lay):     |                      | Non-Can       | <b>cer Adult</b><br>1.51E-02 | Calculated Hazard/Risk | Ingestion:  | <b>Cancer</b><br>2.42E-06 |

9.85E-05

1.84E-02

IUR (µg/m3)-1: Mutagen:

VOC:

% Contribution to Media Risk 10.09%

Total:

Inhalation:

4.30E-03

|             | Cancer   |
|-------------|----------|
| Ingestion:  | 2.42E-06 |
| Dermal:     | 5.12E-07 |
| Inhalation: | 2.27E-09 |
| Total:      | 2.94E-06 |
|             |          |
|             | 80.46%   |

### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b>  |                                       |
|----------------------|---|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical    | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                                | 1.00E-04                              |
| Soil                 |   |                                       |
| Exceeds Ris          | <b>k!</b> mg/kg <i>Non-Cancer Adult</i> | Cancer                                |

| 0   | antalla Canada i  | non   | N/A   |                        | 3.0  | 0E+00  |
|---|---|---|---|------------------------|--|--|
| Recommended Acc<br>Analyte: Bari  |   |   |   |                        |  |  |
| CAS: 744  | 0-39-3  |   |   |                        |  |  |
| Concentration mg/k  | g: 7.27E+01   |   |   | Calculated Hazard/Risk |  |  |
| RfDo (mg/kg-day):   | 2.00E-01  | Non-Car   | ncer Adult                                    |                        | Ca   | ancer  |
| RfCi (mg/m3):   | 5.00E-04  | Ingestion:  | 3.11E-04                                      |                        | Ingestion:   |  |
| SFO (mg/kg-day)-1:  |   | Dermal:   |   |                        | Dermal:  |  |
| IUR (µg/m3)-1:  |   | Inhalation:   | 2.44E-05                                      |                        | Inhalation:  |  |
| Mutagen:  |   | Total:  | 3.36E-04                                      |                        | Total:   | 0.00E+00   |
| VOC:  |   |   |   |                        |  |  |
|   | % Contributio   | n to Media Risk   | 0.18%   |                        |  | 0.00%  |
|   |   |   |   |                        |  |  |
|   |   | mg/kg Non-Co  | incer Adult                                   |                        | Ca   | ancer  |
| Recommended Acc   | eptable Concentrat  | 0. 0  | ncer Adult<br>N/A                             |                        |  | ancer<br>N/A   |
|   | eptable Concentrat<br>z[a]anthracene  | 0. 0  |   |                        |  |  |
| Analyte: Ben  | z[a]anthracene  | 0. 0  |   |                        |  |  |
| Analyte: Ben<br>CAS: 56-5   | z[a]anthracene<br>i5-3  | 0. 0  |   | Calculated Hazard/Risk |  |  |
| Analyte: Ben  | z[a]anthracene<br>i5-3  | tion  |   | Calculated Hazard/Risk |  |  |
| Analyte: Ben<br>CAS: 56-5<br>Concentration mg/k<br>RfDo (mg/kg-day):  | z[a]anthracene<br>i5-3  | tion  | N/A   | Calculated Hazard/Risk |  | N/A  |
| Analyte: Ben<br>CAS: 56-5<br>Concentration mg/k   | z[a]anthracene<br>i5-3  | tion<br>Non-Car   | N/A   | Calculated Hazard/Risk | Ca   | N/A  |
| Analyte:BenCAS:56-5Concentrationmg/kRfDo (mg/kg-day):RfCi (mg/m3):  | z[a]anthracene<br>5 <b>5-3</b><br>:g: 4.82E-01                                | Non-Car<br>Ingestion:                                     | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:                                     | N/A<br>ancer<br>1.47E-08                                     |
| Analyte:BenCAS:56-5Concentrationmg/kRfDo (mg/kg-day):RfCi (mg/m3):SFO (mg/kg-day)-1:IUR (μg/m3)-1:          | z[a]anthracene<br>55-3<br>:g: 4.82E-01<br>1.00E-01                            | Non-Car<br>Ingestion:<br>Dermal:                          | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:                          | N/A<br>ancer<br>1.47E-08<br>8.11E-09                         |
| Analyte:BenCAS:56-5Concentrationmg/kRfDo (mg/kg-day):RfCi (mg/m3):SFO (mg/kg-day)-1:                        | z[a]anthracene<br>55-3<br>:g: 4.82E-01<br>1.00E-01<br>6.00E-05                | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A<br>ancer<br>1.47E-08<br>8.11E-09<br>5.36E-10             |
| Analyte:BenCAS:56-5Concentration mg/kRfDo (mg/kg-day):RfCi (mg/m3):SFO (mg/kg-day)-1:IUR (µg/m3)-1:Mutagen: | z[a]anthracene<br>i5-3<br>:g: 4.82E-01<br>1.00E-01<br>6.00E-05<br>Y<br>Y<br>Y | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A<br>ancer<br>1.47E-08<br>8.11E-09<br>5.36E-10             |
| Analyte:BenCAS:56-5Concentration mg/kRfDo (mg/kg-day):RfCi (mg/m3):SFO (mg/kg-day)-1:IUR (µg/m3)-1:Mutagen: | z[a]anthracene<br>i5-3<br>:g: 4.82E-01<br>1.00E-01<br>6.00E-05<br>Y<br>Y<br>Y | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | <u>N/A</u><br>ncer Adult<br>0.00E+00<br>0.00% | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | N/A<br>ancer<br>1.47E-08<br>8.11E-09<br>5.36E-10<br>2.34E-08 |

| Program:  | Voluntary   | y Remediati   | on Program (\  | /RP)   |              |            |   |  |
|---|---|---|--|--|--------------|------------|---|--|
|   |   |   | <u>Risk Based F</u>  | erformance Crite   | <u>eria</u>  |            |   |  |
| Defau   | lt Hazard In  | dex   |  | or Individual Che  | mical        | Default Cu |   | sk-All Chemicals                             |
|   | 1   |   |  | 1.00E-06   |              |            | 1.00E-04  | Ļ  |
| Soil  |   |   |  |  |              |            |   |  |
| Analyte:  | Benzene   | ł   |  |  |              |            |   |  |
| CAS:  | 71-43-2   |   |  |  |              |            |   |  |
| Concentratio  | n mg/kg:  | 5.00E-01  |  | с  | alculated Ha | zard/Risk  |   |  |
| RfDo (mg/kg-  | -day):  | 4.00E-03  | Non-Car  | cer Adult  |              | •          | (   | Cancer                                       |
| RfCi (mg/m3)  | ):  | 3.00E-02  | Ingestion:   | 1.07E-04   |              |            | Ingestion:  | 8.41E-09                                     |
| SFO (mg/kg-d  | day)-1:   | 5.50E-02  | Dermal:  |  |              |            | Dermal:   |  |
| IUR (µg/m3)-:   | 1:  | 7.80E-06  | Inhalation:  | 1.07E-03   |              |            | Inhalation:   | 8.98E-08                                     |
| Mutagen:  |   |   | Total:   | 1.18E-03   |              |            | Total:  | 9.82E-08                                     |
| VOC:  |   | Y   |  |  |              |            |   |  |
|   |   | % Contribution  | to Media Risk  | 0.65%  |              |            |   | 2.69%  |
|   |   |   | mg/kg Non-Ca   | ncer Adult   |              |            | (   | Cancer                                       |
| Recomment   | ded Acceptab  | ole Concentrati   | on I   | V/A  |              |            |   | N/A  |
|   |   |   |  | /  |              |            |   | ,  |
| Analyte:  | Benzo(g,  | h,i)perylene  |  |  |              |            |   |  |
| -   | Benzo(g,<br>191-24-2  | h,i)perylene  |  | ,  |              |            |   |  |
| CAS:  | 191-24-2  | 2   |  |  | alculated Ha | zard/Risk  |   |  |
| CAS:  | <b>191-24-2</b><br>n mg/kg:   |   | •  | c  | alculated Ha | zard/Risk  |   |  |
| CAS:<br>Concentration<br>RfDo (mg/kg-   | <b>191-24-2</b><br>in mg/kg:<br>-day):  | 2.47E-01  | Non-Car  | C<br>cer Adult   | alculated Ha | zard/Risk  |   | Cancer                                       |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)   | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):   | 2.47E-01  | •  | <b>C</b><br>cer Adult<br>7.05E-06  | alculated Ha | zard/Risk  | (<br>Ingestion:<br>Dermal:                            |  |
| CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d  | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:  | 2.47E-01  | Non-Car  | C<br>cer Adult   | alculated Ha | zard/Risk  | Ingestion:  |  |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-   | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:  | 2.47E-01  | <b>Non-Car</b><br>Ingestion:<br>Dermal:  | <b>C</b><br>cer Adult<br>7.05E-06  | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:                                 |  |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (µg/m3)-<br>Mutagen:   | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:  | 2.47E-01  | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:  | C<br>cer Adult<br>7.05E-06<br>3.88E-06   | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:                  | Cancer                                       |
| CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:  | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:<br>1:  | 2.47E-01<br>3.00E-02  | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:  | C<br>cer Adult<br>7.05E-06<br>3.88E-06   | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:                  | Cancer                                       |
| CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:  | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:<br>1:  | 2.47E-01<br>3.00E-02<br>Y   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:  | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%  | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00                           |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:   | <b>191-24-2</b><br>n mg/kg:<br>day):<br>):<br>day)-1:<br>1:   | 2.47E-01<br>3.00E-02<br>Y   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca         | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%  | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00<br>0.00%                  |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br>Recommenc  | <b>191-24-2</b><br>n mg/kg:<br>day):<br>):<br>day)-1:<br>1:<br>ded Acceptab   | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca         | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br><b>1.09E-05</b><br>0.01%<br>ncer Adult                   | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00<br>0.00%<br>Cancer        |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br>Recommence<br>Analyte:   | <b>191-24-2</b><br>n mg/kg:<br>day):<br>):<br>day)-1:<br>1:   | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca         | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br><b>1.09E-05</b><br>0.01%<br>ncer Adult                   | alculated Ha | zard/Risk  | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00<br>0.00%<br>Cancer        |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br>Recommenc<br>Analyte:<br>CAS:  | <b>191-24-2</b><br>n mg/kg:<br>-day):<br>):<br>day)-1:<br>1:<br><i>ded Acceptak</i><br><b>Benzo[a]</b><br><b>50-32-8</b>                          | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca         | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%<br>ncer Adult<br>V/A                   |              |            | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00<br>0.00%<br>Cancer        |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br>Recomment<br>Analyte:<br>CAS:<br>Concentration   | <b>191-24-2</b><br>n mg/kg:<br>day):<br>):<br>day)-1:<br>1:<br><i>ded Acceptate</i><br><b>Benzo[a]</b><br><b>50-32-8</b><br>n mg/kg:              | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution   | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca<br>on I | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%<br>ncer Adult<br>V/A                   | alculated Ha |            | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | Cancer<br>0.00E+00<br>0.00%<br>Cancer<br>N/A |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br>VOC:<br><i>Recommence</i><br>Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3) | <b>191-24-2</b><br>n mg/kg:<br>day):<br>):<br>day)-1:<br>1:<br><i>ded Acceptab</i><br><b>Benzo[a]</b><br><b>50-32-8</b><br>n mg/kg:<br>day):      | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution<br>ole Concentrati<br><b>[pyrene</b><br>3.36E-01            | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca<br>on I | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%<br>ncer Adult<br>V/A                   |              |            | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | Cancer<br>0.00E+00<br>0.00%<br>Cancer        |
| CAS:<br>Concentration<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-d<br>IUR (μg/m3)-<br>Mutagen:<br>VOC:<br><i>Recommence</i><br>Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-                                     | <b>191-24-2</b><br>n mg/kg:<br>day):<br>:<br>day)-1:<br>1:<br><i>ded Acceptab</i><br><b>Benzo[a]</b><br><b>50-32-8</b><br>n mg/kg:<br>-day):<br>: | 2.47E-01<br>3.00E-02<br>Y<br>% Contribution<br>ole Concentrati<br><b>pyrene</b><br>3.36E-01<br>3.00E-04 | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total:<br>to Media Risk<br>mg/kg Non-Ca<br>on I | C<br>cer Adult<br>7.05E-06<br>3.88E-06<br>1.09E-05<br>0.01%<br>ncer Adult<br>v/A<br>C<br>cer Adult |              |            | Ingestion:<br>Dermal:<br>Inhalation:<br>Total:        | Cancer<br>0.00E+00<br>0.00%<br>Cancer<br>N/A |

1.51E-03

% Contribution to Media Risk 0.83%

Total:

Y

Mutagen:

VOC:

1.59E-07

4.37%

Total:

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |
|                      |                                      |                                       |

# Soil

|  |   |  | mg/kg Non-C  |   |                        | -  | ancer  |
|--|---|--|--|---|------------------------|--|--|
| Recommended  | Acceptabl   | e Concentrati  | on   | N/A   |                        |  | N/A  |
| Analyte: B   | Benzo[b]f   | fluoranther  | ne   |   |                        |  |  |
| CAS: 2   | 205-99-2  |  |  |   |                        |  |  |
| Concentration m  | ng/kg:  | 6.65E-01   |  |   | Calculated Hazard/Risk |  |  |
| RfDo (mg/kg-day  | <b>/)</b> :   |  | Non-Ca   | ncer Adult                                    |                        | Ca   | ancer  |
| RfCi (mg/m3):  |   |  | Ingestion:   |   |                        | Ingestion:   | 2.03E-08   |
| SFO (mg/kg-day)  | )-1:  | 1.00E-01   | Dermal:  |   |                        | Dermal:  | 1.12E-08   |
| IUR (µg/m3)-1:   |   | 6.00E-05   | Inhalation:  |   |                        | Inhalation:  | 2.39E-12   |
| Mutagen:   |   | Y  | Total:   | 0.00E+00                                      |                        | Total:   | 3.15E-08   |
| VOC:   |   |  |  |   |                        |  |  |
|  | %   | 6 Contribution   | to Media Risk  | 0.00%   |                        |  | 0.86%  |
|  |   |  | mg/kg Non-C  | ancer Adult                                   |                        | C  | ancer  |
|  |   |  |  |   |                        |  |  |
| Recommended  | Acceptabl   | e Concentrati  | on   | N/A   |                        |  | N/A  |
|  | -   |  |  |   |                        |  | N/A  |
| Analyte: B   | -   | e Concentrati<br><b>luoranther</b>                         |  |   |                        |  | N/A  |
| Analyte: B<br>CAS: 2   | Benzo[k]f<br>207-08-9                                 |  |  |   | Calculated Hazard/Risk |  | N/A  |
| Analyte: B<br>CAS: 2<br>Concentration m  | Benzo[k]f<br>207-08-9                                 | luoranther   | ne   |   | Calculated Hazard/Risk |  | N/A  |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day   | Benzo[k]f<br>207-08-9                                 | luoranther   | ne   | N/A   | Calculated Hazard/Risk |  |  |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day<br>RfCi (mg/m3):  | <b>3enzo[k]f</b><br>2 <b>07-08-9</b><br>ng/kg:<br>γ): | luoranther   | ie<br>Non-Ca   | N/A   | Calculated Hazard/Risk | C  | ancer  |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day<br>RfCi (mg/m3):<br>SFO (mg/kg-day)                               | <b>3enzo[k]f</b><br>2 <b>07-08-9</b><br>ng/kg:<br>γ): | <b>luoranther</b><br>3.61E-01                              | Non-Ca<br>Ingestion:                                     | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:                                     | ancer<br>1.10E-09  |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day<br>RfCi (mg/m3):<br>SFO (mg/kg-day)<br>IUR (µg/m3)-1:             | <b>3enzo[k]f</b><br>2 <b>07-08-9</b><br>ng/kg:<br>γ): | <b>luoranther</b><br>3.61E-01<br>1.00E-02                  | Non-Ca<br>Ingestion:<br>Dermal:                          | N/A   | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:                          | ancer<br>1.10E-09<br>6.07E-10                                |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day<br>RfCi (mg/m3):<br>SFO (mg/kg-day)<br>IUR (µg/m3)-1:<br>Mutagen: | <b>3enzo[k]f</b><br>2 <b>07-08-9</b><br>ng/kg:<br>γ): | <b>Huoranther</b><br>3.61E-01<br>1.00E-02<br>6.00E-06      | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | ancer<br>1.10E-09<br>6.07E-10<br>1.30E-13                    |
| Analyte: B<br>CAS: 2<br>Concentration m<br>RfDo (mg/kg-day<br>RfCi (mg/m3):<br>SFO (mg/kg-day)<br>IUR (µg/m3)-1:<br>Mutagen: | Benzo[k]f<br>207-08-9<br>ng/kg:<br>y):                | <b>Huoranther</b><br>3.61E-01<br>1.00E-02<br>6.00E-06<br>Y | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | ancer<br>1.10E-09<br>6.07E-10<br>1.30E-13                    |
| Analyte: B   | Benzo[k]f<br>207-08-9<br>ng/kg:<br>y):                | <b>Huoranther</b><br>3.61E-01<br>1.00E-02<br>6.00E-06<br>Y | Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | <i>N/A</i><br>ncer Adult<br>0.00E+00<br>0.00% | Calculated Hazard/Risk | Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | ancer<br>1.10E-09<br>6.07E-10<br>1.30E-13<br><b>1.71E-09</b> |

### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |                                       |
|----------------------|--|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                               | 1.00E-04                              |

# Soil

Analyte: Benzoic Acid CAS: 65-85-0

| CAS: 05-0          | 85-0                |                    |             |                        |             |          |
|--------------------|---------------------|--------------------|-------------|------------------------|-------------|----------|
| Concentration mg/  | kg: 1.20E+00        |                    |             | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day):  | 4.00E+00            | Non-Car            | ncer Adult  |                        | Ca          | ancer    |
| RfCi (mg/m3):      |                     | Ingestion:         | 2.57E-07    |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1: |                     | Dermal:            | 1.09E-07    |                        | Dermal:     |          |
| IUR (µg/m3)-1:     |                     | Inhalation:        |             |                        | Inhalation: |          |
| Mutagen:           |                     | Total:             | 3.66E-07    |                        | Total:      | 0.00E+00 |
| VOC:               |                     |                    |             |                        |             |          |
|                    | % Contribution      | n to Media Risk    | 0.00%       |                        |             | 0.00%    |
|                    |                     | mg/kg Non-Ca       | incer Adult |                        | Cu          | ancer    |
| Recommended Act    | ceptable Concentrat | ion i              | N/A         |                        |             | N/A      |
| Analyte: Ber       | yllium and comp     | ounds              |             |                        |             |          |
| CAS: 744           | 0-41-7              |                    |             |                        |             |          |
| Concentration mg/  | kg: 9.00E-01        |                    |             | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day):  | 2.00E-03            | Non-Car            | ncer Adult  |                        | Ca          | ancer    |
| RfCi (mg/m3):      | 2.00E-05            | Ingestion:         | 3.85E-04    |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1: |                     | Dermal:            |             |                        | Dermal:     |          |
| IUR (μg/m3)-1:     | 2.40E-03            | Inhalation:        | 7.55E-06    |                        | Inhalation: | 1.30E-10 |
| Mutagen:           |                     | Total:             | 3.93E-04    |                        | Total:      | 1.30E-10 |
| VOC:               |                     |                    |             |                        |             |          |
|                    | 0/ Contribution     | -<br>to Madia Dick | 0.220/      |                        |             | 0.000/   |

 % Contribution to Media Risk
 0.22%
 0.00%

 mg/kg
 Non-Cancer Adult
 Cancer

 Recommended Acceptable Concentration
 N/A
 N/A

### Analyte: Bis(2-ethylhexyl)phthalate CAS: 117-81-7

| Concentration mg/kg: | 2.31E-01       |               |            | Calculated Hazard/Risk |             |          |
|----------------------|----------------|---------------|------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-02       | Non-Ca        | ncer Adult |                        | C           | ancer    |
| RfCi (mg/m3):        |                | Ingestion:    | 9.89E-06   |                        | Ingestion:  | 9.89E-10 |
| SFO (mg/kg-day)-1:   | 1.40E-02       | Dermal:       | 4.19E-06   |                        | Dermal:     | 4.19E-10 |
| IUR (μg/m3)-1:       | 2.40E-06       | Inhalation:   |            |                        | Inhalation: | 3.32E-14 |
| Mutagen:             |                | Total:        | 1.41E-05   |                        | Total:      | 1.41E-09 |
| VOC:                 |                |               |            |                        |             |          |
|                      | % Contribution | to Media Risk | 0.01%      |                        |             | 0.04%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

|                  |                      |                 | mg/kg Non-Ca  | ncer Adult |                        | (           | Cancer   |
|------------------|----------------------|-----------------|---------------|------------|------------------------|-------------|----------|
| Recommende       | ed Acceptat          | ole Concentrati | on I          | N/A        |                        |             | N/A      |
| Analyte:<br>CAS: | Butylber<br>104-51-8 | nzene, n-<br>B  |               |            |                        |             |          |
| Concentration    | mg/kg:               | 1.40E-01        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-d    | ay):                 | 5.00E-02        | Non-Car       | ncer Adult | -                      | C           | Cancer   |
| RfCi (mg/m3):    |                      |                 | Ingestion:    | 2.40E-06   |                        | Ingestion:  |          |
| SFO (mg/kg-da    | ıy)-1:               |                 | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1    | :                    |                 | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:         |                      |                 | Total:        | 2.40E-06   |                        | Total:      | 0.00E+00 |
| VOC:             |                      | Y               |               |            |                        |             |          |
|                  |                      | % Contribution  | to Media Risk | 0.00%      |                        |             | 0.00%    |
|                  |                      |                 | mg/kg Non-Ca  | ncer Adult |                        | (           | Cancer   |
| Recommende       | ed Acceptak          | ole Concentrati | on I          | N/A        |                        |             | N/A      |
| Analyte:         | Cadmiur              | n (Diet)        |               |            |                        |             |          |
| CAS:             | 7440-43              | -9-Diet         |               |            |                        |             |          |
| Concentration    | mg/kg:               | 3.33E-01        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-d    | ay):                 | 1.00E-04        | Non-Car       | ncer Adult |                        | C           | Cancer   |
| RfCi (mg/m3):    |                      | 1.00E-05        | Ingestion:    | 2.85E-03   |                        | Ingestion:  |          |
| SFO (mg/kg-da    | ıy)-1:               |                 | Dermal:       | 3.02E-07   |                        | Dermal:     |          |
| IUR (µg/m3)-1    | :                    | 1.80E-03        | Inhalation:   | 5.59E-06   |                        | Inhalation: | 3.59E-11 |
| Mutagen:         |                      |                 | Total:        | 2.86E-03   |                        | Total:      | 3.59E-11 |
| VOC:             |                      |                 |               |            |                        |             |          |
|                  |                      | % Contribution  | to Media Risk | 1.57%      |                        |             | 0.00%    |
|                  |                      |                 | mg/kg Non-Ca  | ncer Adult |                        | (           | Cancer   |
| 1                |                      | ole Concentrati |               | N/A        |                        |             | N/A      |

Cancer

Cancer

N/A

0.00E+00

0.00%

### Voluntary Remediation Program (VRP) Program:

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil Analyte: Carbazole

| CAS:       | 86-74-8     |                |               |             |                        |             |
|------------|-------------|----------------|---------------|-------------|------------------------|-------------|
| Concentrat | tion mg/kg: | 2.42E-01       |               |             | Calculated Hazard/Risk |             |
| RfDo (mg/ł | kg-day):    |                | Non-Ca        | incer Adult |                        |             |
| RfCi (mg/m | 13):        |                | Ingestion:    |             |                        | Ingestion:  |
| SFO (mg/k  | g-day)-1:   |                | Dermal:       |             |                        | Dermal:     |
| IUR (µg/m3 | 3)-1:       |                | Inhalation:   |             |                        | Inhalation: |
| Mutagen:   |             |                | Total:        | 0.00E+00    |                        | Total:      |
| VOC:       |             |                |               |             |                        |             |
|            | ç           | % Contribution | to Media Risk | 0.00%       |                        |             |

mg/kg Non-Cancer Adult

N/A

Recommended Acceptable Concentration

### Analyte: Chromium(III), Insoluble Salts CAS: 16065-83-1

| Concentration mg/kg: | 2.06E+02        |                 |             | Calculated Hazard/Risk |             |          |
|----------------------|-----------------|-----------------|-------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.50E+00        | Non-Ca          | ncer Adult  |                        | C           | Cancer   |
| RfCi (mg/m3):        |                 | Ingestion:      | 1.18E-04    |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                 | Dermal:         |             |                        | Dermal:     |          |
| IUR (µg/m3)-1:       |                 | Inhalation:     |             |                        | Inhalation: |          |
| Mutagen:             |                 | Total:          | 1.18E-04    |                        | Total:      | 0.00E+00 |
| VOC:                 |                 |                 |             |                        |             |          |
|                      | % Contribution  | n to Media Risk | 0.06%       |                        |             | 0.00%    |
|                      |                 | mg/kg Non-C     | ancer Adult |                        | (           | Cancer   |
| Recommended Acceptat | ole Concentrati | on              | N/A         |                        |             | N/A      |

