Parameter	Number of Results	Percent Nondetect	Maximum Detect[a]	Mean[b]	Distributional Assessments				Exposure Point Concentration	
					Normal	Gamma	Lognormal	Conclusion	Conc.	Method[c]
Aluminum	37	0	13,000	4,000	No	Yes	Yes	Gamma	4,700	95% KM (BCA)
Antimony	37	0.0811	12	2	No	No	No	No Distribution	4.7	97.5% KM (Chebyshev)
Arsenic	37	0.027	27	6.3	No	Yes	No	Gamma	10	95% KM (Chebyshev)
Barium	37	0	2,800	600	No	Yes	Yes	Gamma	1,200	95% KM (Chebyshev)
Cadmium	41	0.0976	21	3.6	No	Yes	Yes	Gamma	7.2	95% KM (Chebyshev)
Chromium	37	0	3,700	170	No	No	Yes	Lognormal	790	97.5% KM (Chebyshev)
Cobalt	37	0	180	13	No	No	No	No Distribution	48