### Analyte: Chrysene CAS: 218-01-9

| Concentration mg/kg: | 6.91E-01       |                 |             | Calculated Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    |                | Non-Ca          | ancer Adult |                        | Ca          | ancer    |
| RfCi (mg/m3):        |                | Ingestion:      |             |                        | Ingestion:  | 2.11E-10 |
| SFO (mg/kg-day)-1:   | 1.00E-03       | Dermal:         |             |                        | Dermal:     | 1.16E-10 |
| IUR (μg/m3)-1:       | 6.00E-07       | Inhalation:     |             |                        | Inhalation: | 2.49E-14 |
| Mutagen:             | Y              | Total:          | 0.00E+00    |                        | Total:      | 3.28E-10 |
| VOC:                 |                |                 |             |                        |             |          |
|                      | % Contribution | n to Media Risk | 0.00%       |                        |             | 0.01%    |

## Program: Voluntary Remediation Program (VRP)

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |  |  |
|----------------------|--------------------------------------|---------------------------------------|--|--|
| 1                    | 1.00E-06                             | 1.00E-04                              |  |  |
|                      |                                      |                                       |  |  |

# Soil

|   |  |                                  | mg/kg <i>Non-Ca</i>                                       | ncer Adult   |                        | C  | ancer             |
|---|--|----------------------------------|---|--|------------------------|--|-------------------|
| Recomment   | ded Acceptabl  | le Concentrati                   | on .  | N/A  |                        |  | N/A               |
| Analyte:  | Cobalt   |                                  |   |  |                        |  |                   |
| CAS:  | 7440-48-4  | 4                                |   |  |                        |  |                   |
| Concentratio  | on mg/kg:  | 1.04E+01                         |   |  | Calculated Hazard/Risk |  |                   |
| RfDo (mg/kg-day): 3.00E-04  |  | Non-Cancer Adult                 |   | Cancer   |                        |  |                   |
| RfCi (mg/m3)  | ):   | 6.00E-06                         | Ingestion:  | 2.96E-02   |                        | Ingestion:   |                   |
| SFO (mg/kg-o  | day)-1:  |                                  | Dermal:   |  |                        | Dermal:  |                   |
| IUR (µg/m3)-  | -1:  | 9.00E-03                         | Inhalation:   | 2.90E-04   |                        | Inhalation:  | 5.60E-09          |
| Mutagen:  |  |                                  | Total:  | 2.99E-02   |                        | Total:   | 5.60E-09          |
| VOC:  |  |                                  |   |  |                        |  |                   |
|   | %  | 6 Contribution                   | to Media Risk   | 16.44%   |                        |  | 0.15%             |
| mg/kg Non-Cancer Adult  |  |                                  |   |  | Cancer                 |  |                   |
| Recommended Acceptable Concentration N/A  |  |                                  |   |  | N/A                    |  |                   |
| Recomment   | ded Acceptabl  | le Concentrati                   | ion i   | N/A  |                        |  | N/A               |
|   |  | le Concentrati                   | on i  | N/A  |                        |  | N/A               |
| Recomment<br>Analyte:<br>CAS:   | ded Acceptabl<br>Copper<br>7440-50-8                               |                                  | on i  | N/A  |                        |  | N/A               |
| Analyte:  | Copper<br>7440-50-8  |                                  | on 1  | N/A  | Calculated Hazard/Risk |  | N/A               |
| Analyte:<br>CAS:  | Copper<br>7440-50-8  | 8                                |   | N/A  | Calculated Hazard/Risk |  |                   |
| Analyte:<br>CAS:<br>Concentratio  | Copper<br>7440-50-8<br>on mg/kg:<br>-day):                         | <b>8</b><br>1.55E+02             |   | ·  | Calculated Hazard/Risk |  | N/A<br>ancer      |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-  | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):                   | <b>8</b><br>1.55E+02             | Non-Car   | ncer Adult   | Calculated Hazard/Risk | C  |                   |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-o                              | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):<br>day)-1:        | <b>8</b><br>1.55E+02             | Non-Car<br>Ingestion:                                     | ncer Adult   | Calculated Hazard/Risk | C<br>Ingestion:  |                   |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)  | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):<br>day)-1:        | <b>8</b><br>1.55E+02             | <b>Non-Car</b><br>Ingestion:<br>Dermal:                   | ncer Adult   | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:                                 |                   |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)-<br>SFO (mg/kg-c<br>IUR (µg/m3)-<br>Mutagen: | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):<br>day)-1:        | <b>8</b><br>1.55E+02             | <b>Non-Car</b><br>Ingestion:<br>Dermal:<br>Inhalation:    | ncer Adult<br>3.32E-03                             | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:                  | ancer             |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)-<br>SFO (mg/kg-c<br>IUR (µg/m3)-<br>Mutagen: | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):<br>day)-1:<br>-1: | <b>B</b><br>1.55E+02<br>4.00E-02 | <b>Non-Car</b><br>Ingestion:<br>Dermal:<br>Inhalation:    | ncer Adult<br>3.32E-03                             | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:                  | ancer             |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-α<br>IUR (μg/m3)-              | Copper<br>7440-50-8<br>on mg/kg:<br>-day):<br>):<br>day)-1:<br>-1: | <b>B</b><br>1.55E+02<br>4.00E-02 | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | ncer Adult<br>3.32E-03<br><b>3.32E-03</b><br>1.82% | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | ancer<br>0.00E+00 |

#### Voluntary Remediation Program (VRP) Program:

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |
|                      |                                      |                                       |

### Soil

Analyte: Cresol, o-

| •              | 95-48-7      |               |               |            |                        |             |          |
|----------------|--------------|---------------|---------------|------------|------------------------|-------------|----------|
| Concentration  | mg/kg:       | 1.30E-01      |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | ay):         | 5.00E-02      | Non-Can       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):  |              | 6.00E-01      | Ingestion:    | 2.23E-06   |                        | Ingestion:  |          |
| SFO (mg/kg-da  | y)-1:        |               | Dermal:       | 9.42E-07   |                        | Dermal:     |          |
| IUR (µg/m3)-1: |              |               | Inhalation:   | 3.64E-11   |                        | Inhalation: |          |
| Mutagen:       |              |               | Total:        | 3.17E-06   |                        | Total:      | 0.00E+00 |
| VOC:           |              |               |               |            |                        |             |          |
|                | %            | Contribution  | to Media Risk | 0.00%      |                        |             | 0.00%    |
|                |              |               | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Recommende     | d Acceptable | e Concentrati | on I          | V/A        |                        |             | N/A      |
| Analyte:       | Cresol, p-   | chloro-m-     |               |            |                        |             |          |
| CAS:           | 59-50-7      |               |               |            |                        |             |          |
| Concentration  | mg/kg:       | 1.19E-01      |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | ay):         | 1.00E-01      | Non-Can       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):  |              |               | Ingestion:    | 1.02E-06   |                        | Ingestion:  |          |
| SFO (mg/kg-da  | y)-1:        |               | Dermal:       | 4.31E-07   |                        | Dermal:     |          |
| IUR (µg/m3)-1: | :            |               | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:       |              |               | Total:        | 1.45E-06   |                        | Total:      | 0.00E+00 |
| VOC:           |              |               |               |            |                        |             |          |
|                | %            | Contribution  | to Media Risk | 0.00%      |                        |             | 0.00%    |
|                |              |               | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Recommende     | d Acceptable | e Concentrati | on I          | V/A        |                        |             | N/A      |
| Analyte:       | Cumene       |               |               |            |                        |             |          |
| CAS:           | 98-82-8      |               |               |            |                        |             |          |
| Concentration  | mg/kg:       | 1.68E-01      |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | ay):         | 1.00E-01      | Non-Can       | cer Adult  | -                      |             | Cancer   |
| RfCi (mg/m3):  |              | 4.00E-01      | Ingestion:    | 1.44E-06   |                        | Ingestion:  |          |
| SFO (mg/kg-da  | y)-1:        |               | Dermal:       |            |                        | Dermal:     |          |
|                |              |               |               |            |                        |             |          |
| IUR (µg/m3)-1: |              |               | Inhalation:   | 1.54E-05   |                        | Inhalation: |          |

% Contribution to Media Risk 0.01%

Υ

VOC:

### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

|   |  |   | mg/kg Non-Ca  | incer Adult                                   |                        | C   | ancer  |
|---|--|---|---|---|------------------------|---|--|
| Recomment   | led Acceptab   | le Concentrati  | on  | N/A   |                        |   | N/A  |
| Analyte:  | Cyanide  | (CN-)   |   |   |                        |   |  |
| CAS:  | 57-12-5  |   |   |   |                        |   |  |
| Concentratio  | n mg/kg:   | 8.26E-01  |   |   | Calculated Hazard/Risk |   |  |
| RfDo (mg/kg-  | day):  | 6.00E-04  | Non-Ca  | ncer Adult                                    |                        | С   | ancer  |
| RfCi (mg/m3)  | :  | 8.00E-04  | Ingestion:  | 1.18E-03                                      |                        | Ingestion:  |  |
| SFO (mg/kg-c  | lay)-1:  |   | Dermal:   |   |                        | Dermal:   |  |
| IUR (µg/m3)-  | 1:   |   | Inhalation:   | 4.42E-03                                      |                        | Inhalation:   |  |
| Mutagen:  |  |   | Total:  | 5.60E-03                                      |                        | Total:  | 0.00E+00   |
| VOC:  |  | Y   |   |   |                        |   |  |
|   | ģ  | % Contribution  | to Media Risk   | 3.08%   |                        |   | 0.00%  |
|   |  |   |   |   |                        |   |  |
|   |  |   | mg/kg Non-Ca  | ancer Adult                                   |                        | С   | ancer  |
| Recomment   | led Acceptab   | le Concentrati  | 0. 0  | ancer Adult<br>N/A                            |                        | -   | `ancer<br>N/A  |
|   | -  |   | on  |   |                        | -   |  |
| Analyte:  | -  | le Concentrati<br>, <b>h]anthrace</b>                       | on  |   |                        | -   |  |
| Analyte:<br>CAS:  | Dibenz[a<br>53-70-3  |   | on  |   | Calculated Hazard/Risk | -   |  |
| Analyte:<br>CAS:<br>Concentratio  | Dibenz[a<br>53-70-3<br>n mg/kg:                                | ,h]anthrace   | on<br>ne  |   | Calculated Hazard/Risk |   |  |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-  | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):                       | ,h]anthrace   | on<br>ne  | N/A   | Calculated Hazard/Risk |   | N/A  |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)  | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):                       | ,h]anthrace   | ne<br>Non-Ca  | N/A   | Calculated Hazard/Risk | c   | N/A  |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-c  | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):<br>:<br>lay)-1:       | <b>,h]anthrace</b><br>1.98E-01                              | on<br>ne<br>Non-Car<br>Ingestion:                         | N/A   | Calculated Hazard/Risk | C<br>Ingestion:                                     | <i>N/A</i><br>ancer<br>6.05E-08  |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-c<br>IUR (μg/m3)-                                  | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):<br>:<br>lay)-1:       | <b>,h]anthrace</b><br>1.98E-01<br>1.00E+00                  | ne<br>Non-Ca<br>Ingestion:<br>Dermal:                     | N/A   | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:                          | <i>N/A</i><br>ancer<br>6.05E-08<br>3.33E-08                                |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-c<br>IUR (μg/m3)-<br>Mutagen:                      | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):<br>:<br>lay)-1:       | <b>,h]anthrace</b><br>1.98E-01<br>1.00E+00<br>6.00E-04      | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ancer<br>6.05E-08<br>3.33E-08<br>7.12E-12                    |
| Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-c<br>IUR (µg/m3)-<br>Mutagen:                      | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):<br>:<br>lay)-1:<br>1: | <b>,h]anthrace</b><br>1.98E-01<br>1.00E+00<br>6.00E-04<br>Y | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ancer<br>6.05E-08<br>3.33E-08<br>7.12E-12                    |
| Recomment<br>Analyte:<br>CAS:<br>Concentratio<br>RfDo (mg/kg-<br>RfCi (mg/m3)<br>SFO (mg/kg-c<br>IUR (µg/m3)-<br>Mutagen:<br>VOC: | Dibenz[a<br>53-70-3<br>n mg/kg:<br>day):<br>:<br>lay)-1:<br>1: | <b>,h]anthrace</b><br>1.98E-01<br>1.00E+00<br>6.00E-04<br>Y | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | <u>N/A</u><br>ncer Adult<br>0.00E+00<br>0.00% | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | <i>N/A</i><br>ancer<br>6.05E-08<br>3.33E-08<br>7.12E-12<br><b>9.39E-08</b> |

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

Analyte: Dimethylphenol, 2,4-

CAS: 105-67-9

|                            |                 | -               |                             |                        |                              |                             |
|----------------------------|-----------------|-----------------|-----------------------------|------------------------|------------------------------|-----------------------------|
| Concentration mg/kg:       | 2.00E-01        |                 |                             | Calculated Hazard/Risk |                              |                             |
| RfDo (mg/kg-day):          | 2.00E-02        | Non-Car         | ncer Adult                  |                        | Ca                           | ancer                       |
| RfCi (mg/m3):              |                 | Ingestion:      | 8.56E-06                    |                        | Ingestion:                   |                             |
| SFO (mg/kg-day)-1:         |                 | Dermal:         | 3.62E-06                    |                        | Dermal:                      |                             |
| IUR (µg/m3)-1:             |                 | Inhalation:     |                             |                        | Inhalation:                  |                             |
| Mutagen:                   |                 | Total:          | 1.22E-05                    |                        | Total:                       | 0.00E+00                    |
| VOC:                       |                 |                 |                             |                        |                              |                             |
|                            | % Contribution  | n to Media Risk | 0.01%                       |                        |                              | 0.00%                       |
|                            |                 | mg/kg Non-Ca    | ncer Adult                  |                        | Сс                           | ancer                       |
| Recommended Accepta        | ble Concentrati | ion I           | N/A                         |                        | I                            | N/A                         |
| Analyte: Ethylber          | nzene           |                 |                             |                        |                              |                             |
| CAS: 100-41-4              |                 |                 |                             |                        |                              |                             |
| Concentration mg/kg:       | 3.42E-01        |                 |                             | Calculated Hazard/Risk |                              |                             |
| RfDo (mg/kg-day):          | 5.00E-02        | Non-Car         | ncer Adult                  |                        | Ca                           | ancer                       |
| RfCi (mg/m3):              | 1.00E+00        | Ingestion:      | 5.86E-06                    |                        | Ingestion:                   | 1.15E-09                    |
| SFO (mg/kg-day)-1:         | 1 105 00        | Dermal:         |                             |                        | Dermal:                      |                             |
|                            | 1.10E-02        | 20000           |                             |                        |                              |                             |
| IUR (μg/m3)-1:             | 2.50E-06        | Inhalation:     | 1.38E-05                    |                        | Inhalation:                  | 1.23E-08                    |
| IUR (μg/m3)-1:<br>Mutagen: |                 |                 | 1.38E-05<br><b>1.96E-05</b> |                        | Inhalation:<br><b>Total:</b> | 1.23E-08<br><b>1.34E-08</b> |

 % Contribution to Media Risk
 0.01%
 0.37%

 mg/kg
 Non-Cancer Adult
 Cancer

 Recommended Acceptable Concentration
 N/A
 N/A

### Analyte: Fluoranthene

| CAS: | 206-44-0 |
|------|----------|
|      |          |

| Concentration mg/kg: | 8.95E-01       |               |            | Calculated Hazard/Risk |             |          |
|----------------------|----------------|---------------|------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-02       | Non-Ca        | ncer Adult |                        |             | Cancer   |
| RfCi (mg/m3):        |                | Ingestion:    | 1.92E-05   |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:       | 1.05E-05   |                        | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:             |                | Total:        | 2.97E-05   |                        | Total:      | 0.00E+00 |
| VOC:                 |                |               |            |                        |             |          |
|                      | % Contribution | to Media Risk | 0.02%      |                        |             | 0.00%    |

### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |
|                      |                                      |                                       |

# Soil

|   |   |   | mg/kg Non-Co  | ancer Adult                                   |                        | C   | ancer  |
|---|---|---|---|---|------------------------|---|--|
| Recommend   | led Acceptabl   | le Concentrati  | on  | N/A   |                        |   | N/A  |
| Analyte:  | Fluorene  |   |   |   |                        |   |  |
| CAS:  | 86-73-7   |   |   |   |                        |   |  |
| Concentration   | n mg/kg:  | 2.30E-01  |   |   | Calculated Hazard/Risk |   |  |
| RfDo (mg/kg-  | day):   | 4.00E-02  | Non-Ca  | ncer Adult                                    |                        | c   | ancer  |
| RfCi (mg/m3)  | :   |   | Ingestion:  | 4.92E-06                                      |                        | Ingestion:  |  |
| SFO (mg/kg-d  | ay)-1:  |   | Dermal:   | 2.71E-06                                      |                        | Dermal:   |  |
| IUR (µg/m3)-1   | 1:  |   | Inhalation:   |   |                        | Inhalation:   |  |
| Mutagen:  |   |   | Total:  | 7.63E-06                                      |                        | Total:  | 0.00E+00   |
| VOC:  |   | Y   |   |   |                        |   |  |
|   | %   | 6 Contribution  | to Media Risk   | 0.00%   |                        |   | 0.00%  |
|   |   |   |   |   |                        |   |  |
|   |   |   | mg/kg Non-Co  | ancer Adult                                   |                        | C   | ancer  |
| Recommend   | led Acceptabl   | le Concentrati  |   | ancer Adult<br>N/A                            |                        | -   | `ancer<br>N/A  |
|   | -   | le Concentrati<br><b>,2,3-cd]pyr</b> o                      | on  |   |                        | -   |  |
| Analyte:  | -   |   | on  |   |                        | -   |  |
| Analyte:<br>CAS:  | Indeno[1,<br>193-39-5                                     |   | on  |   | Calculated Hazard/Risk | -   |  |
| Analyte:<br>CAS:<br>Concentration   | Indeno[1,<br>193-39-5<br>n mg/kg:                         | ,2,3-cd]pyr   | ene   |   | Calculated Hazard/Risk |   |  |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-0  | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):                | ,2,3-cd]pyr   | ene   | N/A   | Calculated Hazard/Risk |   | N/A  |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-0<br>RfCi (mg/m3):   | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):                | ,2,3-cd]pyr   | ene<br>Non-Ca   | N/A   | Calculated Hazard/Risk | C   | N/A  |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-0<br>RfCi (mg/m3):<br>SFO (mg/kg-d   | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):<br>:<br>ay)-1: | <b>,2,3-cd]pyr</b><br>2.82E-01                              | ene<br>Non-Ca<br>Ingestion:                                     | N/A   | Calculated Hazard/Risk | C<br>Ingestion:                                     | <i>N/A</i><br>ancer<br>8.62E-09                              |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-2                                  | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):<br>:<br>ay)-1: | <b>,2,3-cd]pyr</b><br>2.82E-01<br>1.00E-01                  | ene<br>Non-Ca<br>Ingestion:<br>Dermal:                          | N/A   | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:                          | <i>N/A</i><br>ancer<br>8.62E-09<br>4.74E-09                  |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-4<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-2<br>Mutagen:                      | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):<br>:<br>ay)-1: | <b>,2,3-cd]pyr</b><br>2.82E-01<br>1.00E-01<br>6.00E-05      | ene<br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A<br>ancer<br>8.62E-09<br>4.74E-09<br>1.01E-12             |
| Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-4<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-2<br>Mutagen:                      | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):<br>ay)-1:      | <b>,2,3-cd]pyr</b><br>2.82E-01<br>1.00E-01<br>6.00E-05<br>Y | ene<br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:           | <i>N/A</i><br>ncer Adult                      | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:           | N/A<br>ancer<br>8.62E-09<br>4.74E-09<br>1.01E-12             |
| Recommend<br>Analyte:<br>CAS:<br>Concentration<br>RfDo (mg/kg-0<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (µg/m3)-1<br>Mutagen:<br>VOC: | Indeno[1,<br>193-39-5<br>n mg/kg:<br>day):<br>ay)-1:      | <b>,2,3-cd]pyr</b><br>2.82E-01<br>1.00E-01<br>6.00E-05<br>Y | ene<br>Non-Ca<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | <i>N/A</i><br>ncer Adult<br>0.00E+00<br>0.00% | Calculated Hazard/Risk | C<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | N/A<br>ancer<br>8.62E-09<br>4.74E-09<br>1.01E-12<br>1.34E-08 |

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |
| Soil                 |                                      |                                       |

### Soil Analyte:

Analyte: Iron

| CAS:           | 7439-89 <sup>.</sup> | -6              |               |            |                        |             |          |
|----------------|----------------------|-----------------|---------------|------------|------------------------|-------------|----------|
| Concentration  | mg/kg:               | 6.57E+04        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | iy):                 | 7.00E-01        | Non-Can       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):  |                      |                 | Ingestion:    | 8.04E-02   |                        | Ingestion:  |          |
| SFO (mg/kg-day | /)-1:                |                 | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1: |                      |                 | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:       |                      |                 | Total:        | 8.04E-02   |                        | Total:      | 0.00E+00 |
| VOC:           |                      |                 |               |            |                        |             |          |
|                |                      | % Contribution  | to Media Risk | 44.20%     |                        |             | 0.00%    |
|                |                      |                 | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Recommended    | d Acceptal           | ble Concentrati | on I          | V/A        |                        |             | N/A      |
| Analyte: i     | isopropy             | ltoluene        |               |            |                        |             |          |
| CAS:           | 99-87-6              |                 |               |            |                        |             |          |
| Concentration  | mg/kg:               | 9.93E-02        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | iy):                 | 1.00E-01        | Non-Can       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):  |                      | 4.00E-01        | Ingestion:    | 8.50E-07   |                        | Ingestion:  |          |
| SFO (mg/kg-day | /)-1:                |                 | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1: |                      |                 | Inhalation:   | 5.91E-06   |                        | Inhalation: |          |
| Mutagen:       |                      |                 | Total:        | 6.76E-06   |                        | Total:      | 0.00E+00 |
| VOC:           |                      | Y               |               |            |                        |             |          |
|                |                      | % Contribution  | to Media Risk | 0.00%      |                        |             | 0.00%    |
|                |                      |                 | mg/kg Non-Ca  | ncer Adult |                        |             | Cancer   |
| Recommended    | d Acceptal           | ble Concentrati | on I          | V/A        |                        |             | N/A      |
| Analyte:       | Lead and             | d Compound      | s             |            |                        |             |          |
| CAS:           | 7439-92              | -1              |               |            |                        |             |          |
| Concentration  | mg/kg:               | 2.05E+01        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-da | iy):                 |                 | Non-Can       | cer Adult  |                        |             | Cancer   |
| RfCi (mg/m3):  |                      |                 | Ingestion:    |            |                        | Ingestion:  |          |
|                |                      |                 | 0             |            |                        | 0           |          |

0.00E+00

IUR (µg/m3)-1: Mutagen: VOC:

% Contribution to Media Risk 0.00%

Total:

Inhalation:

0.00E+00

0.00%

Inhalation:

Total:

### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

|   |   |                                    | mg/kg Non-Ca  | ancer Adult  |                        |                        | Cancer             |
|---|---|------------------------------------|---|--|------------------------|------------------------|--------------------|
| Recommended Acceptable Concentration N/A  |   |                                    |   |  |                        |                        | N/A                |
| Analyte: M  | langanes  | se (Diet)                          |   |  |                        |                        |                    |
| CAS: 74   | 439-96-5  | -Diet                              |   |  |                        |                        |                    |
| Concentration m   | ıg/kg:  | 5.16E+02                           |   |  | Calculated Hazard/Risk |                        |                    |
| RfDo (mg/kg-day)  | ):  | 1.40E-01                           | Non-Ca  | ncer Adult   |                        |                        | Cancer             |
| RfCi (mg/m3):   |   | 5.00E-05                           | Ingestion:  | 3.16E-03   |                        | Ingestion:             |                    |
| SFO (mg/kg-day)-  | -1:   |                                    | Dermal:   |  |                        | Dermal:                |                    |
| IUR (µg/m3)-1:  |   |                                    | Inhalation:   | 1.73E-03   |                        | Inhalation:            |                    |
| Mutagen:  |   |                                    | Total:  | 4.89E-03   |                        | Total:                 | 0.00E+00           |
| VOC:  |   |                                    |   |  |                        |                        |                    |
|   | %   | Contribution                       | to Media Risk   | 2.69%  |                        |                        | 0.00%              |
|   |   |                                    | mg/kg Non-Ca  | ancer Adult  |                        |                        | Cancer             |
| Recommended   | Acceptable  | e Concentrati                      | on  | N/A  |                        |                        | N/A                |
|   |   | concentration                      | 011   | 10,11  |                        |                        | 10,11              |
| Analyte: M  | -   | elemental)                         |   |  |                        |                        |                    |
| -   | -   | elemental)                         |   |  |                        |                        |                    |
| CAS: 74   | 1ercury (<br>439-97-6                                     | elemental)                         |   |  | Calculated Hazard/Risk |                        |                    |
| CAS: 74<br>Concentration m  | 1ercury (<br>439-97-6<br><sup>1g/kg:</sup>                | elemental)                         |   | ncer Adult   | Calculated Hazard/Risk |                        | Cancer             |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)  | 1ercury (<br>439-97-6<br><sup>1g/kg:</sup>                | elemental)                         |   |  | Calculated Hazard/Risk | Ingestion:             |                    |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)<br>RfCi (mg/m3):   | 1ercury (<br>439-97-6<br>g/kg:<br>):                      | elemental)<br>5.07E-02             | Non-Ca  |  | Calculated Hazard/Risk | Ingestion:<br>Dermal:  |                    |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-                               | 1ercury (<br>439-97-6<br>g/kg:<br>):                      | elemental)<br>5.07E-02             | Non-Ca<br>Ingestion:                                      |  | Calculated Hazard/Risk | -                      |                    |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-<br>IUR (µg/m3)-1:             | 1ercury (<br>439-97-6<br>g/kg:<br>):                      | elemental)<br>5.07E-02             | Non-Ca<br>Ingestion:<br>Dermal:                           | ncer Adult   | Calculated Hazard/Risk | Dermal:                |                    |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-<br>IUR (µg/m3)-1:<br>Mutagen: | 1ercury (<br>439-97-6<br>g/kg:<br>):                      | elemental)<br>5.07E-02             | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | ncer Adult<br>1.11E-03                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: | Cancer             |
| CAS: 74<br>Concentration m<br>RfDo (mg/kg-day)<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-<br>IUR (µg/m3)-1:<br>Mutagen: | <b>1ercury (</b><br><b>439-97-6</b><br>g/kg:<br>):<br>-1: | elemental)<br>5.07E-02<br>3.00E-04 | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | ncer Adult<br>1.11E-03                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: | Cancer             |
| -   | <b>1ercury (</b><br><b>439-97-6</b><br>g/kg:<br>):<br>-1: | elemental)<br>5.07E-02<br>3.00E-04 | Non-Cal<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | ncer Adult<br>1.11E-03<br><b>1.11E-03</b><br>0.61% | Calculated Hazard/Risk | Dermal:<br>Inhalation: | Cancer<br>0.00E+00 |

#### Program: Voluntary Remediation Program (VRP)

|                      | <b>Risk Based Performance Criteria</b> |                                       |
|----------------------|--|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                               | 1.00E-04                              |

# Soil

# Analyte:Methyl Ethyl Ketone (2-Butanone)CAS:78-93-3

| ancer<br>0.00E+00<br>0.00%<br>ancer<br>N/A |
|--|
| 0.00E+00<br>0.00%<br>ancer<br>N/A          |
| 0.00%<br>ancer<br>N/A                      |
| 0.00%<br>ancer<br>N/A                      |
| 0.00%<br>ancer<br>N/A                      |
| 0.00%<br>ancer<br>N/A                      |
| ancer<br>N/A                               |
| ancer<br>N/A                               |
| N/A  |
| <u>.</u>                                   |
| ancer                                      |
| ancer                                      |
| ancer                                      |
|  |
|  |
|  |
| 0.00E+00                                   |
| 0.002+00                                   |
| 0.00%                                      |
| ancer                                      |
| N/A  |
|  |
|  |
|  |
| ancer                                      |
| 4.22E-13                                   |
|  |
| 2.57E-13                                   |
|  |
|  |

% Contribution to Media Risk 0.00%

Υ

VOC:

0.00%

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |
|                      |                                      |                                       |

# Soil

|              |  |                 | mg/kg Non-Ca  | ncer Adult |                        | C           | Cancer   |
|--------------|--|-----------------|---------------|------------|------------------------|-------------|----------|
| Recommen     | Recommended Acceptable Concentration N/A |                 |               |            |                        |             | N/A      |
| Analyte:     | Methyln                                  | aphthalene      | , 1-          |            |                        |             |          |
| CAS:         | 90-12-0                                  |                 |               |            |                        |             |          |
| Concentratio | on mg/kg:                                | 2.18E+00        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg  | -day):                                   | 7.00E-02        | Non-Car       | ncer Adult |                        | C           | ancer    |
| RfCi (mg/m3  | ):                                       |                 | Ingestion:    | 2.67E-05   |                        | Ingestion:  | 1.93E-08 |
| SFO (mg/kg-  | day)-1:                                  | 2.90E-02        | Dermal:       | 1.47E-05   |                        | Dermal:     | 1.06E-08 |
| IUR (µg/m3)· | -1:                                      |                 | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:     |  |                 | Total:        | 4.13E-05   |                        | Total:      | 3.00E-08 |
| VOC:         |  | Y               |               |            |                        |             |          |
|              |  | % Contribution  | to Media Risk | 0.02%      |                        |             | 0.82%    |
|              |  |                 | mg/kg Non-Ca  | ncer Adult |                        | (           | Cancer   |
| Recommen     | ded Acceptab                             | ole Concentrati | ion i         | N/A        |                        |             | N/A      |
| Analyte:     | Methyln                                  | aphthalene      | , 2-          |            |                        |             |          |
| CAS:         | 91-57-6                                  | -               |               |            |                        |             |          |
| Concentratic | on mg/kg:                                | 3.51E+00        |               |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg  | -day):                                   | 4.00E-03        | Non-Car       | ncer Adult |                        | C           | ancer    |
| RfCi (mg/m3  | ):                                       |                 | Ingestion:    | 7.51E-04   |                        | Ingestion:  |          |
| SFO (mg/kg-  | day)-1:                                  |                 | Dermal:       | 4.13E-04   |                        | Dermal:     |          |
| IUR (µg/m3)· | -1:                                      |                 | Inhalation:   |            |                        | Inhalation: |          |
| Mutagen:     |  |                 | Total:        | 1.16E-03   |                        | Total:      | 0.00E+00 |
|              |  | Y               |               |            |                        |             |          |
| VOC:         |  | % Contribution  | to Media Risk | 0.64%      |                        |             | 0.00%    |
| VOC:         |  | / Contribution  |               |            |                        |             |          |
| VOC:         |  |                 | mg/kg Non-Ca  | ncer Adult |                        | (           | Cancer   |

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

Analyte: Naphthalene CAS: 91-20-3

| CAJ. <u>J1-20-</u>   | 5                   |                     |            |                        |             |          |
|----------------------|---------------------|---------------------|------------|------------------------|-------------|----------|
| Concentration mg/kg: | 2.05E+00            |                     |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day):    | 2.00E-02            | Non-Can             | cer Adult  | -                      | Ca          | ancer    |
| RfCi (mg/m3):        | 3.00E-03 I          | ngestion:           | 8.76E-05   |                        | Ingestion:  | 7.51E-08 |
| SFO (mg/kg-day)-1:   | 1.20E-01 [          | Dermal:             | 4.82E-05   |                        | Dermal:     | 4.13E-08 |
| IUR (μg/m3)-1:       | 3.40E-05 I          | nhalation:          | 3.36E-03   |                        | Inhalation: | 1.23E-07 |
| Mutagen:             | r                   | Fotal:              | 3.50E-03   |                        | Total:      | 2.39E-07 |
| VOC:                 | Y                   |                     |            |                        |             |          |
|                      | % Contribution to   | o Media Risk        | 1.92%      |                        |             | 6.55%    |
|                      | n                   | ng/kg <i>Non-Ca</i> | ncer Adult |                        | Ca          | ancer    |
| Recommended Accept   | table Concentration | n 1                 | V/A        |                        | l           | N/A      |
| Analyte: Nickel      | Soluble Salts       |                     |            |                        |             |          |
| CAS: 7440-0          | 02-0                |                     |            |                        |             |          |
| Concentration mg/kg: | 1.11E+02            |                     |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day):    | 2.00E-02            | Non-Can             | cer Adult  |                        | Ca          | ancer    |
| RfCi (mg/m3):        | 9.00E-05 I          | ngestion:           | 4.75E-03   |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   | [                   | Dermal:             |            |                        | Dermal:     |          |
| IUR (μg/m3)-1:       | 2.60E-04 I          | nhalation:          | 2.07E-04   |                        | Inhalation: | 1.73E-09 |
| Mutagen:             | ٦                   | Fotal:              | 4.95E-03   |                        | Total:      | 1.73E-09 |
| VOC:                 |                     |                     |            |                        |             |          |
|                      | % Contribution to   | o Media Risk        | 2.72%      |                        |             | 0.05%    |
|                      | n                   | ng/kg <i>Non-Ca</i> | ncer Adult |                        | Co          | ancer    |
| Recommended Accept   | table Concentration | n 1                 | V/A        |                        |             | N/A      |
| Analyte: Phena       | nthrene             |                     |            |                        |             |          |
| CAS: 85-01-          | 8                   |                     |            |                        |             |          |
| Concentration mg/kg: | 1.70E+00            |                     |            | Calculated Hazard/Risk |             |          |
| RfDo (mg/kg-day):    | 3.00E-02            | Non-Can             | cer Adult  |                        | Ca          | ancer    |
|                      |                     |                     |            |                        |             |          |

| RfDo (mg/kg-day):  | 3.00E-02       | Non-Cancer Adult |          | Cancer          |   |
|--------------------|----------------|------------------|----------|-----------------|---|
| RfCi (mg/m3):      |                | Ingestion:       | 4.84E-05 | Ingestion:      |   |
| SFO (mg/kg-day)-1: |                | Dermal:          | 2.66E-05 | Dermal:         |   |
| IUR (µg/m3)-1:     |                | Inhalation:      |          | Inhalation:     |   |
| Mutagen:           |                | Total:           | 7.51E-05 | Total: 0.00E+00 | ) |
| VOC:               | Y              |                  |          |                 |   |
|                    | % Contribution | to Media Risk    | 0.04%    | 0.00%           |   |

Wednesday, December 6, 2023

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria      |                                       |
|----------------------|--------------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                             | 1.00E-04                              |

# Soil

|   |                     |                | mg/kg Non-Ca                     | ncer Adult                           |                        |                        | Cancer                   |
|---|---------------------|----------------|----------------------------------|--------------------------------------|------------------------|------------------------|--------------------------|
| Recommended Acceptable Concentration N/A          |                     |                |                                  |                                      |                        |                        | N/A                      |
| Analyte:<br>CAS:                                  | Pyrene<br>129-00-0  |                |                                  |                                      |                        |                        |                          |
| Concentration                                     | n mg/kg:            | 8.78E-01       |                                  |                                      | Calculated Hazard/Risk |                        |                          |
| RfDo (mg/kg-                                      | day):               | 3.00E-02       | Non-Can                          | cer Adult                            |                        |                        | Cancer                   |
| RfCi (mg/m3)                                      | :                   |                | Ingestion:                       | 2.51E-05                             |                        | Ingestion:             |                          |
| SFO (mg/kg-d                                      | ay)-1:              |                | Dermal:                          | 1.38E-05                             |                        | Dermal:                |                          |
| IUR (µg/m3)-1                                     | 1:                  |                | Inhalation:                      |                                      |                        | Inhalation:            |                          |
| Mutagen:  |                     |                | Total:                           | 3.88E-05                             |                        | Total:                 | 0.00E+00                 |
| VOC:  |                     | Y              |                                  |                                      |                        |                        |                          |
|   | %                   | 6 Contribution | to Media Risk                    | 0.02%                                |                        |                        | 0.00%                    |
|   |                     |                | mg/kg Non-Ca                     | ncer Adult                           |                        |                        | Cancer                   |
| Recommend   | led Acceptabl       | e Concentrati  | on I                             | V/A                                  |                        |                        | N/A                      |
| Analyte:<br>CAS:                                  | Toluene<br>108-88-3 |                |                                  |                                      |                        |                        |                          |
|   |                     |                | ]                                |                                      |                        |                        |                          |
| Concentration                                     |                     | 2.07E+00       |                                  |                                      | Calculated Hazard/Risk |                        |                          |
| RfDo (mg/kg-                                      |                     | 8.00E-02       |                                  | cer Adult                            |                        |                        | Cancer                   |
| RfCi (mg/m3):                                     | :                   | 5.00E+00       | Ingestion:                       | 2.22E-05                             |                        |                        |                          |
|   |                     | J.002+00       | _                                | 2.22E-05                             |                        | Ingestion:             |                          |
| SFO (mg/kg-d                                      |                     | 5.002+00       | Dermal:                          | 2.222-05                             |                        | Ingestion:<br>Dermal:  |                          |
| SFO (mg/kg-d                                      |                     | 5.002100       | _                                | 2.22E-05                             |                        | -                      |                          |
| SFO (mg/kg-d<br>IUR (µg/m3)-1                     |                     | 3.002100       | Dermal:                          |                                      |                        | Dermal:                | 0.00E+00                 |
| SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen:<br>VOC: |                     | Y              | Dermal:<br>Inhalation:           | 2.20E-05                             |                        | Dermal:<br>Inhalation: | 0.00E+00                 |
| SFO (mg/kg-d<br>IUR (µg/m3)-1<br>Mutagen:         | 1:                  | Y              | Dermal:<br>Inhalation:           | 2.20E-05                             |                        | Dermal:<br>Inhalation: | <b>0.00E+00</b><br>0.00% |
| SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen:         | 1:                  | Y              | Dermal:<br>Inhalation:<br>Total: | 2.20E-05<br><b>4.42E-05</b><br>0.02% |                        | Dermal:<br>Inhalation: |                          |

#### Program: Voluntary Remediation Program (VRP)

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|                      | <b>Risk Based Performance Criteria</b> |                                       |
|----------------------|--|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                               | 1.00E-04                              |

# Soil

#### Analyte: Trimethylbenzene, 1,2,4-

| Concentration mg/kg:  |  |   |  |                        |                        |                    |
|---|--|---|--|------------------------|------------------------|--------------------|
|   | 1.47E+00   |   |  | Calculated Hazard/Risk |                        |                    |
| RfDo (mg/kg-day):   | 1.00E-02   | Non-Car   | ncer Adult                                       |                        |                        | Cancer             |
| RfCi (mg/m3):   | 6.00E-02   | Ingestion:  | 1.26E-04   |                        | Ingestion:             |                    |
| SFO (mg/kg-day)-1:  |  | Dermal:   |  |                        | Dermal:                |                    |
| IUR (µg/m3)-1:  |  | Inhalation:   | 7.06E-04   |                        | Inhalation:            |                    |
| Mutagen:  |  | Total:  | 8.31E-04   |                        | Total:                 | 0.00E+00           |
| VOC:  | Y  |   |  |                        |                        |                    |
|   | % Contribution t   | to Media Risk   | 0.46%  |                        |                        | 0.00%              |
|   | r  | mg/kg <i>Non-Ca</i>                                       | ncer Adult                                       |                        |                        | Cancer             |
| Recommended Acceptal  | ble Concentratio   | n l   | N/A  |                        |                        | N/A                |
| -   | ylbenzene, 1,  | 3,5-  |  |                        |                        |                    |
| Analyte: Trimeth<br>CAS: 108-67-8   | ylbenzene, 1,  | 3,5-  |  |                        |                        |                    |
| CAS: 108-67-8   | ylbenzene, 1,3<br>3  | 3,5-  |  | Calculated Hazard/Rick |                        |                    |
| CAS: 108-67-8<br>Concentration mg/kg:   | ylbenzene, 1,  |   | ocer Adult                                       | Calculated Hazard/Risk |                        | Cancer             |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):  | ylbenzene, 1,3<br>3<br>4.37E-01<br>1.00E-02                                      |   | ncer Adult<br>3.74E-05                           | Calculated Hazard/Risk | Ingestion:             | Cancer             |
| CAS: 108-67-8   | ylbenzene, 1,3<br>3<br>4.37E-01<br>1.00E-02<br>6.00E-02                          | Non-Car   |  | Calculated Hazard/Risk | Ingestion:<br>Dermal:  | Cancer             |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):<br>RfCi (mg/m3):   | ylbenzene, 1,3<br>3<br>4.37E-01<br>1.00E-02<br>6.00E-02                          | Non-Car<br>Ingestion:                                     |  | Calculated Hazard/Risk | •                      | Cancer             |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-1:                                       | ylbenzene, 1,3<br>8<br>4.37E-01<br>1.00E-02<br>6.00E-02                          | Non-Car<br>Ingestion:<br>Dermal:                          | 3.74E-05   | Calculated Hazard/Risk | Dermal:                | Cancer<br>0.00E+00 |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-1:<br>IUR (μg/m3)-1:                     | ylbenzene, 1,3<br>8<br>4.37E-01<br>1.00E-02<br>6.00E-02                          | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:           | 3.74E-05<br>2.52E-04                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: |                    |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-1:<br>IUR (μg/m3)-1:<br>Mutagen:<br>VOC: | ylbenzene, 1,3<br>3<br>4.37E-01<br>1.00E-02<br>6.00E-02                          | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | 3.74E-05<br>2.52E-04                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: |                    |
| CAS: 108-67-8<br>Concentration mg/kg:<br>RfDo (mg/kg-day):<br>RfCi (mg/m3):<br>SFO (mg/kg-day)-1:<br>IUR (μg/m3)-1:<br>Mutagen:<br>VOC: | ylbenzene, 1,3<br>3<br>4.37E-01<br>1.00E-02<br>6.00E-02<br>Y<br>% Contribution t | Non-Car<br>Ingestion:<br>Dermal:<br>Inhalation:<br>Total: | 3.74E-05<br>2.52E-04<br><b>2.89E-04</b><br>0.16% | Calculated Hazard/Risk | Dermal:<br>Inhalation: | 0.00E+00           |

#### Analyte: Vanadium and Compounds CAS: 7440-62-2

| Concentration mg/kg: | 4.04E+01       |               |            | Calculated Hazard/Risk |             |          |
|----------------------|----------------|---------------|------------|------------------------|-------------|----------|
| RfDo (mg/kg-day):    | 5.00E-03       | Non-Ca        | ncer Adult |                        |             | Cancer   |
| RfCi (mg/m3):        | 1.00E-04       | Ingestion:    | 6.91E-03   |                        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:       |            |                        | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:   | 6.78E-05   |                        | Inhalation: |          |
| Mutagen:             |                | Total:        | 6.98E-03   |                        | Total:      | 0.00E+00 |
| VOC:                 |                |               |            |                        |             |          |
|                      | % Contribution | to Media Risk | 3.84%      |                        |             | 0.00%    |

#### Program: Voluntary Remediation Program (VRP)

|                      | <u>Risk Based Performance Criteria</u> |                                       |
|----------------------|--|---------------------------------------|
| Default Hazard Index | Default Risk for Individual Chemical   | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                               | 1.00E-04                              |
|                      |  |                                       |

# Soil

|   |                       |                      | mg/kg Non-Ca  | ncer Adult                           |                        |                        | Cancer             |
|---|-----------------------|----------------------|---|--------------------------------------|------------------------|------------------------|--------------------|
| Recommend   | ed Acceptable         | ? Concentrati        | on I  | V/A                                  |                        |                        | N/A                |
| Analyte:  | Xylenes               |                      |   |                                      |                        |                        |                    |
| CAS:  | 1330-20-7             | 1                    |   |                                      |                        |                        |                    |
| Concentratior   | n mg/kg:              | 6.50E+00             |   |                                      | Calculated Hazard/Risk |                        |                    |
| RfDo (mg/kg-0   | day):                 | 2.00E-01             | Non-Can   | cer Adult                            |                        |                        | Cancer             |
| RfCi (mg/m3):   |                       | 1.00E-01             | Ingestion:  | 2.78E-05                             |                        | Ingestion:             |                    |
| SFO (mg/kg-d  | ay)-1:                |                      | Dermal:   |                                      |                        | Dermal:                |                    |
| IUR (µg/m3)-1   | L:                    |                      | Inhalation:   | 2.58E-03                             |                        | Inhalation:            |                    |
| Mutagen:  |                       |                      | Total:  | 2.61E-03                             |                        | Total:                 | 0.00E+00           |
| VOC:  |                       | Y                    |   |                                      |                        |                        |                    |
|   | %                     | Contribution         | to Media Risk   | 1.44%                                |                        |                        | 0.00%              |
|   |                       |                      | mg/kg Non-Ca  | ncer Adult                           |                        |                        | Cancer             |
| Recommend   | ed Acceptable         | ? Concentrati        | on I  | V/A                                  |                        |                        | N/A                |
| Analyte:  | Zinc and C            | Compounds            | 5   |                                      |                        |                        |                    |
| CAS:  | 7440-66-6             | -                    |   |                                      |                        |                        |                    |
| Concentratior   |                       |                      |   |                                      |                        |                        |                    |
| concentration   | n mg/kg:              | 4.97E+01             |   |                                      | Calculated Hazard/Risk |                        |                    |
|   |                       | 4.97E+01<br>3.00E-01 | Non-Can   | icer Adult                           | Calculated Hazard/Risk |                        | Cancer             |
| RfDo (mg/kg-o   | day):                 |                      | Non-Can   | <b>cer Adult</b><br>1.42E-04         | Calculated Hazard/Risk | Ingestion:             | Cancer             |
| RfDo (mg/kg-o<br>RfCi (mg/m3):  | day):                 |                      |   |                                      | Calculated Hazard/Risk | Ingestion:<br>Dermal:  | Cancer             |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1             | day):<br>ay)-1:       |                      | Ingestion:  |                                      | Calculated Hazard/Risk | •                      | Cancer             |
| RfDo (mg/kg-o<br>RfCi (mg/m3):<br>SFO (mg/kg-d                              | day):<br>ay)-1:       |                      | Ingestion:<br>Dermal:                                 |                                      | Calculated Hazard/Risk | Dermal:                | Cancer<br>0.00E+00 |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen: | day):<br>ay)-1:       |                      | Ingestion:<br>Dermal:<br>Inhalation:                  | 1.42E-04                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: |                    |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1<br>Mutagen: | day):<br>ay)-1:<br>L: | 3.00E-01             | Ingestion:<br>Dermal:<br>Inhalation:                  | 1.42E-04                             | Calculated Hazard/Risk | Dermal:<br>Inhalation: |                    |
| RfDo (mg/kg-α<br>RfCi (mg/m3):<br>SFO (mg/kg-d<br>IUR (μg/m3)-1             | day):<br>ay)-1:<br>L: | 3.00E-01             | Ingestion:<br>Dermal:<br>Inhalation:<br><b>Total:</b> | 1.42E-04<br><b>1.42E-04</b><br>0.08% | Calculated Hazard/Risk | Dermal:<br>Inhalation: | 0.00E+00           |

### Total Calculated Hazard Index/Risk for Soil

| Non-Cano    | er Adult | Can         | cer      |
|-------------|----------|-------------|----------|
| Ingestion:  | 1.61E-01 | Ingestion:  | 2.73E-06 |
| Dermal:     | 4.26E-03 | Dermal:     | 6.79E-07 |
| Inhalation: | 1.63E-02 | Inhalation: | 2.35E-07 |
| Total:      | 1.82E-01 | Total:      | 3.65E-06 |

#### Program: Voluntary Remediation Program (VRP)

Default Hazard Index

<u>Risk Based Performance Criteria</u> Default Risk for Individual Chemical

1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

# **Report Summary**

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

#### Hazard/Risk Summary for Soil

| Analyte                        | CAS            | Hazard   | Risk     |
|--------------------------------|----------------|----------|----------|
| Acenaphthene                   | 83-32-9        | 4.56E-06 | 0.00E+00 |
| Acenaphthylene                 | 208-96-8       | 6.19E-06 | 0.00E+00 |
| Acetone                        | 67-64-1        | 1.64E-06 | 0.00E+00 |
| Acetophenone                   | 98-86-2        | 1.29E-06 | 0.00E+00 |
| Aluminum                       | 7429-90-5      | 8.21E-03 | 0.00E+00 |
| Anthracene                     | 120-12-7       | 1.12E-06 | 0.00E+00 |
| Antimony (metallic)            | 7440-36-0      | 2.88E-03 | 0.00E+00 |
| Arsenic, Inorganic             | 7440-38-2      | 1.84E-02 | 2.94E-06 |
| Barium                         | 7440-39-3      | 3.36E-04 | 0.00E+00 |
| Benz[a]anthracene              | 56-55-3        | 0.00E+00 | 2.34E-08 |
| Benzene                        | 71-43-2        | 1.18E-03 | 9.82E-08 |
| Benzo(g,h,i)perylene           | 191-24-2       | 1.09E-05 | 0.00E+00 |
| Benzo[a]pyrene                 | 50-32-8        | 1.51E-03 | 1.59E-07 |
| Benzo[b]fluoranthene           | 205-99-2       | 0.00E+00 | 3.15E-08 |
| Benzo[k]fluoranthene           | 207-08-9       | 0.00E+00 | 1.71E-09 |
| Benzoic Acid                   | 65-85-0        | 3.66E-07 | 0.00E+00 |
| Beryllium and compounds        | 7440-41-7      | 3.93E-04 | 1.30E-10 |
| Bis(2-ethylhexyl)phthalate     | 117-81-7       | 1.41E-05 | 1.41E-09 |
| Butylbenzene, n-               | 104-51-8       | 2.40E-06 | 0.00E+00 |
| Cadmium (Diet)                 | 7440-43-9-Diet | 2.86E-03 | 3.59E-11 |
| Carbazole                      | 86-74-8        | 0.00E+00 | 0.00E+00 |
| Chromium(III), Insoluble Salts | 16065-83-1     | 1.18E-04 | 0.00E+00 |
| Chrysene                       | 218-01-9       | 0.00E+00 | 3.28E-10 |
| Cobalt                         | 7440-48-4      | 2.99E-02 | 5.60E-09 |
| Copper                         | 7440-50-8      | 3.32E-03 | 0.00E+00 |
| Cresol, o-                     | 95-48-7        | 3.17E-06 | 0.00E+00 |
| Cresol, p-chloro-m-            | 59-50-7        | 1.45E-06 | 0.00E+00 |
| Cumene                         | 98-82-8        | 1.69E-05 | 0.00E+00 |
| Cyanide (CN-)                  | 57-12-5        | 5.60E-03 | 0.00E+00 |
| Dibenz[a,h]anthracene          | 53-70-3        | 0.00E+00 | 9.39E-08 |
| Dimethylphenol, 2,4-           | 105-67-9       | 1.22E-05 | 0.00E+00 |
| Ethylbenzene                   | 100-41-4       | 1.96E-05 | 1.34E-08 |

#### Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Hazard/Risk Summary for Soil

| Analyte                          | CAS            | Hazard   | Risk     |
|----------------------------------|----------------|----------|----------|
| Fluoranthene                     | 206-44-0       | 2.97E-05 | 0.00E+00 |
| Fluorene                         | 86-73-7        | 7.63E-06 | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5       | 0.00E+00 | 1.34E-08 |
| Iron                             | 7439-89-6      | 8.04E-02 | 0.00E+00 |
| isopropyltoluene                 | 99-87-6        | 6.76E-06 | 0.00E+00 |
| Lead and Compounds               | 7439-92-1      | 0.00E+00 | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet | 4.89E-03 | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6      | 1.11E-03 | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3        | 2.96E-06 | 0.00E+00 |
| Methylcyclohexane                | 108-87-2       | 0.00E+00 | 0.00E+00 |
| Methylene Chloride               | 75-09-2        | 2.18E-07 | 6.79E-13 |
| Methylnaphthalene, 1-            | 90-12-0        | 4.13E-05 | 3.00E-08 |
| Methylnaphthalene, 2-            | 91-57-6        | 1.16E-03 | 0.00E+00 |
| Naphthalene                      | 91-20-3        | 3.50E-03 | 2.39E-07 |
| Nickel Soluble Salts             | 7440-02-0      | 4.95E-03 | 1.73E-09 |
| Phenanthrene                     | 85-01-8        | 7.51E-05 | 0.00E+00 |
| Pyrene                           | 129-00-0       | 3.88E-05 | 0.00E+00 |
| Toluene                          | 108-88-3       | 4.42E-05 | 0.00E+00 |
| Trimethylbenzene, 1,2,4-         | 95-63-6        | 8.31E-04 | 0.00E+00 |
| Trimethylbenzene, 1,3,5-         | 108-67-8       | 2.89E-04 | 0.00E+00 |
| Vanadium and Compounds           | 7440-62-2      | 6.98E-03 | 0.00E+00 |
| Xylenes                          | 1330-20-7      | 2.61E-03 | 0.00E+00 |
| Zinc and Compounds               | 7440-66-6      | 1.42E-04 | 0.00E+00 |

#### Total Hazard Index/Risk for All Media

| Non-Car      | ncer Adult       | Car            | icer              |
|--------------|------------------|----------------|-------------------|
| Ingestion:   | 1.61E-01         | Ingestion:     | 2.73E-06          |
| Dermal:      | 4.26E-03         | Dermal:        | 6.79E-07          |
| Inhalation:  | 1.63E-02         | Inhalation:    | 2.35E-07          |
| Total:       | 1.82E-01         | Total:         | 3.65E-06          |
| does not exc | eed hazard index | does not excee | d cumulative risk |

#### Program: Voluntary Remediation Program (VRP)

<u>Risk Based Performance Criteria</u> Default Risk for Individual Chemical

Default Hazard Index

1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

#### **Industrial Exposure Default Values**

| Symbol | Description                                    | Value | Units     |
|--------|--|-------|-----------|
| 4Fw    | Composite Worker Soil Adherence Factor         | 0.12  | (mg/cm2)  |
| ATw    | Composite Worker Averaging Time                | 365   | (days/yr) |
| ATw    | Composite Worker Averaging Time: 365 x LT      | 25550 | (days)    |
| ATw-a  | Composite Worker Averaging Time: 365 x EDw     | 9125  | (days)    |
| BWw    | Composite Worker Body Weight                   | 80    | (kg)      |
| EDw    | Composite Worker Total Exposure Duration       | 25    | (yrs)     |
| EFw    | Composite Worker Exposure Frequency            | 250   | (days/yr) |
| ETw    | Composite Worker Exposure Time                 | 8     | (hrs/day) |
| ETw-ai | Composite Worker Air Inhalation Exposure Time  | 8     | (hrs/day) |
| ETw-si | Composite Worker Soil Inhalation Exposure Time | 8     | (hrs/day) |
| IRw    | Composite Worker Soil Ingestion Rate           | 100   | (mg/day)  |
| SAw    | Composite Worker Soil Surface Area             | 3527  | (cm2/day) |

#### **END OF REPORT**

#### **Groundwater Declaration Restricted Use**

Restricted use of groundwater is for onsite use ONLY. Potential offsite risks and receptors are evaluated separately. The nature and extent of the groundwater plume is sufficiently characterized. Concentrations along the vertical and horizontal migration of the plume are stable.

#### No COPCs evaluated in Groundwater

#### ATTACHMENT 3-4 RECREATOR

### Virginia Department of Environmental Quality

# VURAM

### Virginia Unified Risk Assessment Model

### **VERSION: 3.2.1**

### **Recreator Quantitative Risk Assessment Report**

### **Program:** Voluntary Remediation Program (VRP)

#### Site Name: Alexandria

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

#### **Chemical Specific Notes Displayed as Applicable**

Lead

VURAM does not perform an evaluation for lead exposure. Use other approved models for lead modeling.

#### All Report Pages are Required for Risk Assessment Submission

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Acenaphthene CAS: 83-32-9

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 2.06E-01<br>6.00E-02 | Non-Can       | cer Adult |             | l Hazard/Risk<br>ancer Child | c           | Cancer   |
|--|----------------------|---------------|-----------|-------------|------------------------------|-------------|----------|
| RfCi (mg/m3):                              |                      | Ingestion:    | 2.29E-06  | Ingestion:  | 2.45E-05                     | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       | 1.26E-06  | Dermal:     | 7.54E-06                     | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   |           | Inhalation: |                              | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 3.55E-06  | Total:      | 3.20E-05                     | Total:      | 0.00E+00 |
| VOC:                                       | Y                    |               |           |             |                              |             |          |
|  | % Contribution       | to Media Risk | 0.00%     |             | 0.00%                        |             | 0.00%    |

#### Analyte: Acenaphthylene CAS: 208-96-8

| Concentration mg/kg : | 1.40E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | С           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 3.12E-06  | Ingestion:  | 3.32E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 1.71E-06  | Dermal:     | 1.03E-05      | Dermal:     |          |
| IUR (μg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 4.83E-06  | Total:      | 4.35E-05      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

### Analyte: Acetone

CAS: 67-64-1

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| Concentration mg/kg : | 1.72E+00       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 9.00E-01       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | (           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 1.28E-06  | Ingestion:  | 1.36E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 1.28E-06  | Total:      | 1.36E-05      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

Recreator

#### Program: Voluntary Remediation Program (VRP)

#### **Risk Based Performance Criteria**

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Acetophenone CAS: 98-86-2

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 1.51E-01<br>1.00E-01 | Non-Can       | icer Adult |             | l Hazard/Risk<br>ancer Child | C           | Cancer   |
|--|----------------------|---------------|------------|-------------|------------------------------|-------------|----------|
| RfCi (mg/m3):                              |                      | Ingestion:    | 1.01E-06   | Ingestion:  | 1.08E-05                     | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       |            | Dermal:     |                              | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   |            | Inhalation: |                              | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 1.01E-06   | Total:      | 1.08E-05                     | Total:      | 0.00E+00 |
| VOC:                                       | Y                    |               |            |             |                              |             |          |
|  | % Contribution       | to Media Risk | 0.00%      |             | 0.00%                        |             | 0.00%    |

#### Analyte: Aluminum CAS: 7429-90-5

| Concentration mg/kg : | 9.23E+03       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E+00       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 5.00E-03       | Ingestion:    | 6.16E-03  | Ingestion:  | 6.57E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 6.04E-05  | Inhalation: | 6.04E-05    | Inhalation: |          |
| Mutagen:              |                | Total:        | 6.22E-03  | Total:      | 6.58E-02    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 4.69%     |             | 4.81%       |             | 0.00%    |

#### Analyte: Anthracene

CAS:

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120-12-7
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| Concentration mg/kg : | 2.53E-01       |               |           | Calculated  | d Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-01       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | (           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 5.63E-07  | Ingestion:  | 6.01E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 3.09E-07  | Dermal:     | 1.85E-06      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 8.72E-07  | Total:      | 7.86E-06      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

# Analyte:Antimony (metallic)CAS:7440-36-0

| Concentration mg/kg : | 1.34E+00       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-04       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 3.00E-04       | Ingestion:    | 2.24E-03  | Ingestion:  | 2.39E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 1.47E-07  | Inhalation: | 1.47E-07    | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.24E-03  | Total:      | 2.39E-02    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 1.69%     |             | 1.75%       |             | 0.00%    |

# Analyte:Arsenic, InorganicCAS:7440-38-2

| Concentration mg/kg : | 8.80E+00       |               |            | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-04       | Non-Can       | icer Adult | Non-Ca      | ancer Child   | Ca          | ancer    |
| RfCi (mg/m3):         | 1.50E-05       | Ingestion:    | 1.18E-02   | Ingestion:  | 1.25E-01      | Ingestion:  | 6.35E-06 |
| SFO (mg/kg-day)-1:    | 1.50E+00       | Dermal:       | 2.48E-03   | Dermal:     | 1.49E-02      | Dermal:     | 8.93E-07 |
| IUR (µg/m3)-1:        | 4.30E-03       | Inhalation:   | 1.92E-05   | Inhalation: | 1.92E-05      | Inhalation: | 4.60E-10 |
| Mutagen:              |                | Total:        | 1.43E-02   | Total:      | 1.40E-01      | Total:      | 7.24E-06 |
| VOC:                  |                |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 10.75%     |             | 10.26%        |             | 66.06%   |

Exceeds Risk!

### Analyte: Barium

CAS: 7440-39-3

| Concentration mg/kg : | 7.27E+01       |               |            |             | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-01       | Non-Car       | icer Adult | Non-Ca      | ncer Child  | C           | Cancer   |
| RfCi (mg/m3):         | 5.00E-04       | Ingestion:    | 2.43E-04   | Ingestion:  | 2.59E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |            | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 4.76E-06   | Inhalation: | 4.76E-06    | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.48E-04   | Total:      | 2.59E-03    | Total:      | 0.00E+00 |
| VOC:                  |                |               |            |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.19%      |             | 0.19%       |             | 0.00%    |

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

# Analyte:Benz[a]anthraceneCAS:56-55-3

| Concentration mg/kg : | 4.82E-01       |               |            | Calculated  | d Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Car       | ncer Adult | Non-Ca      | ancer Child   | Ca          | incer    |
| RfCi (mg/m3):         |                | Ingestion:    |            | Ingestion:  |               | Ingestion:  | 1.75E-07 |
| SFO (mg/kg-day)-1:    | 1.00E-01       | Dermal:       |            | Dermal:     |               | Dermal:     | 5.85E-08 |
| IUR (µg/m3)-1:        | 6.00E-05       | Inhalation:   |            | Inhalation: |               | Inhalation: | 3.01E-10 |
| Mutagen:              | Y              | Total:        | 0.00E+00   | Total:      | 0.00E+00      | Total:      | 2.34E-07 |
| VOC:                  | Y              |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%         |             | 2.14%    |

#### Analyte: Benzene CAS: 71-43-2

| CAS:        | 71-43-2   |          |
|-------------|-----------|----------|
| Concontrati | on malkas | F 00F 01 |

| Concentration mg/kg: | 5.00E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-03       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):        | 3.00E-02       | Ingestion:    | 8.35E-05  | Ingestion:  | 8.90E-04    | Ingestion:  | 2.20E-08 |
| SFO (mg/kg-day)-1:   | 5.50E-02       | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       | 7.80E-06       | Inhalation:   | 2.10E-04  | Inhalation: | 2.10E-04    | Inhalation: | 1.82E-08 |
| Mutagen:             |                | Total:        | 2.93E-04  | Total:      | 1.10E-03    | Total:      | 4.03E-08 |
| VOC:                 | Y              |               |           |             |             |             |          |
|                      | % Contribution | to Media Risk | 0.22%     |             | 0.08%       |             | 0.37%    |

### Analyte: Benzo(g,h,i)perylene

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| Concentration mg/kg : | 2.47E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | C           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 5.50E-06  | Ingestion:  | 5.86E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 3.02E-06  | Dermal:     | 1.81E-05      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 8.52E-06  | Total:      | 7.67E-05      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.01%     |             | 0.01%         |             | 0.00%    |

Recreator

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

| Analyte: | Benzo[a]pyrene |
|----------|----------------|
| CAS:     | 50-32-8        |

| Concentration mg/kg : | 3.36E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-04       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 2.00E-06       | Ingestion:    | 7.48E-04  | Ingestion:  | 7.98E-03    | Ingestion:  | 1.22E-06 |
| SFO (mg/kg-day)-1:    | 1.00E+00       | Dermal:       | 4.11E-04  | Dermal:     | 2.46E-03    | Dermal:     | 4.08E-07 |
| IUR (µg/m3)-1:        | 6.00E-04       | Inhalation:   | 5.50E-06  | Inhalation: | 5.50E-06    | Inhalation: | 6.79E-12 |
| Mutagen:              | Y              | Total:        | 1.16E-03  | Total:      | 1.04E-02    | Total:      | 1.63E-06 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.88%     |             | 0.76%       |             | 14.88%   |

Exceeds Risk!

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# Analyte:Benzo[b]fluorantheneCAS:205-99-2

| Concentration mg/kg : | 6.65E-01       |               |            | Calculate   | d Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Car       | ncer Adult | Non-C       | Cancer Child  | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    |            | Ingestion:  |               | Ingestion:  | 2.42E-07 |
| SFO (mg/kg-day)-1:    | 1.00E-01       | Dermal:       |            | Dermal:     |               | Dermal:     | 8.07E-08 |
| IUR (µg/m3)-1:        | 6.00E-05       | Inhalation:   |            | Inhalation: |               | Inhalation: | 1.34E-12 |
| Mutagen:              | Y              | Total:        | 0.00E+00   | Total:      | 0.00E+00      | Total:      | 3.23E-07 |
| VOC:                  |                |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%         |             | 2.94%    |

### Analyte: Benzo[k]fluoranthene

CAS: 207-08-9

| Concentration mg/kg : | 3.61E-01       |               |            | Calculated  | d Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Can       | icer Adult | Non-Ca      | ancer Child   | Ca          | incer    |
| RfCi (mg/m3):         |                | Ingestion:    |            | Ingestion:  |               | Ingestion:  | 1.31E-08 |
| SFO (mg/kg-day)-1:    | 1.00E-02       | Dermal:       |            | Dermal:     |               | Dermal:     | 4.38E-09 |
| IUR (µg/m3)-1:        | 6.00E-06       | Inhalation:   |            | Inhalation: |               | Inhalation: | 7.29E-14 |
| Mutagen:              | Y              | Total:        | 0.00E+00   | Total:      | 0.00E+00      | Total:      | 1.75E-08 |
| VOC:                  |                |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%         |             | 0.16%    |

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### **Risk Based Performance Criteria**

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

| Analyte: | Benzoic Acid |
|----------|--------------|
| CAS:     | 65-85-0      |

| Concentration mg/kg : | 1.20E+00       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E+00       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 2.00E-07  | Ingestion:  | 2.14E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 8.46E-08  | Dermal:     | 5.07E-07      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.85E-07  | Total:      | 2.64E-06      | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

| Analyte: | Beryllium and compounds |
|----------|-------------------------|
| CAS:     | 7440-41-7               |

| Concentration mg/kg : | 9.00E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-03       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ncer     |
| RfCi (mg/m3):         | 2.00E-05       | Ingestion:    | 3.01E-04  | Ingestion:  | 3.21E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        | 2.40E-03       | Inhalation:   | 1.47E-06  | Inhalation: | 1.47E-06    | Inhalation: | 2.63E-11 |
| Mutagen:              |                | Total:        | 3.02E-04  | Total:      | 3.21E-03    | Total:      | 2.63E-11 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.23%     |             | 0.23%       |             | 0.00%    |

#### Bis(2-ethylhexyl)phthalate Analyte:

CAS:

117-81-7

| Concentration mg/kg : | 2.31E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 7.71E-06  | Ingestion:  | 8.23E-05    | Ingestion:  | 2.59E-09 |
| SFO (mg/kg-day)-1:    | 1.40E-02       | Dermal:       | 3.26E-06  | Dermal:     | 1.95E-05    | Dermal:     | 7.29E-10 |
| IUR (μg/m3)-1:        | 2.40E-06       | Inhalation:   |           | Inhalation: |             | Inhalation: | 6.74E-15 |
| Mutagen:              |                | Total:        | 1.10E-05  | Total:      | 1.02E-04    | Total:      | 3.32E-09 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.01%     |             | 0.01%       |             | 0.03%    |

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Butylbenzene, n-CAS: 104-51-8

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 1.40E-01<br>5.00E-02 | Non-Can       | cer Adult |             | l Hazard/Risk<br>ancer Child | c           | ancer    |
|--|----------------------|---------------|-----------|-------------|------------------------------|-------------|----------|
| RfCi (mg/m3):                              |                      | Ingestion:    | 1.87E-06  | Ingestion:  | 1.99E-05                     | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       |           | Dermal:     |                              | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   |           | Inhalation: |                              | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 1.87E-06  | Total:      | 1.99E-05                     | Total:      | 0.00E+00 |
| VOC:                                       | Y                    |               |           |             |                              |             |          |
|  | % Contribution       | to Media Risk | 0.00%     |             | 0.00%                        |             | 0.00%    |

#### Analyte: Cadmium (Diet) CAS: 7440-43-9-Diet

| Concentration mg/kg : | 3.33E-01       |                                   |          | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|-----------------------------------|----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-04       | Non-Cancer Adult Non-Cancer Child |          | Ca          | ancer       |             |          |
| RfCi (mg/m3):         | 1.00E-05       | Ingestion:                        | 2.22E-03 | Ingestion:  | 2.37E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:                           | 3.76E-04 | Dermal:     | 2.25E-03    | Dermal:     |          |
| IUR (µg/m3)-1:        | 1.80E-03       | Inhalation:                       | 1.09E-06 | Inhalation: | 1.09E-06    | Inhalation: | 7.29E-12 |
| Mutagen:              |                | Total:                            | 2.60E-03 | Total:      | 2.60E-02    | Total:      | 7.29E-12 |
| VOC:                  |                |                                   |          |             |             |             |          |
|                       | % Contribution | to Media Risk                     | 1.96%    |             | 1.90%       |             | 0.00%    |

### Analyte: Carbazole

CAS: 86-74-8

| Concentration mg/kg : | 2.42E-01       | Calculated Hazard/Risk |           |             |             |             |          |
|-----------------------|----------------|------------------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Can                | cer Adult | Non-Ca      | ancer Child | (           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:             |           | Ingestion:  |             | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:                |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:            |           | Inhalation: |             | Inhalation: |          |
| Mutagen:              |                | Total:                 | 0.00E+00  | Total:      | 0.00E+00    | Total:      | 0.00E+00 |
| VOC:                  |                |                        |           |             |             |             |          |
|                       | % Contribution | to Media Risk          | 0.00%     |             | 0.00%       |             | 0.00%    |

#### Program: Voluntary Remediation Program (VRP)

Recreator

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Chromium(III), Insoluble Salts

CAS: 16065-83-1

| Concentration mg/kg : | 2.06E+02       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.50E+00       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 9.17E-05  | Ingestion:  | 9.78E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |             | Inhalation: |          |
| Mutagen:              |                | Total:        | 9.17E-05  | Total:      | 9.78E-04    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.07%     |             | 0.07%       |             | 0.00%    |

# Analyte: Chrysene CAS: 218-01-9

| Concentration mg/kg : | 6.91E-01       |               |            | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Can       | icer Adult | Non-Ca      | ancer Child   | Ca          | incer    |
| RfCi (mg/m3):         |                | Ingestion:    |            | Ingestion:  |               | Ingestion:  | 2.51E-09 |
| SFO (mg/kg-day)-1:    | 1.00E-03       | Dermal:       |            | Dermal:     |               | Dermal:     | 8.39E-10 |
| IUR (µg/m3)-1:        | 6.00E-07       | Inhalation:   |            | Inhalation: |               | Inhalation: | 1.40E-14 |
| Mutagen:              | Y              | Total:        | 0.00E+00   | Total:      | 0.00E+00      | Total:      | 3.35E-09 |
| VOC:                  |                |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%         |             | 0.03%    |

### Analyte: Cobalt

CAS: 7440-48-4

| Concentration mg/kg : | 1.04E+01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-04       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 6.00E-06       | Ingestion:    | 2.31E-02  | Ingestion:  | 2.46E-01    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (μg/m3)-1:        | 9.00E-03       | Inhalation:   | 5.66E-05  | Inhalation: | 5.66E-05    | Inhalation: | 1.13E-09 |
| Mutagen:              |                | Total:        | 2.31E-02  | Total:      | 2.46E-01    | Total:      | 1.13E-09 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 17.45%    |             | 18.02%      |             | 0.01%    |

Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Copper CAS: 7440-50-8

| Concentration mg/kg : | 1.55E+02       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-02       | Non-Can       | cer Adult | Non-Ca      | ncer Child    | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 2.59E-03  | Ingestion:  | 2.76E-02      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |               | Dermal:     |          |
| IUR (μg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.59E-03  | Total:      | 2.76E-02      | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 1.95%     |             | 2.02%         |             | 0.00%    |

#### Analyte: Cresol, o-CAS: 95-48-7

| Concentration mg/kg : | 1.30E-01       |               |            | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 5.00E-02       | Non-Car       | ncer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 6.00E-01       | Ingestion:    | 1.74E-06   | Ingestion:  | 1.85E-05    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 7.33E-07   | Dermal:     | 4.39E-06    | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 7.09E-12   | Inhalation: | 7.09E-12    | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.47E-06   | Total:      | 2.29E-05    | Total:      | 0.00E+00 |
| VOC:                  |                |               |            |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%       |             | 0.00%    |

### Analyte: Cresol, p-chloro-m-

1

CAS: 59-50-7

| Concentration mg/kg : | 1.19E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-01       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 7.95E-07  | Ingestion:  | 8.48E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 3.36E-07  | Dermal:     | 2.01E-06      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 1.13E-06  | Total:      | 1.05E-05      | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

| Risk Based | Performance Criteria |
|------------|----------------------|
|            |                      |

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Cumene CAS: 98-82-8

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 1.68E-01<br>1.00E-01 | Non-Can       | cer Adult |             | Hazard/Risk<br>ncer Child | Ca          | ancer    |
|--|----------------------|---------------|-----------|-------------|---------------------------|-------------|----------|
| RfCi (mg/m3):                              | 4.00E-01             | Ingestion:    | 1.12E-06  | Ingestion:  | 1.20E-05                  | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       |           | Dermal:     |                           | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   | 3.01E-06  | Inhalation: | 3.01E-06                  | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 4.13E-06  | Total:      | 1.50E-05                  | Total:      | 0.00E+00 |
| VOC:                                       | Y                    |               |           |             |                           |             |          |
|  | % Contribution       | to Media Risk | 0.00%     |             | 0.00%                     |             | 0.00%    |

# Analyte:Cyanide (CN-)CAS:57-12-5

| Concentration mg/kg : | 8.26E-01       |               |            | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 6.00E-04       | Non-Can       | icer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 8.00E-04       | Ingestion:    | 9.19E-04   | Ingestion:  | 9.81E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |            | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 8.62E-04   | Inhalation: | 8.62E-04    | Inhalation: |          |
| Mutagen:              |                | Total:        | 1.78E-03   | Total:      | 1.07E-02    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |            |             |             |             |          |
|                       | % Contribution | to Media Risk | 1.34%      |             | 0.78%       |             | 0.00%    |

#### Analyte: Dibenz[a,h]anthracene

CAS: 53-70-3

| Concentration mg/kg : | 1.98E-01       | Calculated Hazard/Risk |            |             |             |             |          |
|-----------------------|----------------|------------------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Car                | ncer Adult | Non-C       | ancer Child | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:             |            | Ingestion:  |             | Ingestion:  | 7.20E-07 |
| SFO (mg/kg-day)-1:    | 1.00E+00       | Dermal:                |            | Dermal:     |             | Dermal:     | 2.40E-07 |
| IUR (µg/m3)-1:        | 6.00E-04       | Inhalation:            |            | Inhalation: |             | Inhalation: | 4.00E-12 |
| Mutagen:              | Y              | Total:                 | 0.00E+00   | Total:      | 0.00E+00    | Total:      | 9.61E-07 |
| VOC:                  |                |                        |            |             |             |             |          |
|                       | % Contribution | to Media Risk          | 0.00%      |             | 0.00%       |             | 8.77%    |

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Dimethylphenol, 2,4-CAS: 105-67-9

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 2.00E-01<br>2.00E-02 | Non-Can       | cer Adult |             | l Hazard/Risk<br>ancer Child | С           | ancer    |
|--|----------------------|---------------|-----------|-------------|------------------------------|-------------|----------|
| RfCi (mg/m3):                              |                      | Ingestion:    | 6.68E-06  | Ingestion:  | 7.12E-05                     | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       | 2.82E-06  | Dermal:     | 1.69E-05                     | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   |           | Inhalation: |                              | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 9.50E-06  | Total:      | 8.81E-05                     | Total:      | 0.00E+00 |
| VOC:                                       |                      |               |           |             |                              |             |          |
|  | % Contribution       | to Media Risk | 0.01%     |             | 0.01%                        |             | 0.00%    |

#### Analyte: Ethylbenzene CAS: 100-41-4

| Concentration mg/kg : | 3.42E-01       |               |            | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 5.00E-02       | Non-Can       | icer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 1.00E+00       | Ingestion:    | 4.57E-06   | Ingestion:  | 4.87E-05    | Ingestion:  | 3.01E-09 |
| SFO (mg/kg-day)-1:    | 1.10E-02       | Dermal:       |            | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        | 2.50E-06       | Inhalation:   | 2.69E-06   | Inhalation: | 2.69E-06    | Inhalation: | 2.49E-09 |
| Mutagen:              |                | Total:        | 7.25E-06   | Total:      | 5.14E-05    | Total:      | 5.51E-09 |
| VOC:                  | Y              |               |            |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.01%      |             | 0.00%       |             | 0.05%    |

#### Analyte: Fluoranthene CAS: 206-44-0

| Concentration mg/kg : | 8.95E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | С           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 1.49E-05  | Ingestion:  | 1.59E-04      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 8.20E-06  | Dermal:     | 4.92E-05      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.31E-05  | Total:      | 2.09E-04      | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.02%     |             | 0.02%         |             | 0.00%    |

Wednesday, December 6, 2023

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

| Analyte: | Fluorene |
|----------|----------|
| CAS:     | 86-73-7  |

| Concentration mg/kg : | 2.30E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 3.84E-06  | Ingestion:  | 4.10E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 2.11E-06  | Dermal:     | 1.26E-05      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 5.95E-06  | Total:      | 5.36E-05      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

| Analyte: | Indeno[1,2,3-cd]pyrene |
|----------|------------------------|
| CAS:     | 193-39-5               |

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1

| Concentration mg/kg : | 2.82E-01       | Calculated Hazard/Risk |            |             |              |             |          |
|-----------------------|----------------|------------------------|------------|-------------|--------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Car                | ncer Adult | Non-C       | Cancer Child | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:             |            | Ingestion:  |              | Ingestion:  | 1.03E-07 |
| SFO (mg/kg-day)-1:    | 1.00E-01       | Dermal:                |            | Dermal:     |              | Dermal:     | 3.42E-08 |
| IUR (µg/m3)-1:        | 6.00E-05       | Inhalation:            |            | Inhalation: |              | Inhalation: | 5.70E-13 |
| Mutagen:              | Y              | Total:                 | 0.00E+00   | Total:      | 0.00E+00     | Total:      | 1.37E-07 |
| VOC:                  |                |                        |            |             |              |             |          |
|                       | % Contribution | to Media Risk          | 0.00%      |             | 0.00%        |             | 1.25%    |

### Analyte: Iron

Г

CAS: 7439-89-6

| Concentration mg/kg : | 6.57E+04       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 7.00E-01       | Non-Can       | cer Adult | Non-Ca      | ancer Child | (           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    | 6.27E-02  | Ingestion:  | 6.69E-01    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |             | Inhalation: |          |
| Mutagen:              |                | Total:        | 6.27E-02  | Total:      | 6.69E-01    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 47.26%    |             | 48.92%      |             | 0.00%    |

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: isopropyltoluene CAS: 99-87-6

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 9.93E-02<br>1.00E-01 | Non-Can       | cer Adult |             | Hazard/Risk | Ca          | ancer    |
|--|----------------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfCi (mg/m3):                              | 4.00E-01             | Ingestion:    | 6.63E-07  | Ingestion:  | 7.07E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   | 1.15E-06  | Inhalation: | 1.15E-06    | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 1.81E-06  | Total:      | 8.23E-06    | Total:      | 0.00E+00 |
| VOC:                                       | Y                    |               |           |             |             |             |          |
|  | % Contribution       | to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

# Analyte:Lead and CompoundsCAS:7439-92-1

| Concentration mg/kg : | 2.05E+01       |               |            | Calculated  | d Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     |                | Non-Can       | icer Adult | Non-C       | ancer Child   | C           | Cancer   |
| RfCi (mg/m3):         |                | Ingestion:    |            | Ingestion:  |               | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |            | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |            | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 0.00E+00   | Total:      | 0.00E+00      | Total:      | 0.00E+00 |
| VOC:                  |                |               |            |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.00%      |             | 0.00%         |             | 0.00%    |

### Analyte: Manganese (Diet)

#### CAS: 7439-96-5-Diet

| Concentration mg/kg : | 5.16E+02       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.40E-01       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 5.00E-05       | Ingestion:    | 2.46E-03  | Ingestion:  | 2.63E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 3.38E-04  | Inhalation: | 3.38E-04    | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.80E-03  | Total:      | 2.66E-02    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 2.11%     |             | 1.95%       |             | 0.00%    |

Recreator

#### Program: Voluntary Remediation Program (VRP)

#### **Risk Based Performance Criteria**

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Mercury (elemental) CAS: 7439-97-6

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 5.07E-02       | Non-Can       | icer Adult | Cancer      |          |             |          |
|--|----------------|---------------|------------|-------------|----------|-------------|----------|
| RfCi (mg/m3):                              | 3.00E-04       | Ingestion:    |            | Ingestion:  |          | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                | Dermal:       |            | Dermal:     |          | Dermal:     |          |
| IUR (μg/m3)-1:                             |                | Inhalation:   | 2.17E-04   | Inhalation: | 2.17E-04 | Inhalation: |          |
| Mutagen:                                   |                | Total:        | 2.17E-04   | Total:      | 2.17E-04 | Total:      | 0.00E+00 |
| VOC:                                       | Y              |               |            |             |          |             |          |
|  | % Contribution | to Media Risk | 0.16%      |             | 0.02%    |             | 0.00%    |

#### Analyte: Methyl Ethyl Ketone (2-Butanone) CAS: 78-93-3

| Concentration mg/kg : | 5.73E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 6.00E-01       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 5.00E+00       | Ingestion:    | 6.38E-07  | Ingestion:  | 6.80E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 4.18E-07  | Inhalation: | 4.18E-07    | Inhalation: |          |
| Mutagen:              |                | Total:        | 1.06E-06  | Total:      | 7.22E-06    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

#### Analyte: Methylcyclohexane CAS:

108-87-2

| Concentration mg/kg :        | 7.39E+00 | Calculated Hazard/Risk |          |             |             |             |          |  |
|------------------------------|----------|------------------------|----------|-------------|-------------|-------------|----------|--|
| RfDo (mg/kg-day):            |          | Non-Cancer Adult       |          | Non-Ca      | ancer Child | Cancer      |          |  |
| RfCi (mg/m3):                |          | Ingestion:             |          | Ingestion:  |             | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:           |          | Dermal:                |          | Dermal:     |             | Dermal:     |          |  |
| IUR (µg/m3)-1:               |          | Inhalation:            |          | Inhalation: |             | Inhalation: |          |  |
| Mutagen:                     |          | Total:                 | 0.00E+00 | Total:      | 0.00E+00    | Total:      | 0.00E+00 |  |
| VOC:                         |          |                        |          |             |             |             |          |  |
| % Contribution to Media Risk |          | 0.00%                  |          | 0.00%       |             | 0.00%       |          |  |

#### Program: Voluntary Remediation Program (VRP)

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Recreator

#### **Risk Based Performance Criteria**

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

| Analyte: | Methylene Chloride |
|----------|--------------------|
| CAS:     | 75-09-2            |

| Concentration mg/kg : | 6.90E-04       |                  |          | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|------------------|----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 6.00E-03       | Non-Cancer Adult |          | Non-Ca      | ncer Child  | Cancer      |          |
| RfCi (mg/m3):         | 6.00E-01       | Ingestion:       | 7.68E-08 | Ingestion:  | 8.19E-07    | Ingestion:  | 5.02E-12 |
| SFO (mg/kg-day)-1:    | 2.00E-03       | Dermal:          |          | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        | 1.00E-08       | Inhalation:      | 2.34E-08 | Inhalation: | 2.34E-08    | Inhalation: | 1.44E-13 |
| Mutagen:              | Y              | Total:           | 1.00E-07 | Total:      | 8.43E-07    | Total:      | 5.16E-12 |
| VOC:                  | Y              |                  |          |             |             |             |          |
|                       | % Contribution | to Media Risk    | 0.00%    |             | 0.00%       |             | 0.00%    |

| Analyte: | Methylnaphthalene, 1- |
|----------|-----------------------|
| CAS:     | 90-12-0               |

| Concentration mg/kg : | 2.18E+00       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 7.00E-02       | Non-Can       | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 2.08E-05  | Ingestion:  | 2.22E-04      | Ingestion:  | 5.06E-08 |
| SFO (mg/kg-day)-1:    | 2.90E-02       | Dermal:       | 1.14E-05  | Dermal:     | 6.84E-05      | Dermal:     | 1.85E-08 |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 3.22E-05  | Total:      | 2.90E-04      | Total:      | 6.92E-08 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.02%     |             | 0.02%         |             | 0.63%    |

#### Analyte: Methylnaphthalene, 2-

CAS: 91-57-6

| Concentration mg/kg : | 3.51E+00       |               |            | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|------------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 4.00E-03       | Non-Car       | icer Adult | Non-Ca      | ncer Child  | С           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 5.86E-04   | Ingestion:  | 6.25E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 3.22E-04   | Dermal:     | 1.93E-03    | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |            | Inhalation: |             | Inhalation: |          |
| Mutagen:              |                | Total:        | 9.08E-04   | Total:      | 8.18E-03    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |            |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.68%      |             | 0.60%       |             | 0.00%    |

#### Recreator

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

| Analyte: | Naphthalene |
|----------|-------------|
| CAS:     | 91-20-3     |

| Concentration mg/kg :        | 2.05E+00 | Calculated Hazard/Risk |           |             |             |             |          |
|------------------------------|----------|------------------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):            | 2.00E-02 | Non-Can                | cer Adult | Non-Ca      | ancer Child | Ca          | ancer    |
| RfCi (mg/m3):                | 3.00E-03 | Ingestion:             | 6.83E-05  | Ingestion:  | 7.29E-04    | Ingestion:  | 1.97E-07 |
| SFO (mg/kg-day)-1:           | 1.20E-01 | Dermal:                | 3.75E-05  | Dermal:     | 2.25E-04    | Dermal:     | 7.20E-08 |
| IUR (μg/m3)-1:               | 3.40E-05 | Inhalation:            | 6.56E-04  | Inhalation: | 6.56E-04    | Inhalation: | 2.48E-08 |
| Mutagen:                     |          | Total:                 | 7.62E-04  | Total:      | 1.61E-03    | Total:      | 2.94E-07 |
| VOC:                         | Y        |                        |           |             |             |             |          |
| % Contribution to Media Risk |          | 0.57%                  |           | 0.12%       |             | 2.68%       |          |

| Analyte: | Nickel Soluble Salts |
|----------|----------------------|
| CAS:     | 7440-02-0            |

| Concentration mg/kg : | 1.11E+02       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-02       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 9.00E-05       | Ingestion:    | 3.70E-03  | Ingestion:  | 3.95E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        | 2.60E-04       | Inhalation:   | 4.03E-05  | Inhalation: | 4.03E-05    | Inhalation: | 3.51E-10 |
| Mutagen:              |                | Total:        | 3.74E-03  | Total:      | 3.95E-02    | Total:      | 3.51E-10 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 2.82%     |             | 2.89%       |             | 0.00%    |

### Analyte: Phenanthrene

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CAS: 85-01-8
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| Concentration mg/kg : | 1.70E+00       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | c           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 3.78E-05  | Ingestion:  | 4.03E-04      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 2.07E-05  | Dermal:     | 1.24E-04      | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 5.85E-05  | Total:      | 5.27E-04      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.04%     |             | 0.04%         |             | 0.00%    |

#### Recreator

Cancer

0.01%

0.00E+00

0.00%

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

#### Analyte: Pyrene CAS: 129-00-0

| Concentration mg/kg : | 8.78E-01       |               |           | Calculated  | l Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):     | 3.00E-02       | Non-Can       | cer Adult | Non-Ca      | ancer Child   | C           | ancer    |
| RfCi (mg/m3):         |                | Ingestion:    | 1.95E-05  | Ingestion:  | 2.08E-04      | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       | 1.07E-05  | Dermal:     | 6.43E-05      | Dermal:     |          |
| IUR (μg/m3)-1:        |                | Inhalation:   |           | Inhalation: |               | Inhalation: |          |
| Mutagen:              |                | Total:        | 3.03E-05  | Total:      | 2.73E-04      | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |               |             |          |
|                       | % Contribution | to Media Risk | 0.02%     |             | 0.02%         |             | 0.00%    |

#### Analyte: Toluene CAS: 108-88-3

|                       |          | _           |            |             |             |             |
|-----------------------|----------|-------------|------------|-------------|-------------|-------------|
| Concentration mg/kg : | 2.07E+00 |             |            | Calculated  | Hazard/Risk |             |
| RfDo (mg/kg-day):     | 8.00E-02 | Non-Ca      | ncer Adult | Non-Ca      | ncer Child  | C           |
| RfCi (mg/m3):         | 5.00E+00 | Ingestion:  | 1.73E-05   | Ingestion:  | 1.84E-04    | Ingestion:  |
| SFO (mg/kg-day)-1:    |          | Dermal:     |            | Dermal:     |             | Dermal:     |
| IUR (µg/m3)-1:        |          | Inhalation: | 4.30E-06   | Inhalation: | 4.30E-06    | Inhalation: |
| Mutagen:              |          | Total:      | 2.16E-05   | Total:      | 1.89E-04    | Total:      |
| VOC:                  | Y        |             |            |             |             |             |

% Contribution to Media Risk 0.02%

#### Analyte: Trimethylbenzene, 1,2,4-

CAS: 95-63-6

| Concentration mg/kg : | 1.47E+00       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-02       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 6.00E-02       | Ingestion:    | 9.80E-05  | Ingestion:  | 1.04E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 1.38E-04  | Inhalation: | 1.38E-04    | Inhalation: |          |
| Mutagen:              |                | Total:        | 2.36E-04  | Total:      | 1.18E-03    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.18%     |             | 0.09%       |             | 0.00%    |

#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

| Default Hazard Index | Default Risk for Individual Chemical | Default Cumulative Risk-All Chemicals |
|----------------------|--------------------------------------|---------------------------------------|
| 1                    | 1.00E-06                             | 1.00E-04                              |

### Soil

### Analyte: Trimethylbenzene, 1,3,5-

CAS: 108-67-8

| Concentration mg/kg : | 4.37E-01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 1.00E-02       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | C           | ancer    |
| RfCi (mg/m3):         | 6.00E-02       | Ingestion:    | 2.92E-05  | Ingestion:  | 3.11E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 4.91E-05  | Inhalation: | 4.91E-05    | Inhalation: |          |
| Mutagen:              |                | Total:        | 7.82E-05  | Total:      | 3.60E-04    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.06%     |             | 0.03%       |             | 0.00%    |

# Analyte:Vanadium and CompoundsCAS:7440-62-2

| Concentration mg/kg : | 4.04E+01       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 5.00E-03       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):         | 1.00E-04       | Ingestion:    | 5.39E-03  | Ingestion:  | 5.75E-02    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:        |                | Inhalation:   | 1.32E-05  | Inhalation: | 1.32E-05    | Inhalation: |          |
| Mutagen:              |                | Total:        | 5.40E-03  | Total:      | 5.75E-02    | Total:      | 0.00E+00 |
| VOC:                  |                |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 4.07%     |             | 4.21%       |             | 0.00%    |

### Analyte: Xylenes

CAS: 1330-20-7

| Concentration mg/kg : | 6.50E+00       |               |           | Calculated  | Hazard/Risk |             |          |
|-----------------------|----------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):     | 2.00E-01       | Non-Can       | cer Adult | Non-Ca      | ncer Child  | С           | ancer    |
| RfCi (mg/m3):         | 1.00E-01       | Ingestion:    | 2.17E-05  | Ingestion:  | 2.31E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:    |                | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (μg/m3)-1:        |                | Inhalation:   | 5.04E-04  | Inhalation: | 5.04E-04    | Inhalation: |          |
| Mutagen:              |                | Total:        | 5.26E-04  | Total:      | 7.35E-04    | Total:      | 0.00E+00 |
| VOC:                  | Y              |               |           |             |             |             |          |
|                       | % Contribution | to Media Risk | 0.40%     |             | 0.05%       |             | 0.00%    |

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#### Program: Voluntary Remediation Program (VRP)

#### Risk Based Performance Criteria

Default Hazard IndexDefault Risk for Individual ChemicalDefault Cumulative Risk-All Chemicals11.00E-061.00E-04

### Soil

# Analyte:Zinc and CompoundsCAS:7440-66-6

| Concentration mg/kg :<br>RfDo (mg/kg-day): | 4.97E+01<br>3.00E-01 | Non-Can       | cer Adult |             | Hazard/Risk | (           | Cancer   |
|--|----------------------|---------------|-----------|-------------|-------------|-------------|----------|
| RfCi (mg/m3):                              |                      | Ingestion:    | 1.11E-04  | Ingestion:  | 1.18E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:                         |                      | Dermal:       |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:                             |                      | Inhalation:   |           | Inhalation: |             | Inhalation: |          |
| Mutagen:                                   |                      | Total:        | 1.11E-04  | Total:      | 1.18E-03    | Total:      | 0.00E+00 |
| VOC:                                       |                      |               |           |             |             |             |          |
|  | % Contribution       | to Media Risk | 0.08%     |             | 0.09%       |             | 0.00%    |

#### Total Calculated Hazard Index/Risk for Soil

| Non-Cancer Adult |          | Non-Cancer Child |          | Cancer      |          |
|------------------|----------|------------------|----------|-------------|----------|
| Ingestion:       | 1.26E-01 | Ingestion:       | 1.34E+00 | Ingestion:  | 9.10E-06 |
| Dermal:          | 3.69E-03 | Dermal:          | 2.21E-02 | Dermal:     | 1.81E-06 |
| Inhalation:      | 3.19E-03 | Inhalation:      | 3.19E-03 | Inhalation: | 4.79E-08 |
| Total:           | 1.33E-01 | Total:           | 1.37E+00 | Total:      | 1.10E-05 |

Voluntary Remediation Program (VRP)

Default Hazard Index

Risk Based Performance Criteria

Default Risk for Individual Chemical 1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

# **Report Summary**

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

# Hazard/Risk Summary for Soil

| Analyte                        | CAS            | Hazard Adult | Hazard Child | Risk     |
|--------------------------------|----------------|--------------|--------------|----------|
| Acenaphthene                   | 83-32-9        | 3.55E-06     | 3.20E-05     | 0.00E+00 |
| Acenaphthylene                 | 208-96-8       | 4.83E-06     | 4.35E-05     | 0.00E+00 |
| Acetone                        | 67-64-1        | 1.28E-06     | 1.36E-05     | 0.00E+00 |
| Acetophenone                   | 98-86-2        | 1.01E-06     | 1.08E-05     | 0.00E+00 |
| Aluminum                       | 7429-90-5      | 6.22E-03     | 6.58E-02     | 0.00E+00 |
| Anthracene                     | 120-12-7       | 8.72E-07     | 7.86E-06     | 0.00E+00 |
| Antimony (metallic)            | 7440-36-0      | 2.24E-03     | 2.39E-02     | 0.00E+00 |
| Arsenic, Inorganic             | 7440-38-2      | 1.43E-02     | 1.40E-01     | 7.24E-06 |
| Barium                         | 7440-39-3      | 2.48E-04     | 2.59E-03     | 0.00E+00 |
| Benz[a]anthracene              | 56-55-3        | 0.00E+00     | 0.00E+00     | 2.34E-07 |
| Benzene                        | 71-43-2        | 2.93E-04     | 1.10E-03     | 4.03E-08 |
| Benzo(g,h,i)perylene           | 191-24-2       | 8.52E-06     | 7.67E-05     | 0.00E+00 |
| Benzo[a]pyrene                 | 50-32-8        | 1.16E-03     | 1.04E-02     | 1.63E-06 |
| Benzo[b]fluoranthene           | 205-99-2       | 0.00E+00     | 0.00E+00     | 3.23E-07 |
| Benzo[k]fluoranthene           | 207-08-9       | 0.00E+00     | 0.00E+00     | 1.75E-08 |
| Benzoic Acid                   | 65-85-0        | 2.85E-07     | 2.64E-06     | 0.00E+00 |
| Beryllium and compounds        | 7440-41-7      | 3.02E-04     | 3.21E-03     | 2.63E-11 |
| Bis(2-ethylhexyl)phthalate     | 117-81-7       | 1.10E-05     | 1.02E-04     | 3.32E-09 |
| Butylbenzene, n-               | 104-51-8       | 1.87E-06     | 1.99E-05     | 0.00E+00 |
| Cadmium (Diet)                 | 7440-43-9-Diet | 2.60E-03     | 2.60E-02     | 7.29E-12 |
| Carbazole                      | 86-74-8        | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Chromium(III), Insoluble Salts | 16065-83-1     | 9.17E-05     | 9.78E-04     | 0.00E+00 |
| Chrysene                       | 218-01-9       | 0.00E+00     | 0.00E+00     | 3.35E-09 |
| Cobalt                         | 7440-48-4      | 2.31E-02     | 2.46E-01     | 1.13E-09 |
| Copper                         | 7440-50-8      | 2.59E-03     | 2.76E-02     | 0.00E+00 |
| Cresol, o-                     | 95-48-7        | 2.47E-06     | 2.29E-05     | 0.00E+00 |
| Cresol, p-chloro-m-            | 59-50-7        | 1.13E-06     | 1.05E-05     | 0.00E+00 |
| Cumene                         | 98-82-8        | 4.13E-06     | 1.50E-05     | 0.00E+00 |
| Cyanide (CN-)                  | 57-12-5        | 1.78E-03     | 1.07E-02     | 0.00E+00 |
| Dibenz[a,h]anthracene          | 53-70-3        | 0.00E+00     | 0.00E+00     | 9.61E-07 |
| Dimethylphenol, 2,4-           | 105-67-9       | 9.50E-06     | 8.81E-05     | 0.00E+00 |
| Ethylbenzene                   | 100-41-4       | 7.25E-06     | 5.14E-05     | 5.51E-09 |

### Recreator

# Program: Voluntary Remediation Program (VRP)

**Risk Based Performance Criteria** 

| Default Hazard Index |
|----------------------|
|----------------------|

1

Default Risk for Individual Chemical 1.00E-06 Default Cumulative Risk-All Chemicals 1.00E-04

# Hazard/Risk Summary for Soil

| Analyte                          | CAS            | Hazard Adult | Hazard Child | Risk     |
|----------------------------------|----------------|--------------|--------------|----------|
| Fluoranthene                     | 206-44-0       | 2.31E-05     | 2.09E-04     | 0.00E+00 |
| Fluorene                         | 86-73-7        | 5.95E-06     | 5.36E-05     | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5       | 0.00E+00     | 0.00E+00     | 1.37E-07 |
| Iron                             | 7439-89-6      | 6.27E-02     | 6.69E-01     | 0.00E+00 |
| isopropyltoluene                 | 99-87-6        | 1.81E-06     | 8.23E-06     | 0.00E+00 |
| Lead and Compounds               | 7439-92-1      | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet | 2.80E-03     | 2.66E-02     | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6      | 2.17E-04     | 2.17E-04     | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3        | 1.06E-06     | 7.22E-06     | 0.00E+00 |
| Methylcyclohexane                | 108-87-2       | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Methylene Chloride               | 75-09-2        | 1.00E-07     | 8.43E-07     | 5.16E-12 |
| Methylnaphthalene, 1-            | 90-12-0        | 3.22E-05     | 2.90E-04     | 6.92E-08 |
| Methylnaphthalene, 2-            | 91-57-6        | 9.08E-04     | 8.18E-03     | 0.00E+00 |
| Naphthalene                      | 91-20-3        | 7.62E-04     | 1.61E-03     | 2.94E-07 |
| Nickel Soluble Salts             | 7440-02-0      | 3.74E-03     | 3.95E-02     | 3.51E-10 |
| Phenanthrene                     | 85-01-8        | 5.85E-05     | 5.27E-04     | 0.00E+00 |
| Pyrene                           | 129-00-0       | 3.03E-05     | 2.73E-04     | 0.00E+00 |
| Toluene                          | 108-88-3       | 2.16E-05     | 1.89E-04     | 0.00E+00 |
| Trimethylbenzene, 1,2,4-         | 95-63-6        | 2.36E-04     | 1.18E-03     | 0.00E+00 |
| Trimethylbenzene, 1,3,5-         | 108-67-8       | 7.82E-05     | 3.60E-04     | 0.00E+00 |
| Vanadium and Compounds           | 7440-62-2      | 5.40E-03     | 5.75E-02     | 0.00E+00 |
| Xylenes                          | 1330-20-7      | 5.26E-04     | 7.35E-04     | 0.00E+00 |
| Zinc and Compounds               | 7440-66-6      | 1.11E-04     | 1.18E-03     | 0.00E+00 |

# Total Hazard Index/Risk for All Media

| Non-Cancer Adult |   | ncer Child   | Cancer  |  |  |
|------------------|---|--|---|--|--|
| 1.26E-01         | Ingestion:  | 1.34E+00   | Ingestion:  | 9.10E-06   |  |
| 3.69E-03         | Dermal:   | 2.21E-02   | Dermal:   | 1.81E-06   |  |
| 3.19E-03         | Inhalation:   | 3.19E-03   | Inhalation:   | 4.79E-08   |  |
| 1.33E-01         | Total:  | 1.37E+00   | Total:  | 1.10E-05   |  |
| eed hazard index | Exceeds H   | lazard Index!  | does not excee  | d cumulative risk  |  |
|                  | 1.26E-01<br>3.69E-03<br>3.19E-03<br><b>1.33E-01</b> | 1.26E-01     Ingestion:       3.69E-03     Dermal:       3.19E-03     Inhalation: <b>1.33E-01</b> Total: | 1.26E-01       Ingestion:       1.34E+00         3.69E-03       Dermal:       2.21E-02         3.19E-03       Inhalation:       3.19E-03 <b>1.33E-01</b> Total: <b>1.37E+00</b> | 1.26E-01       Ingestion:       1.34E+00       Ingestion:         3.69E-03       Dermal:       2.21E-02       Dermal:         3.19E-03       Inhalation:       3.19E-03       Inhalation: <b>1.33E-01 Total: 1.37E+00 Total:</b> |  |

### Program: Voluntary Remediation Program (VRP)

#### Recreator

### Risk Based Performance Criteria

Default Hazard Index

1

Default Risk for Individual Chemical Default Cumulative Risk-All Chemicals 1.00E-06 1.00E-04

# **Recreator Exposure Default Values**

| Symbol          | Description  | Value    | Units     |
|-----------------|--|----------|-----------|
| \F0-02          | Soil Adherence Factor - age segment 0-2  | 0.2      | (mg/cm2)  |
| AF02-06         | Soil Adherence Factor - age segment 2-6  | 0.2      | (mg/cm2)  |
| \F06-16         | Soil Adherence Factor - age segment 6-16   | 0.07     | (mg/cm2)  |
| AF16-26         | Soil Adherence Factor - age segment 16-26  | 0.07     | (mg/cm2)  |
| AFrec-a         | Recreator Soil Adherence Factor - adult  | 0.07     | (mg/cm2)  |
| AFrec-c         | Recreator Soil Adherence Factor - child  | 0.2      | (mg/cm2)  |
| AFrec-sed-a     | Recreator Sediment Adherence Factor - adult - Exposure Factors Handboon  | 0.2      | (mg/cm2)  |
| \Frec-sed-c     | Recreator Sediment Adherence Factor - child - Exposure Factors Handbook  | 0.3      | (mg/cm2)  |
| AFsed0-02       | Recreator/Trepasser Sediment Adherence Factor - age segment 0-2 - Exposure<br>Factors Handbook                       | 0.3      | (mg/cm2)  |
| AFsed02-06      | Recreator/Trepasser Sediment Adherence Factor - age segment 2-6 - Exposure<br>Factors Handbook                       | 0.3      | (mg/cm2)  |
| AFsed06-16      | Recreator/Trepasser Sediment Adherence Factor - age segment 6-16 - Exposure<br>Factors Handbook                      | 0.2      | (mg/cm2)  |
| AFsed16-26      | Recreator/Trepasser Sediment Adherence Factor - age segment 16-26 - Exposure<br>Factors Handbook                     | 0.2      | (mg/cm2)  |
| ATrec           | Recreator Averaging Time: 365 x LT   | 25550    | (days)    |
| ATrec           | Recreator Averaging Time   | 365      | (days/yr) |
| ATrec-a         | Recreator Averaging Time - adult: 365 x EDrec-a  | 7300     | (days)    |
| ATrec-c         | Recreator Averaging Time - child: 365 x EDrec-c  | 2190     | (days)    |
| 3W0-02          | Body Weight - age segment 0-2  | 15       | (kg)      |
| BW02-06         | Body Weight - age segment 2-6  | 15       | (kg)      |
| 3W06-16         | Body Weight - age segment 6-16   | 80       | (kg)      |
| 3W16-26         | Body Weight - age segment 16-26  | 80       | (kg)      |
| 3Wrec-a         | Recreator Body Weight - adult  | 80       | (kg)      |
| 3Wrec-c         | Recreator Body Weight - child  | 15       | (kg)      |
| DFSMrec-adj     | Recreator Soil Mutagenic Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values     | 238602   | (mg/kg)   |
| DFSMrec-sed-adj | Recreator Sediment Mutagenic Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values | 413774.4 | (mg/kg)   |

# Program: Voluntary Remediation Program (VRP)

### Risk Based Performance Criteria

| Default Haz                | Risk Based Performance Criteria<br>zard Index Default Risk for Individual Chemical Default                                   | Cumulative Risl | <-All Chemica  |
|----------------------------|--|-----------------|----------------|
| 1                          | 1.00E-06   | 1.00E-04        |                |
| DFSrec-adj                 | Recreator Soil Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values                       | 57603           | (mg/kg)        |
| DFSrec-sed-adj             | Recreator Sediment Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values                   | 114340.2        | (mg/kg)        |
| DFWMrec-adj                | Recreator Surface Water Mutagenic Dermal Contact Factor - age adjusted - Virginia<br>DEQ calculated using age-segment values | 4563910         | (cm2-event/kg) |
| DFWrec-adj                 | Recreator Surface Water Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values              | 1454505         | (cm2-event/kg) |
| D0-02                      | Exposure Duration - age segment 0-2  | 2               | (yrs)          |
| ED02-06                    | Exposure Duration - age segment 2-6  | 4               | (yrs)          |
| ED06-16                    | Exposure Duration -age segment 6-16  | 10              | (yrs)          |
| ED16-26                    | Exposure Duration -age segment 16-26   | 10              | (yrs)          |
| EDrec                      | Recreator Exposure Duration  | 26              | (yrs)          |
| EDrec-a                    | Recreator Exposure Duration - adult  | 20              | (yrs)          |
| EDrec-c                    | Recreator Exposure Duration - child  | 6               | (yrs)          |
| EFrec                      | Recreator Exposure Frequency - Virginia DEQ  | 195             | (days/yr)      |
| EFrec0-02                  | Recreator/Trepasser Exposure Frequency - age segment 0-2 - Virginia DEQ  | 195             | (days/yr)      |
| EFrec02-06                 | Recreator/Trepasser Exposure Frequency - age segment 2-6 - Virginia DEQ  | 195             | (days/yr)      |
| EFrec06-16                 | Recreator/Trepasser Exposure Frequency - age segment 6-16 - Virginia DEQ   | 195             | (days/yr)      |
| EFrec16-26                 | Recreator/Trepasser Exposure Frequency - age segment 16-26 - Virginia DEQ  | 195             | (days/yr)      |
| EFrec-a                    | Recreator Exposure Frequency - adult - Virginia DEQ  | 195             | (days/yr)      |
| EFrec-c                    | Recreator Exposure Frequency - child - Virginia DEQ  | 195             | (days/yr)      |
| ETevent-rec/trs(0-<br>02)  | Recreator/Trespasser Exposure Time - age segment 0-2 - Virginia DEQ  | 2               | (hrs/event)    |
| ETevent-rec/trs(02-<br>06) | Recreator/Trespasser Exposure Time - age segment 2-6 - Virginia DEQ  | 2               | (hrs/event)    |
| ETevent-rec/trs(06-<br>16) | Recreator/Trespasser Exposure Time - age segment 6-16 - Virginia DEQ   | 2               | (hrs/event)    |
| ETevent-rec/trs(16-<br>26) | Recreator/Trespasser Exposure Time - age segment 16-26 - Virginia DEQ  | 2               | (hrs/event)    |
| Tevent-rec-a               | Recreator Surface Water Exposure Time - adult - Virginia DEQ   | 2               | (hrs/event)    |
| ETevent-rec-adj            | Recreator Exposure Time - age adjusted - Virginia DEQ calculated using age-<br>segment values                                | 2               | (hrs/event)    |
| Tevent-rec-c               | Recreator Surface Water Exposure Time - child - Virginia DEQ   | 2               | (hrs/event)    |
| ETevent-rec-madj           | Recreator Exposure Time - mutagen age adjusted - Virginia DEQ calculated using age-segment values                            | 2               | (hrs/event)    |

## Program: Voluntary Remediation Program (VRP)

# Risk Based Performance Criteria

| Dofault Ha      | izard Index Default Risk for Individual Chemical Default   | Cumulative Risl | All Chami    |
|-----------------|--|-----------------|--------------|
| Derault Ha      |  | 1.00E-04        |              |
|                 |  |                 |              |
| ETrec           | Recreator Soil Exposure Time - Virginia DEQ  | 2               | (hrs/day)    |
| ETrec/trs0-02   | Recreator/Trespasser Exposure Time - age segment 0-2 - Virginia DEQ  | 2               | (hrs/day)    |
| ETrec/trs02-06  | Recreator/Trespasser Exposure Time - age segment 2-6 - Virginia DEQ  | 2               | (hrs/day)    |
| ETrec/trs06-16  | Recreator/Trespasser Exposure Time - age segment 6-16 - Virginia DEQ   | 2               | (hrs/day)    |
| ETrec/trs16-26  | Recreator/Trespasser Exposure Time - age segment 16-26 - Virginia DEQ  | 2               | (hrs/day)    |
| ETrec-a         | Recreator Exposure Time - adult - Virginia DEQ   | 2               | (hrs/day)    |
| ETrec-c         | Recreator Exposure Time - child - Virginia DEQ   | 2               | (hrs/day)    |
| ETrec-sed       | Recreator Sediment Exposure Time - Virginia DEQ  | 2               | (hrs/day)    |
| EV0-02          | Events - age segment 0-2   | 1               | (events/day) |
| EV02-06         | Events - age segment 2-6   | 1               | (events/day) |
| EV06-16         | Events - age segment 6-16  | 1               | (events/day) |
| EV16-26         | Events - age segment 16-26   | 1               | (events/day) |
| EVrec-a         | Recreator Events - adult - Virginia DEQ  | 1               | (events/day) |
| EVrec-c         | Recreator Events - child - Virginia DEQ  | 1               | (events/day) |
| IFMrec-sed-adj  | Recreator Mutagenic Sediment Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values                | 92950           | (mg/kg)      |
| IFrec-sed-adj   | Recreator Sediment Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values                          | 20475           | (mg/kg)      |
| IFSMrec-adj     | Recreator Mutagenic Soil Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values                    | 92950           | (mg/kg)      |
| IFSrec-adj      | Recreator Soil Ingestion Rate - age adjusted - Virginia DEQ calculated using age-<br>segment values                          | 20475           | (mg/kg)      |
| IFWMrec-adj     | Recreator Mutagenic Surface Water Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values           | 122.776875      | (L/kg)       |
| FWrec-adj       | Recreator Surface Water Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values                     | 29.445          | (L/kg)       |
| INHMrec-s-adj   | Recreator Soil Inhalation Exposure Duration Mutagen - age adjusted - Virginia DEQ calculated using age-segment values        | 1170            | (days)       |
| INHMrec-sed-adj | Recreator Sediment Inhalation Exposure Duration Mutagen - age adjusted - Virginia<br>DEQ calculated using age-segment values | 1170            | (days)       |
| IRS0-02         | Soil/Sediment Ingestion Rate - age segment 0-2   | 200             | (mg/day)     |
| IRS02-06        | Soil/Sediment Ingestion Rate - age segment 2-6   | 200             | (mg/day)     |
| RS06-16         | Soil/Sediment Ingestion Rate - age segment 6-16  | 100             | (mg/day)     |
| IRS16-26        | Soil/Sediment Ingestion Rate - age segment 16-26   | 100             | (mg/day)     |

# Program: Voluntary Remediation Program (VRP)

# Risk Based Performance Criteria

| Default I   | Hazard Index Default Risk for Individual Cl      |          |           |
|-------------|--|----------|-----------|
|             | 1 1.00E-06                                       | 1.00E-04 | ł         |
| RSrec-a     | Recreator Soil Ingestion Rate - adult            | 100      | (mg/day)  |
| RSrec-c     | Recreator Soil Ingestion Rate - child            | 200      | (mg/day)  |
| RSrec-sed-a | Recreator Sediment Ingestion Rate - adult        | 100      | (mg/day)  |
| RSrec-sed-c | Recreator Sediment Ingestion Rate - child        | 200      | (mg/day)  |
| RW0-02      | Surface Water Ingestion Rate - age segment 0-2   | 0.12     | (L/hr)    |
| RW02-06     | Surface Water Ingestion Rate - age segment 2-6   | 0.12     | (L/hr)    |
| RW06-16     | Surface Water Ingestion Rate - age segment 6-16  | 0.124    | (L/hr)    |
| RW16-26     | Surface Water Ingestion Rate - age segment 16-26 | 0.0985   | (L/hr)    |
| RWrec-a     | Recreator Surface Water Ingestion Rate - adult   | 0.11     | (L/hr)    |
| RWrec-c     | Recreator Surface Water Ingestion Rate - child   | 0.12     | (L/hr)    |
| Arec-a      | Recreator Surface Water Surface Area - adult     | 19652    | (cm2)     |
| SArec-a     | Recreator Soil Surface Area - adult              | 6032     | (cm2/day) |
| Arec-c      | Recreator Surface Water Surface Area - child     | 6365     | (cm2)     |
| Arec-c      | Recreator Soil Surface Area - child              | 2373     | (cm2/day) |
| Arec-sed-a  | Recreator Sediment Surface Area - adult          | 6032     | (cm2/day) |
| Arec-sed-c  | Recreator Sediment Surface Area - child          | 2373     | (cm2/day) |
| As0-02      | Surface Area Soil/Sediment - age segment 0-2     | 2373     | (cm2/day) |
| As02-06     | Surface Area Soil/Sediment - age segment 2-6     | 2373     | (cm2/day) |
| As06-16     | Surface Area Soil/Sediment - age segment 6-16    | 6032     | (cm2/day) |
| As16-26     | Surface Area Soil/Sediment - age segment 16-26   | 6032     | (cm2/day) |
| Aw0-02      | Surface Area Water - age segment 0-2             | 6365     | (cm2)     |
| Aw02-06     | Surface Area Water - age segment 2-6             | 6365     | (cm2)     |
| Aw06-16     | Surface Area Water - age segment 6- 16           | 19652    | (cm2)     |
| Aw16-26     | Surface Area Water - age segment 16- 26          | 19652    | (cm2)     |

END OF REPORT

## ATTACHMENT 3-5 TRESPASSER

# **Virginia Department of Environmental Quality**



# Virginia Unified Risk Assessment Model

# **VERSION: 3.2.1**

# **Trespasser Quantitative Risk Assessment Report**

# **Program:** Voluntary Remediation Program (VRP)

# Site Name: Alexandria

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

# **Chemical Specific Notes Displayed as Applicable**

**Lead** VURAM does not perform an evaluation for lead exposure. Use other approved models for lead modeling.

# All Report Pages are Required for Risk Assessment Submission

### Trespasser

# Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | Acenaphthene |
|----------|--------------|
| CAS:     | 83-32-9      |

| Concentration mg/kg: | 2.06E-01      |                 |                                       | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|---------------------------------------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 6.00E-02      | Non-Can         | Non-Cancer Adult Non-Cancer Child Can |             |               |             | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 2.82E-07                              | Ingestion:  | 3.01E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 1.55E-07                              | Dermal:     | 9.29E-07      | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |                                       | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 4.37E-07                              | Total:      | 3.94E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%                                 |             | 0.00%         |             | 0.00%    |

# Analyte: Acenaphthylene CAS: 208-96-8

| Concentration mg/kg: | 1.40E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | (           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 3.84E-07  | Ingestion:  | 4.09E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 2.11E-07  | Dermal:     | 1.26E-06    | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |               | Total:          | 5.94E-07  | Total:      | 5.35E-06    | Total:      | 0.00E+00 |
| L                    | % Contributio | n to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

# Analyte: Acetone CAS: 67-64-1

| Concentration mg/kg: | 1.72E+00       |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 9.00E-01       | Non-Can         | cer Adult | Non-Ca      | ncer Child    | (           | Cancer   |
| RfCi (mg/m3):        |                | Ingestion:      | 1.57E-07  | Ingestion:  | 1.68E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (μg/m3)-1:       |                | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |                | Total:          | 1.57E-07  | Total:      | 1.68E-06      | Total:      | 0.00E+00 |
|                      | % Contribution | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

| Site Name: | Alexandria                          |  | Trespasser                            |  |  |  |  |
|------------|-------------------------------------|--|---------------------------------------|--|--|--|--|
| Program:   | Voluntary Remediation Program (VRP) |  |                                       |  |  |  |  |
|            |                                     | <b>Risk Based Performance Criteria</b> |                                       |  |  |  |  |
| De         | fault Hazard Index                  | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |  |  |
|            | 1                                   | 1.00E-06                               | 1.00E-04                              |  |  |  |  |

# Soil

| Analyte: | Acetophenone |
|----------|--------------|
| CAS:     | 98-86-2      |

| Concentration mg/kg: | 1.51E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      | 1.24E-07  | Ingestion:  | 1.32E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.24E-07  | Total:      | 1.32E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

#### Analyte: Aluminum CAS: 7429-90-5

| Concentration mg/kg: | 9.23E+03      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E+00      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        | 5.00E-03      | Ingestion:      | 7.58E-04  | Ingestion:  | 8.09E-03      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 7.43E-06  | Inhalation: | 7.43E-06      | Inhalation: |          |
| Mutagen:             |               | Total:          | 7.66E-04  | Total:      | 8.10E-03      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 4.69%     |             | 4.81%         |             | 0.00%    |

| Analyte: | Anthracene |
|----------|------------|
| CAS:     | 120-12-7   |

| Concentration mg/kg: | 2.53E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | (           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 6.93E-08  | Ingestion:  | 7.39E-07      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 3.80E-08  | Dermal:     | 2.28E-07      | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.07E-07  | Total:      | 9.67E-07      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

# Analyte: Antimony (metallic) CAS: 7440-36-0

| Concentration mg/kg: | 1.34E+00      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-04      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        | 3.00E-04      | Ingestion:      | 2.76E-04  | Ingestion:  | 2.94E-03      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 1.80E-08  | Inhalation: | 1.80E-08      | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.76E-04  | Total:      | 2.94E-03      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 1.69%     |             | 1.75%         |             | 0.00%    |

## Analyte: Arsenic, Inorganic CAS: 7440-38-2

| Concentration mg/kg: | 8.80E+00       |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-04       | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ncer     |
| RfCi (mg/m3):        | 1.50E-05       | Ingestion:      | 1.45E-03  | Ingestion:  | 1.54E-02      | Ingestion:  | 7.81E-07 |
| SFO (mg/kg-day)-1:   | 1.50E+00       | Dermal:         | 3.05E-04  | Dermal:     | 1.83E-03      | Dermal:     | 1.10E-07 |
| IUR (µg/m3)-1:       | 4.30E-03       | Inhalation:     | 2.36E-06  | Inhalation: | 2.36E-06      | Inhalation: | 5.66E-11 |
| Mutagen:             |                | Total:          | 1.75E-03  | Total:      | 1.73E-02      | Total:      | 8.91E-07 |
|                      | % Contribution | n to Media Risk | 10.75%    |             | 10.26%        |             | 66.06%   |

# Analyte: Barium CAS: 7440-39-3

| Concentration mg/kg: | 7.27E+01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        | 5.00E-04      | Ingestion:      | 2.99E-05  | Ingestion:  | 3.19E-04      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 5.86E-07  | Inhalation: | 5.86E-07      | Inhalation: |          |
| Mutagen:             |               | Total:          | 3.05E-05  | Total:      | 3.19E-04      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.19%     |             | 0.19%         |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | Benz[a]anthracene |
|----------|-------------------|
| CAS:     | 56-55-3           |

| Concentration mg/kg: | 4.82E-01       |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    |                | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Са          | ncer     |
| RfCi (mg/m3):        |                | Ingestion:      |           | Ingestion:  |             | Ingestion:  | 2.16E-08 |
| SFO (mg/kg-day)-1:   | 1.00E-01       | Dermal:         |           | Dermal:     |             | Dermal:     | 7.20E-09 |
| IUR (µg/m3)-1:       | 6.00E-05       | Inhalation:     |           | Inhalation: |             | Inhalation: | 3.71E-11 |
| Mutagen:             | Y              | Total:          | 0.00E+00  | Total:      | 0.00E+00    | Total:      | 2.88E-08 |
|                      | % Contribution | n to Media Risk | 0.00%     |             | 0.00%       |             | 2.14%    |

## Analyte: Benzene CAS: 71-43-2

| Concentration mg/kg: | 5.00E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-03      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Са          | ncer     |
| RfCi (mg/m3):        | 3.00E-02      | Ingestion:      | 1.03E-05  | Ingestion:  | 1.10E-04      | Ingestion:  | 2.71E-09 |
| SFO (mg/kg-day)-1:   | 5.50E-02      | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       | 7.80E-06      | Inhalation:     | 2.58E-05  | Inhalation: | 2.58E-05      | Inhalation: | 2.24E-09 |
| Mutagen:             |               | Total:          | 3.61E-05  | Total:      | 1.35E-04      | Total:      | 4.95E-09 |
|                      | % Contributio | n to Media Risk | 0.22%     |             | 0.08%         |             | 0.37%    |

# Analyte: Benzo(g,h,i)perylene CAS: 191-24-2

| Concentration mg/kg: | 2.47E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 6.77E-07  | Ingestion:  | 7.22E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 3.71E-07  | Dermal:     | 2.23E-06      | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.05E-06  | Total:      | 9.45E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.01%     |             | 0.01%         |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

-

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | Benzo[a]pyrene |
|----------|----------------|
| CAS:     | 50-32-8        |

| Concentration mg/kg: | 3.36E-01       |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-04       | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ncer     |
| RfCi (mg/m3):        | 2.00E-06       | Ingestion:      | 9.21E-05  | Ingestion:  | 9.82E-04    | Ingestion:  | 1.50E-07 |
| SFO (mg/kg-day)-1:   | 1.00E+00       | Dermal:         | 5.05E-05  | Dermal:     | 3.03E-04    | Dermal:     | 5.02E-08 |
| IUR (µg/m3)-1:       | 6.00E-04       | Inhalation:     | 6.77E-07  | Inhalation: | 6.77E-07    | Inhalation: | 8.35E-13 |
| Mutagen:             | Y              | Total:          | 1.43E-04  | Total:      | 1.29E-03    | Total:      | 2.01E-07 |
|                      | % Contribution | n to Media Risk | 0.88%     |             | 0.76%       |             | 14.88%   |

# Analyte:Benzo[b]fluorantheneCAS:205-99-2

| Concentration mg/kg: | 6.65E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |               | Ingestion:  | 2.98E-08 |
| SFO (mg/kg-day)-1:   | 1.00E-01      | Dermal:         |           | Dermal:     |               | Dermal:     | 9.94E-09 |
| IUR (µg/m3)-1:       | 6.00E-05      | Inhalation:     |           | Inhalation: |               | Inhalation: | 1.65E-13 |
| Mutagen:             | Y             | Total:          | 0.00E+00  | Total:      | 0.00E+00      | Total:      | 3.97E-08 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 2.94%    |

# Analyte: Benzo[k]fluoranthene CAS: 207-08-9

| Concentration mg/kg: | 3.61E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |             | Ingestion:  | 1.62E-09 |
| SFO (mg/kg-day)-1:   | 1.00E-02      | Dermal:         |           | Dermal:     |             | Dermal:     | 5.39E-10 |
| IUR (μg/m3)-1:       | 6.00E-06      | Inhalation:     |           | Inhalation: |             | Inhalation: | 8.98E-15 |
| Mutagen:             | Y             | Total:          | 0.00E+00  | Total:      | 0.00E+00    | Total:      | 2.16E-09 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%       |             | 0.16%    |

| Site I | Name: | Alexandria |
|--------|-------|------------|
|        |       |            |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | Benzoic Acid |
|----------|--------------|
| CAS:     | 65-85-0      |

| Concentration mg/kg: | 1.20E+00       |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E+00       | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | ancer    |
| RfCi (mg/m3):        |                | Ingestion:      | 2.47E-08  | Ingestion:  | 2.63E-07      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         | 1.04E-08  | Dermal:     | 6.24E-08      | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |                | Total:          | 3.51E-08  | Total:      | 3.25E-07      | Total:      | 0.00E+00 |
|                      | % Contribution | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

# Analyte:Beryllium and compoundsCAS:7440-41-7

|                      |               | T               |           |             |             |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| Concentration mg/kg: | 9.00E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
| RfDo (mg/kg-day):    | 2.00E-03      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ncer     |
| RfCi (mg/m3):        | 2.00E-05      | Ingestion:      | 3.70E-05  | Ingestion:  | 3.95E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (μg/m3)-1:       | 2.40E-03      | Inhalation:     | 1.81E-07  | Inhalation: | 1.81E-07    | Inhalation: | 3.23E-12 |
| Mutagen:             |               | Total:          | 3.72E-05  | Total:      | 3.95E-04    | Total:      | 3.23E-12 |
|                      | % Contributio | n to Media Risk | 0.23%     |             | 0.23%       |             | 0.00%    |

# Analyte: Bis(2-ethylhexyl)phthalate

| CAS: 11/-81-/ | CAS: | 117-81-7 |
|---------------|------|----------|
|---------------|------|----------|

| Concentration mg/kg: | 2.31E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Са          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:      | 9.49E-07  | Ingestion:  | 1.01E-05      | Ingestion:  | 3.19E-10 |
| SFO (mg/kg-day)-1:   | 1.40E-02      | Dermal:         | 4.01E-07  | Dermal:     | 2.40E-06      | Dermal:     | 8.97E-11 |
| IUR (µg/m3)-1:       | 2.40E-06      | Inhalation:     |           | Inhalation: |               | Inhalation: | 8.30E-16 |
| Mutagen:             |               | Total:          | 1.35E-06  | Total:      | 1.25E-05      | Total:      | 4.09E-10 |
|                      | % Contributio | n to Media Risk | 0.01%     |             | 0.01%         |             | 0.03%    |

| Site Name: | Alexandria |  |
|------------|------------|--|
|            |            |  |

#### Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

Г

#### Analyte: Butylbenzene, n-CAS: 104-51-8

| Concentration mg/kg: | 1.40E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 5.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 2.30E-07  | Ingestion:  | 2.45E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.30E-07  | Total:      | 2.45E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

#### Analyte: Cadmium (Diet) CAS: 7440-43-9-Diet

| Concentration mg/kg: | 3.33E-01       |                 | Calculated Hazard/Risk |             |            |             |          |  |
|----------------------|----------------|-----------------|------------------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):    | 1.00E-04       | Non-Can         | cer Adult              | Non-Ca      | ncer Child | Са          | ncer     |  |
| RfCi (mg/m3):        | 1.00E-05       | Ingestion:      | 2.74E-04               | Ingestion:  | 2.92E-03   | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:   |                | Dermal:         | 4.62E-05               | Dermal:     | 2.77E-04   | Dermal:     |          |  |
| IUR (µg/m3)-1:       | 1.80E-03       | Inhalation:     | 1.34E-07               | Inhalation: | 1.34E-07   | Inhalation: | 8.97E-13 |  |
| Mutagen:             |                | Total:          | 3.20E-04               | Total:      | 3.20E-03   | Total:      | 8.97E-13 |  |
|                      | % Contribution | n to Media Risk | 1.96%                  |             | 1.90%      |             | 0.00%    |  |

| Analyte: | Carbazole |
|----------|-----------|
| CAS:     | 86-74-8   |

| Concentration mg/kg: | 2.42E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |               | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 0.00E+00  | Total:      | 0.00E+00      | Total:      | 0.00E+00 |
| L                    | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

#### Voluntary Remediation Program (VRP) **Program:**

|                      | <b>Risk Based Performance Criteria</b> |                                       |
|----------------------|--|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                               | 1.00E-04                              |

# Soil

#### Analyte: Chromium(III), Insoluble Salts

CAS: 16065-83-1

| Concentration mg/kg: | 2.06E+02       |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.50E+00       | Non-Can         | cer Adult | Non-Ca      | ncer Child  | (           | Cancer   |
| RfCi (mg/m3):        |                | Ingestion:      | 1.13E-05  | Ingestion:  | 1.20E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |                | Total:          | 1.13E-05  | Total:      | 1.20E-04    | Total:      | 0.00E+00 |
|                      | % Contribution | n to Media Risk | 0.07%     |             | 0.07%       |             | 0.00%    |

#### Analyte: Chrysene CAS: 218-01-9

| Concentration mg/kg: | 6.91E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Са          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |               | Ingestion:  | 3.09E-10 |
| SFO (mg/kg-day)-1:   | 1.00E-03      | Dermal:         |           | Dermal:     |               | Dermal:     | 1.03E-10 |
| IUR (µg/m3)-1:       | 6.00E-07      | Inhalation:     |           | Inhalation: |               | Inhalation: | 1.72E-15 |
| Mutagen:             | Y             | Total:          | 0.00E+00  | Total:      | 0.00E+00      | Total:      | 4.13E-10 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.03%    |

| Analyte:<br>CAS: | Cobalt<br>7440-48-4 |          |            |            |    |
|------------------|---------------------|----------|------------|------------|----|
| Concentrati      | on mg/kg:           | 1.04E+01 |            |            |    |
| RfDo (mg/k       | g-day):             | 3.00E-04 | Non-Ca     | ncer Adult |    |
| RfCi (mg/m3      | 3):                 | 6.00E-06 | Ingestion: | 2.84E-03   | Ir |
| SFO (mg/kg       | -day)-1:            |          | Dermal:    |            | D  |

9.00E-03

| Calculated Hazard/Risk |             |            |             |          |  |  |  |
|------------------------|-------------|------------|-------------|----------|--|--|--|
| er Adult               | Non-Car     | ncer Child | Ca          | ncer     |  |  |  |
| 2.84E-03               | Ingestion:  | 3.03E-02   | Ingestion:  |          |  |  |  |
|                        | Dermal:     |            | Dermal:     |          |  |  |  |
| 6.96E-06               | Inhalation: | 6.96E-06   | Inhalation: | 1.40E-10 |  |  |  |
| 2.85E-03               | Total:      | 3.03E-02   | Total:      | 1.40E-10 |  |  |  |
|                        |             |            |             |          |  |  |  |

18.02%

% Contribution to Media Risk

Total: 2.85E-03 17.45%

Inhalation:

0.01%

IUR (µg/m3)-1:

Mutagen:

| Site Name: | Alexandria                          |  | Trespasser                            |  |  |
|------------|-------------------------------------|--|---------------------------------------|--|--|
| Program:   | Voluntary Remediation Program (VRP) |  |                                       |  |  |
|            |                                     | <b>Risk Based Performance Criteria</b> |                                       |  |  |
| Def        | ault Hazard Index                   | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |
|            | 1                                   | 1.00E-06                               | 1.00E-04                              |  |  |

# Soil

# Analyte: Copper CAS: 7440-50-8

| S: | 7440-50-8 |
|----|-----------|
|    |           |

T

| Concentration mg/kg: | 1.55E+02       |                 |           | Calculated  | d Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-02       | Non-Can         | cer Adult | Non-Ca      | incer Child   | C           | Cancer   |
| RfCi (mg/m3):        |                | Ingestion:      | 3.18E-04  | Ingestion:  | 3.40E-03      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |                | Total:          | 3.18E-04  | Total:      | 3.40E-03      | Total:      | 0.00E+00 |
|                      | % Contribution | n to Media Risk | 1.95%     |             | 2.02%         |             | 0.00%    |

# Analyte: Cresol, o-CAS: 95-48-7

| Concentration mg/kg: | 1.30E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 5.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):        | 6.00E-01      | Ingestion:      | 2.14E-07  | Ingestion:  | 2.28E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 9.02E-08  | Dermal:     | 5.41E-07    | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 8.73E-13  | Inhalation: | 8.73E-13    | Inhalation: |          |
| Mutagen:             |               | Total:          | 3.04E-07  | Total:      | 2.82E-06    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

|  | _ |  |  |
|--|---|--|--|

| Analyte: | Cresol, p-chloro-m- |
|----------|---------------------|
| CAS:     | 59-50-7             |

| Concentration mg/kg: | 1.19E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | (           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 9.78E-08  | Ingestion:  | 1.04E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 4.13E-08  | Dermal:     | 2.48E-07    | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.39E-07  | Total:      | 1.29E-06    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

| Site Name: | Alexandria                          |  | Trespasser                            |  |  |  |
|------------|-------------------------------------|--|---------------------------------------|--|--|--|
| Program:   | Voluntary Remediation Program (VRP) |  |                                       |  |  |  |
|            |                                     | <b>Risk Based Performance Criteria</b> |                                       |  |  |  |
| Det        | fault Hazard Index                  | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |  |
|            | 1                                   | 1.00E-06                               | 1.00E-04                              |  |  |  |
|            |                                     |  |                                       |  |  |  |

# Soil

| Analyte: | Cumene  |
|----------|---------|
| CAS:     | 98-82-8 |

| Concentration mg/kg: | 1.68E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        | 4.00E-01      | Ingestion:      | 1.38E-07  | Ingestion:  | 1.47E-06      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     | 3.71E-07  | Inhalation: | 3.71E-07      | Inhalation: |          |
| Mutagen:             |               | Total:          | 5.09E-07  | Total:      | 1.84E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

# Analyte:Cyanide (CN-)CAS:57-12-5

| Concentration mg/kg: | 8.26E-01      |                 | Calculated Hazard/Risk |             |            |             |          |  |
|----------------------|---------------|-----------------|------------------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):    | 6.00E-04      | Non-Can         | cer Adult              | Non-Ca      | ncer Child | Ca          | incer    |  |
| RfCi (mg/m3):        | 8.00E-04      | Ingestion:      | 1.13E-04               | Ingestion:  | 1.21E-03   | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:   |               | Dermal:         |                        | Dermal:     |            | Dermal:     |          |  |
| IUR (µg/m3)-1:       |               | Inhalation:     | 1.06E-04               | Inhalation: | 1.06E-04   | Inhalation: |          |  |
| Mutagen:             |               | Total:          | 2.19E-04               | Total:      | 1.31E-03   | Total:      | 0.00E+00 |  |
| L                    | % Contributio | n to Media Risk | 1.34%                  |             | 0.78%      |             | 0.00%    |  |

# Analyte: Dibenz[a,h]anthracene

| CAS: | 53-70-3 |
|------|---------|
|      |         |

| Concentration mg/kg: | 1.98E-01      | Calculated Hazard/Risk |           |             |            |             |          |
|----------------------|---------------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can                | cer Adult | Non-Ca      | ncer Child | Са          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:             |           | Ingestion:  |            | Ingestion:  | 8.87E-08 |
| SFO (mg/kg-day)-1:   | 1.00E+00      | Dermal:                |           | Dermal:     |            | Dermal:     | 2.96E-08 |
| IUR (µg/m3)-1:       | 6.00E-04      | Inhalation:            |           | Inhalation: |            | Inhalation: | 4.92E-13 |
| Mutagen:             | Y             | Total:                 | 0.00E+00  | Total:      | 0.00E+00   | Total:      | 1.18E-07 |
|                      | % Contributio | n to Media Risk        | 0.00%     |             | 0.00%      |             | 8.77%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

# Analyte: Dimethylphenol, 2,4-CAS: 105-67-9

| Concentration mg/kg: | 2.00E-01       |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-02       | Non-Can         | cer Adult | Non-Ca      | ncer Child  | C           | ancer    |
| RfCi (mg/m3):        |                | Ingestion:      | 8.22E-07  | Ingestion:  | 8.77E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         | 3.47E-07  | Dermal:     | 2.08E-06    | Dermal:     |          |
| IUR (µg/m3)-1:       |                | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |                | Total:          | 1.17E-06  | Total:      | 1.08E-05    | Total:      | 0.00E+00 |
|                      | % Contribution | n to Media Risk | 0.01%     |             | 0.01%       |             | 0.00%    |

## Analyte: Ethylbenzene CAS: 100-41-4

| Concentration mg/kg: | 3.42E-01       |                 | Calculated Hazard/Risk            |             |          |             |          |  |
|----------------------|----------------|-----------------|-----------------------------------|-------------|----------|-------------|----------|--|
| RfDo (mg/kg-day):    | 5.00E-02       | Non-Can         | Non-Cancer Adult Non-Cancer Child |             |          |             | Cancer   |  |
| RfCi (mg/m3):        | 1.00E+00       | Ingestion:      | 5.62E-07                          | Ingestion:  | 6.00E-06 | Ingestion:  | 3.71E-10 |  |
| SFO (mg/kg-day)-1:   | 1.10E-02       | Dermal:         |                                   | Dermal:     |          | Dermal:     |          |  |
| IUR (µg/m3)-1:       | 2.50E-06       | Inhalation:     | 3.31E-07                          | Inhalation: | 3.31E-07 | Inhalation: | 3.07E-10 |  |
| Mutagen:             |                | Total:          | 8.93E-07                          | Total:      | 6.33E-06 | Total:      | 6.78E-10 |  |
|                      | % Contribution | n to Media Risk | 0.01%                             |             | 0.00%    |             | 0.05%    |  |

## Analyte: Fluoranthene CAS: 206-44-0

| Concentration mg/kg: | 8.95E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | С           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      | 1.84E-06  | Ingestion:  | 1.96E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 1.01E-06  | Dermal:     | 6.05E-06      | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.85E-06  | Total:      | 2.57E-05      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.02%     |             | 0.02%         |             | 0.00%    |

| Site Name: | Alexandria         |                                  |                                       |  |  |  |  |  |  |
|------------|--------------------|----------------------------------|---------------------------------------|--|--|--|--|--|--|
| Program:   | Voluntary Remediat | ion Program (VRP)                |                                       |  |  |  |  |  |  |
|            |                    | Risk Based Performance Criteria  |                                       |  |  |  |  |  |  |
| Def        | fault Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |  |  |  |  |  |  |
|            | 1                  | 1.00E-06                         | 1.00E-04                              |  |  |  |  |  |  |

# Soil

Analyte: Fluorene CAS: 86-73-7

| Concentration mg/kg: | 2.30E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | (           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 4.73E-07  | Ingestion:  | 5.04E-06    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 2.59E-07  | Dermal:     | 1.56E-06    | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |               | Total:          | 7.32E-07  | Total:      | 6.60E-06    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%       |             | 0.00%    |

#### Analyte: Indeno[1,2,3-cd]pyrene CAS: 193-39-5

| Concentration mg/kg: | 2.82E-01      |                 | Calculated Hazard/Risk |             |            |             |          |  |
|----------------------|---------------|-----------------|------------------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult              | Non-Ca      | ncer Child | Са          | ncer     |  |
| RfCi (mg/m3):        |               | Ingestion:      |                        | Ingestion:  |            | Ingestion:  | 1.26E-08 |  |
| SFO (mg/kg-day)-1:   | 1.00E-01      | Dermal:         |                        | Dermal:     |            | Dermal:     | 4.21E-09 |  |
| IUR (µg/m3)-1:       | 6.00E-05      | Inhalation:     |                        | Inhalation: |            | Inhalation: | 7.01E-14 |  |
| Mutagen:             | Y             | Total:          | 0.00E+00               | Total:      | 0.00E+00   | Total:      | 1.68E-08 |  |
|                      | % Contributio | n to Media Risk | 0.00%                  |             | 0.00%      |             | 1.25%    |  |

#### Analyte: Iron CAS:

7439-89-6

| Concentration mg/kg: | 6.57E+04      | Calculated Hazard/Risk |           |             |            |             |          |
|----------------------|---------------|------------------------|-----------|-------------|------------|-------------|----------|
| RfDo (mg/kg-day):    | 7.00E-01      | Non-Can                | cer Adult | Non-Ca      | ncer Child | (           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:             | 7.71E-03  | Ingestion:  | 8.23E-02   | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:                |           | Dermal:     |            | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:            |           | Inhalation: |            | Inhalation: |          |
| Mutagen:             |               | Total:                 | 7.71E-03  | Total:      | 8.23E-02   | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk        | 47.26%    |             | 48.92%     |             | 0.00%    |

| te Name: Alexandria |
|---------------------|
|                     |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | isopropyltoluene |
|----------|------------------|
| CAS:     | 99-87-6          |

| Concentration mg/kg: | 9.93E-02      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | ancer    |
| RfCi (mg/m3):        | 4.00E-01      | Ingestion:      | 8.16E-08  | Ingestion:  | 8.71E-07      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 1.42E-07  | Inhalation: | 1.42E-07      | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.23E-07  | Total:      | 1.01E-06      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

# Analyte:Lead and CompoundsCAS:7439-92-1

| Concentration mg/kg: | 2.05E+01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child    | С           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |               | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 0.00E+00  | Total:      | 0.00E+00      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

# Analyte: Manganese (Diet) CAS: 7439-96-5-Diet

| Concentration mg/kg: | 5.16E+02      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.40E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | С           | ancer    |
| RfCi (mg/m3):        | 5.00E-05      | Ingestion:      | 3.03E-04  | Ingestion:  | 3.23E-03    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 4.16E-05  | Inhalation: | 4.16E-05    | Inhalation: |          |
| Mutagen:             |               | Total:          | 3.45E-04  | Total:      | 3.27E-03    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 2.11%     |             | 1.95%       |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

# Analyte: Mercury (elemental)

CAS: 7439-97-6

| Concentration mg/kg: | 5.07E-02      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ncer     |
| RfCi (mg/m3):        | 3.00E-04      | Ingestion:      |           | Ingestion:  |             | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 2.67E-05  | Inhalation: | 2.67E-05    | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.67E-05  | Total:      | 2.67E-05    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.16%     |             | 0.02%       |             | 0.00%    |

# Analyte: Methyl Ethyl Ketone (2-Butanone)

Т

CAS: 78-93-3

| Concentration mg/kg: | 5.73E-01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 6.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        | 5.00E+00      | Ingestion:      | 7.85E-08  | Ingestion:  | 8.37E-07      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 5.15E-08  | Inhalation: | 5.15E-08      | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.30E-07  | Total:      | 8.89E-07      | Total:      | 0.00E+00 |
| L                    | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

# Analyte: Methylcyclohexane CAS: 108-87-2

| Concentration mg/kg: | 7.39E+00      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    |               | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      |           | Ingestion:  |               | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 0.00E+00  | Total:      | 0.00E+00      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

\_\_\_\_

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

| Analyte: | Methylene Chloride |
|----------|--------------------|
| CAS:     | 75-09-2            |

| Concentration mg/kg: | 6.90E-04      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 6.00E-03      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ncer     |
| RfCi (mg/m3):        | 6.00E-01      | Ingestion:      | 9.45E-09  | Ingestion:  | 1.01E-07      | Ingestion:  | 6.18E-13 |
| SFO (mg/kg-day)-1:   | 2.00E-03      | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       | 1.00E-08      | Inhalation:     | 2.88E-09  | Inhalation: | 2.88E-09      | Inhalation: | 1.78E-14 |
| Mutagen:             | Y             | Total:          | 1.23E-08  | Total:      | 1.04E-07      | Total:      | 6.36E-13 |
|                      | % Contributio | n to Media Risk | 0.00%     |             | 0.00%         |             | 0.00%    |

## Analyte: Methylnaphthalene, 1-CAS: 90-12-0

| Concentration mg/kg: | 2.18E+00      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 7.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ncer     |
| RfCi (mg/m3):        |               | Ingestion:      | 2.56E-06  | Ingestion:  | 2.73E-05      | Ingestion:  | 6.23E-09 |
| SFO (mg/kg-day)-1:   | 2.90E-02      | Dermal:         | 1.40E-06  | Dermal:     | 8.42E-06      | Dermal:     | 2.28E-09 |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 3.96E-06  | Total:      | 3.57E-05      | Total:      | 8.51E-09 |
| L                    | % Contributio | n to Media Risk | 0.02%     |             | 0.02%         |             | 0.63%    |

# Analyte: Methylnaphthalene, 2-

CAS: 91-57-6

| Concentration mg/kg: | 3.51E+00      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 4.00E-03      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | С           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      | 7.21E-05  | Ingestion:  | 7.70E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 3.96E-05  | Dermal:     | 2.37E-04    | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |             | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.12E-04  | Total:      | 1.01E-03    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.68%     |             | 0.60%       |             | 0.00%    |

# Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

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| Analyte: | Naphthalene |
|----------|-------------|
| CAS:     | 91-20-3     |

| Concentration mg/kg: | 2.05E+00       | Calculated Hazard/Risk |           |             |            |             |          |  |
|----------------------|----------------|------------------------|-----------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):    | 2.00E-02       | Non-Can                | cer Adult | Non-Ca      | ncer Child | Ca          | ncer     |  |
| RfCi (mg/m3):        | 3.00E-03       | Ingestion:             | 8.41E-06  | Ingestion:  | 8.97E-05   | Ingestion:  | 2.42E-08 |  |
| SFO (mg/kg-day)-1:   | 1.20E-01       | Dermal:                | 4.62E-06  | Dermal:     | 2.77E-05   | Dermal:     | 8.86E-09 |  |
| IUR (µg/m3)-1:       | 3.40E-05       | Inhalation:            | 8.07E-05  | Inhalation: | 8.07E-05   | Inhalation: | 3.06E-09 |  |
| Mutagen:             |                | Total:                 | 9.37E-05  | Total:      | 1.98E-04   | Total:      | 3.61E-08 |  |
|                      | % Contribution | n to Media Risk        | 0.57%     |             | 0.12%      |             | 2.68%    |  |

## Analyte: Nickel Soluble Salts CAS: 7440-02-0

| Concentration mg/kg: | 1.11E+02       |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|----------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-02       | Non-Can         | cer Adult | Non-Ca      | ncer Child    | Ca          | ncer     |
| RfCi (mg/m3):        | 9.00E-05       | Ingestion:      | 4.56E-04  | Ingestion:  | 4.86E-03      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |                | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       | 2.60E-04       | Inhalation:     | 4.96E-06  | Inhalation: | 4.96E-06      | Inhalation: | 4.31E-11 |
| Mutagen:             |                | Total:          | 4.61E-04  | Total:      | 4.87E-03      | Total:      | 4.31E-11 |
|                      | % Contribution | n to Media Risk | 2.82%     |             | 2.89%         |             | 0.00%    |

## Analyte: Phenanthrene CAS: 85-01-8

| Concentration mg/kg: | 1.70E+00      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 4.65E-06  | Ingestion:  | 4.96E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 2.55E-06  | Dermal:     | 1.53E-05      | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 7.20E-06  | Total:      | 6.49E-05      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.04%     |             | 0.04%         |             | 0.00%    |

| Site Name: | Alexandria Trespass |  |                                       |  |  |  |  |  |
|------------|---------------------|--|---------------------------------------|--|--|--|--|--|
| Program:   | Voluntary Remediat  | tion Program (VRP)                     |                                       |  |  |  |  |  |
|            |                     | <b>Risk Based Performance Criteria</b> |                                       |  |  |  |  |  |
| Def        | ault Hazard Index   | Default Risk Individual Chemical       | Default Cumulative Risk-All Chemicals |  |  |  |  |  |
|            | 1                   | 1.00E-06                               | 1.00E-04                              |  |  |  |  |  |

# Soil

#### Analyte: Pyrene 20.00.0 CA

| AS: | 129-00-0 |  |
|-----|----------|--|
|     |          |  |

| Concentration mg/kg: | 8.78E-01      | Ţ               |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | C           | Cancer   |
| RfCi (mg/m3):        |               | Ingestion:      | 2.41E-06  | Ingestion:  | 2.57E-05      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         | 1.32E-06  | Dermal:     | 7.92E-06      | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 3.73E-06  | Total:      | 3.36E-05      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.02%     |             | 0.02%         |             | 0.00%    |

#### Analyte: Toluene CAS: 108-88-3

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| Concentration mg/kg: | 2.07E+00      |                 | Calculated Hazard/Risk |             |            |             |          |  |
|----------------------|---------------|-----------------|------------------------|-------------|------------|-------------|----------|--|
| RfDo (mg/kg-day):    | 8.00E-02      | Non-Can         | cer Adult              | Non-Ca      | ncer Child | Ca          | incer    |  |
| RfCi (mg/m3):        | 5.00E+00      | Ingestion:      | 2.13E-06               | Ingestion:  | 2.27E-05   | Ingestion:  |          |  |
| SFO (mg/kg-day)-1:   |               | Dermal:         |                        | Dermal:     |            | Dermal:     |          |  |
| IUR (µg/m3)-1:       |               | Inhalation:     | 5.29E-07               | Inhalation: | 5.29E-07   | Inhalation: |          |  |
| Mutagen:             |               | Total:          | 2.66E-06               | Total:      | 2.32E-05   | Total:      | 0.00E+00 |  |
|                      | % Contributio | n to Media Risk | 0.02%                  |             | 0.01%      |             | 0.00%    |  |

#### Analyte: Trimethylbenzene, 1,2,4-

#### CAS: 95-63-6

| Concentration mg/kg: | 1.47E+00      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | ancer    |
| RfCi (mg/m3):        | 6.00E-02      | Ingestion:      | 1.21E-05  | Ingestion:  | 1.29E-04    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 1.69E-05  | Inhalation: | 1.69E-05    | Inhalation: |          |
| Mutagen:             |               | Total:          | 2.90E-05  | Total:      | 1.46E-04    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.18%     |             | 0.09%       |             | 0.00%    |

## Program: Voluntary Remediation Program (VRP)

|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

# Analyte: Trimethylbenzene, 1,3,5-

CAS: 108-67-8

| Concentration mg/kg: | 4.37E-01      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 1.00E-02      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | Ca          | incer    |
| RfCi (mg/m3):        | 6.00E-02      | Ingestion:      | 3.59E-06  | Ingestion:  | 3.83E-05    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 6.04E-06  | Inhalation: | 6.04E-06    | Inhalation: |          |
| Mutagen:             |               | Total:          | 9.63E-06  | Total:      | 4.43E-05    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.06%     |             | 0.03%       |             | 0.00%    |

## Analyte: Vanadium and Compounds CAS: 7440-62-2

| Concentration mg/kg: | 4.04E+01      | Ţ               |           | Coloulates  | Literand /Diale |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-----------------|-------------|----------|
|                      |               |                 |           | Calculated  | Hazard/Risk     |             |          |
| RfDo (mg/kg-day):    | 5.00E-03      | Non-Can         | cer Adult | Non-Ca      | ncer Child      | C           | ancer    |
| RfCi (mg/m3):        | 1.00E-04      | Ingestion:      | 6.63E-04  | Ingestion:  | 7.08E-03        | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |                 | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     | 1.63E-06  | Inhalation: | 1.63E-06        | Inhalation: |          |
| Mutagen:             |               | Total:          | 6.65E-04  | Total:      | 7.08E-03        | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 4.07%     |             | 4.21%           |             | 0.00%    |

| Analyte: | Xylenes   |
|----------|-----------|
| CAS:     | 1330-20-7 |

| Concentration mg/kg: | 6.50E+00      |                 |           | Calculated  | Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|-------------|-------------|----------|
| RfDo (mg/kg-day):    | 2.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child  | С           | ancer    |
| RfCi (mg/m3):        | 1.00E-01      | Ingestion:      | 2.67E-06  | Ingestion:  | 2.85E-05    | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |             | Dermal:     |          |
| IUR (μg/m3)-1:       |               | Inhalation:     | 6.20E-05  | Inhalation: | 6.20E-05    | Inhalation: |          |
| Mutagen:             |               | Total:          | 6.47E-05  | Total:      | 9.05E-05    | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.40%     |             | 0.05%       |             | 0.00%    |

| Site | Name: | Alexandria |
|------|-------|------------|
|      |       |            |

# Program: Voluntary Remediation Program (VRP)

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|                      | Risk Based Performance Criteria  |                                       |
|----------------------|----------------------------------|---------------------------------------|
| Default Hazard Index | Default Risk Individual Chemical | Default Cumulative Risk-All Chemicals |
| 1                    | 1.00E-06                         | 1.00E-04                              |

# Soil

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| Analyte: | Zinc and Compounds |
|----------|--------------------|
| CAS:     | 7440-66-6          |

| Concentration mg/kg: | 4.97E+01      |                 |           | Calculated  | l Hazard/Risk |             |          |
|----------------------|---------------|-----------------|-----------|-------------|---------------|-------------|----------|
| RfDo (mg/kg-day):    | 3.00E-01      | Non-Can         | cer Adult | Non-Ca      | ncer Child    | С           | ancer    |
| RfCi (mg/m3):        |               | Ingestion:      | 1.36E-05  | Ingestion:  | 1.45E-04      | Ingestion:  |          |
| SFO (mg/kg-day)-1:   |               | Dermal:         |           | Dermal:     |               | Dermal:     |          |
| IUR (µg/m3)-1:       |               | Inhalation:     |           | Inhalation: |               | Inhalation: |          |
| Mutagen:             |               | Total:          | 1.36E-05  | Total:      | 1.45E-04      | Total:      | 0.00E+00 |
|                      | % Contributio | n to Media Risk | 0.08%     |             | 0.09%         |             | 0.00%    |

# Total Calculated Hazard/Risk for Soil

| Non-Cancer Adult |          | Non-Canc    | er Child | Cancer      |          |
|------------------|----------|-------------|----------|-------------|----------|
| Ingestion:       | 1.55E-02 | Ingestion:  | 1.65E-01 | Ingestion:  | 1.12E-06 |
| Dermal:          | 4.55E-04 | Dermal:     | 2.72E-03 | Dermal:     | 2.23E-07 |
| Inhalation:      | 3.92E-04 | Inhalation: | 3.92E-04 | Inhalation: | 5.89E-09 |
| Total:           | 1.63E-02 | Total:      | 1.68E-01 | Total:      | 1.35E-06 |

Voluntary Remediation Program (VRP) **Program:** 

**Risk Based Performance Criteria** 

**Default Hazard Index** 1

Default Risk Individual Chemical 1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

# **Report Summary**

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

# Hazard/Risk Summary for Soil

| Analyte                        | CAS            | Hazard Adult | Hazard Child | Risk     |
|--------------------------------|----------------|--------------|--------------|----------|
| Acenaphthene                   | 83-32-9        | 4.37E-07     | 3.94E-06     | 0.00E+00 |
| Acenaphthylene                 | 208-96-8       | 5.94E-07     | 5.35E-06     | 0.00E+00 |
| Acetone                        | 67-64-1        | 1.57E-07     | 1.68E-06     | 0.00E+00 |
| Acetophenone                   | 98-86-2        | 1.24E-07     | 1.32E-06     | 0.00E+00 |
| Aluminum                       | 7429-90-5      | 7.66E-04     | 8.10E-03     | 0.00E+00 |
| Anthracene                     | 120-12-7       | 1.07E-07     | 9.67E-07     | 0.00E+00 |
| Antimony (metallic)            | 7440-36-0      | 2.76E-04     | 2.94E-03     | 0.00E+00 |
| Arsenic, Inorganic             | 7440-38-2      | 1.75E-03     | 1.73E-02     | 8.91E-07 |
| Barium                         | 7440-39-3      | 3.05E-05     | 3.19E-04     | 0.00E+00 |
| Benz[a]anthracene              | 56-55-3        | 0.00E+00     | 0.00E+00     | 2.88E-08 |
| Benzene                        | 71-43-2        | 3.61E-05     | 1.35E-04     | 4.95E-09 |
| Benzo(g,h,i)perylene           | 191-24-2       | 1.05E-06     | 9.45E-06     | 0.00E+00 |
| Benzo[a]pyrene                 | 50-32-8        | 1.43E-04     | 1.29E-03     | 2.01E-07 |
| Benzo[b]fluoranthene           | 205-99-2       | 0.00E+00     | 0.00E+00     | 3.97E-08 |
| Benzo[k]fluoranthene           | 207-08-9       | 0.00E+00     | 0.00E+00     | 2.16E-09 |
| Benzoic Acid                   | 65-85-0        | 3.51E-08     | 3.25E-07     | 0.00E+00 |
| Beryllium and compounds        | 7440-41-7      | 3.72E-05     | 3.95E-04     | 3.23E-12 |
| Bis(2-ethylhexyl)phthalate     | 117-81-7       | 1.35E-06     | 1.25E-05     | 4.09E-10 |
| Butylbenzene, n-               | 104-51-8       | 2.30E-07     | 2.45E-06     | 0.00E+00 |
| Cadmium (Diet)                 | 7440-43-9-Diet | 3.20E-04     | 3.20E-03     | 8.97E-13 |
| Carbazole                      | 86-74-8        | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Chromium(III), Insoluble Salts | 16065-83-1     | 1.13E-05     | 1.20E-04     | 0.00E+00 |
| Chrysene                       | 218-01-9       | 0.00E+00     | 0.00E+00     | 4.13E-10 |
| Cobalt                         | 7440-48-4      | 2.85E-03     | 3.03E-02     | 1.40E-10 |
| Copper                         | 7440-50-8      | 3.18E-04     | 3.40E-03     | 0.00E+00 |
| Cresol, o-                     | 95-48-7        | 3.04E-07     | 2.82E-06     | 0.00E+00 |
| Cresol, p-chloro-m-            | 59-50-7        | 1.39E-07     | 1.29E-06     | 0.00E+00 |
| Cumene                         | 98-82-8        | 5.09E-07     | 1.84E-06     | 0.00E+00 |
| Cyanide (CN-)                  | 57-12-5        | 2.19E-04     | 1.31E-03     | 0.00E+00 |
| Dibenz[a,h]anthracene          | 53-70-3        | 0.00E+00     | 0.00E+00     | 1.18E-07 |
| Dimethylphenol, 2,4-           | 105-67-9       | 1.17E-06     | 1.08E-05     | 0.00E+00 |
| Ethylbenzene                   | 100-41-4       | 8.93E-07     | 6.33E-06     | 6.78E-10 |

#### Trespasser

#### Program: Voluntary Remediation Program (VRP)

## Risk Based Performance Criteria

Default Hazard Index 1

Default Risk Individual Chemical 1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

# Hazard/Risk Summary for Soil

| Analyte                          | CAS            | Hazard Adult | Hazard Child | Risk     |
|----------------------------------|----------------|--------------|--------------|----------|
| Fluoranthene                     | 206-44-0       | 2.85E-06     | 2.57E-05     | 0.00E+00 |
| Fluorene                         | 86-73-7        | 7.32E-07     | 6.60E-06     | 0.00E+00 |
| Indeno[1,2,3-cd]pyrene           | 193-39-5       | 0.00E+00     | 0.00E+00     | 1.68E-08 |
| Iron                             | 7439-89-6      | 7.71E-03     | 8.23E-02     | 0.00E+00 |
| isopropyltoluene                 | 99-87-6        | 2.23E-07     | 1.01E-06     | 0.00E+00 |
| Lead and Compounds               | 7439-92-1      | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Manganese (Diet)                 | 7439-96-5-Diet | 3.45E-04     | 3.27E-03     | 0.00E+00 |
| Mercury (elemental)              | 7439-97-6      | 2.67E-05     | 2.67E-05     | 0.00E+00 |
| Methyl Ethyl Ketone (2-Butanone) | 78-93-3        | 1.30E-07     | 8.89E-07     | 0.00E+00 |
| Methylcyclohexane                | 108-87-2       | 0.00E+00     | 0.00E+00     | 0.00E+00 |
| Methylene Chloride               | 75-09-2        | 1.23E-08     | 1.04E-07     | 6.36E-13 |
| Methylnaphthalene, 1-            | 90-12-0        | 3.96E-06     | 3.57E-05     | 8.51E-09 |
| Methylnaphthalene, 2-            | 91-57-6        | 1.12E-04     | 1.01E-03     | 0.00E+00 |
| Naphthalene                      | 91-20-3        | 9.37E-05     | 1.98E-04     | 3.61E-08 |
| Nickel Soluble Salts             | 7440-02-0      | 4.61E-04     | 4.87E-03     | 4.31E-11 |
| Phenanthrene                     | 85-01-8        | 7.20E-06     | 6.49E-05     | 0.00E+00 |
| Pyrene                           | 129-00-0       | 3.73E-06     | 3.36E-05     | 0.00E+00 |
| Toluene                          | 108-88-3       | 2.66E-06     | 2.32E-05     | 0.00E+00 |
| Trimethylbenzene, 1,2,4-         | 95-63-6        | 2.90E-05     | 1.46E-04     | 0.00E+00 |
| Trimethylbenzene, 1,3,5-         | 108-67-8       | 9.63E-06     | 4.43E-05     | 0.00E+00 |
| Vanadium and Compounds           | 7440-62-2      | 6.65E-04     | 7.08E-03     | 0.00E+00 |
| Xylenes                          | 1330-20-7      | 6.47E-05     | 9.05E-05     | 0.00E+00 |
| Zinc and Compounds               | 7440-66-6      | 1.36E-05     | 1.45E-04     | 0.00E+00 |

# Total Hazard/Risk for All Media

| Non-Car      | ncer Adult       | Non-Ca       | ncer Child       | Са            | ncer               |
|--------------|------------------|--------------|------------------|---------------|--------------------|
| Ingestion:   | 1.55E-02         | Ingestion:   | 1.65E-01         | Ingestion:    | 1.12E-06           |
| Dermal:      | 4.55E-04         | Dermal:      | 2.72E-03         | Dermal:       | 2.23E-07           |
| Inhalation:  | 3.92E-04         | Inhalation:  | 3.92E-04         | Inhalation:   | 5.89E-09           |
| Total:       | 1.63E-02         | Total:       | 1.68E-01         | Total:        | 1.35E-06           |
| does not exc | eed hazard index | does not exc | eed hazard index | does not exce | ed cumulative risk |

### Trespasser

#### Voluntary Remediation Program (VRP) Program:

### **Risk Based Performance Criteria**

Default Hazard Index 1

Default Risk Individual Chemical 1.00E-06

Default Cumulative Risk-All Chemicals 1.00E-04

# **Trespasser Exposure Default Values**

| Symbol          | Description  | Value    | Units     |
|-----------------|--|----------|-----------|
| AF0-02          | Soil Adherence Factor - age segment 0-2  | 0.2      | (mg/cm2)  |
| AF02-06         | Soil Adherence Factor - age segment 2-6  | 0.2      | (mg/cm2)  |
| AF06-16         | Soil Adherence Factor - age segment 6-16   | 0.07     | (mg/cm2)  |
| AF16-26         | Soil Adherence Factor - age segment 16-26  | 0.07     | (mg/cm2)  |
| AFsed0-02       | Recreator/Trepasser Sediment Adherence Factor - age segment 0-2 - Exposure<br>Factors Handbook                           | 0.3      | (mg/cm2)  |
| AFsed02-06      | Recreator/Trepasser Sediment Adherence Factor - age segment 2-6 - Exposure<br>Factors Handbook                           | 0.3      | (mg/cm2)  |
| AFsed06-16      | Recreator/Trepasser Sediment Adherence Factor - age segment 6-16 - Exposure<br>Factors Handbook                          | 0.2      | (mg/cm2)  |
| AFsed16-26      | Recreator/Trepasser Sediment Adherence Factor - age segment 16-26 - Exposure<br>Factors Handbook                         | 0.2      | (mg/cm2)  |
| AFtrs-a         | Trespasser Soil Adherence Factor- adult  | 0.07     | (mg/cm2)  |
| AFtrs-c         | Trespasser Soil Adherence Factor - child   | 0.2      | (mg/cm2)  |
| AFtrs-sed-a     | Trespasser Sediment Adherence Factor - adult - Exposure Factors Handbook   | 0.2      | (mg/cm2)  |
| AFtrs-sed-c     | Trespasser Sediment Adherence Factor - child - Exposure Factors Handbook   | 0.3      | (mg/cm2)  |
| ATtrs           | Trespasser Averaging Time  | 365      | (days/yr) |
| ATtrs           | Trespasser Averaging Time: 365 x LT  | 25550    | (days)    |
| ATtrs-a         | Trespasser Averaging Time - adult: 365 x EDtrs-a   | 7300     | (days)    |
| ATtrs-c         | Trespasser Averaging Time - child: 365 x EDtrs-c   | 2190     | (days)    |
| BW0-02          | Body Weight - age segment 0-2  | 15       | (kg)      |
| BW02-06         | Body Weight - age segment 2-6  | 15       | (kg)      |
| BW06-16         | Body Weight - age segment 6-16   | 80       | (kg)      |
| BW16-26         | Body Weight - age segment 16-26  | 80       | (kg)      |
| BWtrs-a         | Trespasser Body Weight - adult   | 80       | (kg)      |
| BWtrs-c         | Trespasser Body Weight - child   | 15       | (kg)      |
| DFSMtrs-adj     | Trespasser Soil Mutagenic Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values        | 29366.4  | (mg/kg)   |
| DFSMtrs-sed-adj | Trespasser Sediment Mutagenic Dermal Contact Factor - age adjusted - Virginia<br>DEQ calculated using age-segment values | 50926.08 | (mg/kg)   |
| DFStrs-adj      | Trespasser Soil Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values                  | 7089.6   | (mg/kg)   |

# Program: Voluntary Remediation Program (VRP)

### Risk Based Performance Criteria

Default Risk Individual Chemical Default Cumulative Risk-All Chemicals

| Delaul                    | t Hazard Index Default Risk Individual Chemical Defaul  | t cumulative Risk-All Chemica |
|---------------------------|---|-------------------------------|
|                           | 1 1.00E-06  | 1.00E-04                      |
| DFStrs-sed-adj            | Trespasser Sediment Dermal Contact Factor - age adjusted - Virginia DEQ calculated using age-segment values                   | 14072.64 (mg/kg)              |
| DFWMtrs-adj               | Trespasser Surface Water Mutagenic Dermal Contact Factor - age adjusted -<br>Virginia DEQ calculated using age-segment values | 561712 (cm2-event/kg          |
| DFWtrs-adj                | Trespasser Surface Water Dermal Contact Factor - age adjusted - Virginia DEQ<br>calculated using age-segment values           | 179016 (cm2-event/kg)         |
| D0-02                     | Exposure Duration - age segment 0-2   | 2 (yrs)                       |
| D02-06                    | Exposure Duration - age segment 2-6   | 4 (yrs)                       |
| D06-16                    | Exposure Duration -age segment 6-16   | 10 (yrs)                      |
| D16-26                    | Exposure Duration -age segment 16-26  | 10 (yrs)                      |
| Dtrs                      | Trespasser Soil/Sediment Exposure Duration  | 26 (yrs)                      |
| Dtrs-a                    | Trespasser Soil/Sediment Exposure Duration - adult  | 20 (yrs)                      |
| EDtrs-c                   | Trespasser Soil/Sediment Exposure Duration - child  | 6 (yrs)                       |
| Ftrs                      | Trespasser Exposure Frequency - Virginia DEQ  | 24 (days/yr)                  |
| Ftrs0-02                  | Trespasser Exposure Frequency - age segment 0-2 - Virginia DEQ  | 24 (days/yr)                  |
| Ftrs02-06                 | Trespasser Exposure Frequency - age segment 2-6 - Virginia DEQ  | 24 (days/yr)                  |
| Ftrs06-16                 | Trespasser Exposure Frequency - age segment 6-16 - Virginia DEQ   | 24 (days/yr)                  |
| Ftrs16-26                 | Trespasser Exposure Frequency - age segment 16-26 - Virginia DEQ  | 24 (days/yr)                  |
| Ftrs-a                    | Trespasser Exposure Frequency - adult - Virginia DEQ  | 24 (days/yr)                  |
| Ftrs-c                    | Trespasser Exposure Frequency - child - Virginia DEQ  | 24 (days/yr)                  |
| Tevent-rec/trs(0-<br>)2)  | Recreator/Trespasser Exposure Time - age segment 0-2 - Virginia DEQ   | 2 (hrs/event)                 |
| Tevent-rec/trs(02-<br>06) | Recreator/Trespasser Exposure Time - age segment 2-6 - Virginia DEQ   | 2 (hrs/event)                 |
| Tevent-rec/trs(06-        | Recreator/Trespasser Exposure Time - age segment 6-16 - Virginia DEQ  | 2 (hrs/event)                 |
| Tevent-rec/trs(16-<br>26) | Recreator/Trespasser Exposure Time - age segment 16-26 - Virginia DEQ   | 2 (hrs/event)                 |
| Tevent-trs-a              | Trespasser Surface Water Exposure Time - adult - Virginia DEQ   | 2 (hrs/event)                 |
| Tevent-trs-adj            | Trespasser Exposure Time - age adjusted - Virginia DEQ calculated using age-<br>segment values                                | 2 (hrs/event)                 |
| Tevent-trs-c              | Trespasser Surface Water Exposure Time - child - Virginia DEQ   | 2 (hrs/event)                 |
| Tevent-trs-madj           | Trespasser Exposure Time - mutagen age adjusted - Virginia DEQ calculated using age-segment values                            | 2 (hrs/event)                 |
| Trec/trs0-02              | Recreator/Trespasser Exposure Time - age segment 0-2 - Virginia DEQ   | 2 (hrs/day)                   |

# Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

|                 | Misk based Ferrormance Citteria   |              |              |
|-----------------|---|--------------|--------------|
| Defau           | It Hazard Index Default Risk Individual Chemical Default Cu   | mulative Ris | <-All Chemic |
|                 | 1 1.00E-06  | 1.00E-04     |              |
| Trec/trs02-06   | Recreator/Trespasser Exposure Time - age segment 2-6 - Virginia DEQ   | 2            | (hrs/day)    |
| Trec/trs06-16   | Recreator/Trespasser Exposure Time - age segment 6-16 - Virginia DEQ  | 2            | (hrs/day)    |
| Trec/trs16-26   | Recreator/Trespasser Exposure Time - age segment 16-26 - Virginia DEQ   | 2            | (hrs/day)    |
| Ttrs            | Trespasser Soil Exposure Time - Virginia DEQ  | 2            | (hrs/day)    |
| ETtrs-a         | Trespasser Exposure Time - adult - Virginia DEQ   | 2            | (hrs/day)    |
| ETtrs-c         | Trespasser Exposure Time - child - Virginia DEQ   | 2            | (hrs/day)    |
| Ttrs-sed        | Trespasser Sediment Exposure Time - Virginia DEQ  | 2            | (hrs)        |
| EV0-02          | Events - age segment 0-2  | 1            | (events/day) |
| EV02-06         | Events - age segment 2-6  | 1            | (events/day) |
| EV06-16         | Events - age segment 6-16   | 1            | (events/day) |
| V16-26          | Events - age segment 16-26  | 1            | (events/day) |
| EVtrs-a         | Trespasser Events - adult - Virginia DEQ  | 1            | (events/day) |
| EVtrs-c         | Trespasser Surface Water Events - child - Virginia DEQ  | 1            | (events/day) |
| FMtrs-sed-adj   | Trespasser Mutagenic Sediment Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values                | 11440        | (mg/kg)      |
| FSMtrs-adj      | Trespasser Mutagenic Soil Ingestion Rate - age adjusted - Virginia DEQ calculated<br>using age-segment values                 | 11440        | (mg/kg)      |
| FStrs-adj       | Trespasser Soil Ingestion Rate - age adjusted - Virginia DEQ calculated using age-<br>segment values                          | 2520         | (mg/kg)      |
| FStrs-sed-adj   | Trespasser Sediment Ingestion Rate - age adjusted - Virginia DEQ calculated using<br>age-segment values                       | 2520         | (mg/kg)      |
| FWMtrs-adj      | Trespasser Mutagenic Surface Water Ingestion Rate - age adjusted - Virginia DEQ calculated using age-segment values           | 15.111       | (L/kg)       |
| FWtrs-adj       | Trespasser Surface Water Ingestion Rate - age adjusted - Virginia DEQ calculated<br>using age-segment values                  | 3.624        | (L/kg)       |
| NHMtrs-sed-adj  | Trespasser Sediment Inhalation Exposure Duration Mutagen - age adjusted -<br>Virginia DEQ calculated using age-segment values | 144          | (days)       |
| NHMtrs-soil-adj | Trespasser Soil Inhalation Exposure Duration Mutagen - age adjusted - Virginia DEQ calculated using age-segment values        | 144          | (days)       |
| RS0-02          | Soil/Sediment Ingestion Rate - age segment 0-2  | 200          | (mg/day)     |
| RS02-06         | Soil/Sediment Ingestion Rate - age segment 2-6  | 200          | (mg/day)     |
| RS06-16         | Soil/Sediment Ingestion Rate - age segment 6-16   | 100          | (mg/day)     |
| RS16-26         | Soil/Sediment Ingestion Rate - age segment 16-26  | 100          | (mg/day)     |
| RStrs-a         | Trespasser Soil Ingestion Rate - adult  | 100          | (mg/day)     |

### Trespasser

# Program: Voluntary Remediation Program (VRP)

Risk Based Performance Criteria

| Def         | ault Hazard Index         | Default Risk Individual Chemical | Default Cumulative Ris |           |
|-------------|---------------------------|----------------------------------|------------------------|-----------|
|             | 1                         | 1.00E-06                         | 1.00E-04               | 1         |
| IRStrs-c    | Trespasser Soil Ingestion | n Rate - child                   | 200                    | (mg/day)  |
| IRtrs-sed-a | Trespasser Sediment Ing   | gestion Rate - adult             | 100                    | (mg/day)  |
| IRtrs-sed-c | Trespasser Sediment Ing   | gestion Rate - child             | 200                    | (mg/day)  |
| IRW0-02     | Surface Water Ingestion   | Rate - age segment 0-2           | 0.12                   | (L/hr)    |
| IRW02-06    | Surface Water Ingestion   | Rate - age segment 2-6           | 0.12                   | (L/hr)    |
| IRW06-16    | Surface Water Ingestion   | Rate - age segment 6-16          | 0.124                  | (L/hr)    |
| IRW16-26    | Surface Water Ingestion   | Rate - age segment 16-26         | 0.0985                 | (L/hr)    |
| IRWtrs-a    | Trespasser Surface Wat    | er Ingestion Rate - adult        | 0.11                   | (L/hr)    |
| IRWtrs-c    | Trespasser Surface Wat    | er Ingestion Rate - child        | 0.12                   | (L/hr)    |
| SAs0-02     | Surface Area Soil/Sedim   | ent - age segment 0-2            | 2373                   | (cm2/day) |
| SAs02-06    | Surface Area Soil/Sedim   | ent - age segment 2-6            | 2373                   | (cm2/day) |
| SAs06-16    | Surface Area Soil/Sedim   | ent - age segment 6-16           | 6032                   | (cm2/day) |
| SAs16-26    | Surface Area Soil/Sedim   | ent - age segment 16-26          | 6032                   | (cm2/day) |
| SAtrs-a     | Trespasser Soil Surface   | Area - adult                     | 6032                   | (cm2/day) |
| SAtrs-a     | Trespasser Surface Wat    | er Surface Area Surface - adult  | 19652                  | (cm2)     |
| SAtrs-c     | Trespasser Surface Wat    | er Surface Area - child          | 6365                   | (cm2)     |
| SAtrs-c     | Trespasser Soil Surface   | Area - child                     | 2373                   | (cm2/day) |
| SAtrs-sed-a | Trespasser Sediment Su    | rface Area - adult               | 6032                   | (cm2/day) |
| SAtrs-sed-c | Trespasser Sediment Su    | rface Area - child               | 2373                   | (cm2/day) |
| SAw0-02     | Surface Area Water - ag   | e segment 0-2                    | 6365                   | (cm2)     |
| SAw02-06    | Surface Area Water - ag   | e segment 2-6                    | 6365                   | (cm2)     |
| SAw06-16    | Surface Area Water - ag   | e segment 6- 16                  | 19652                  | (cm2)     |
| SAw16-26    | Surface Area Water - ag   | e segment 16- 26                 | 19652                  | (cm2)     |

# END OF REPORT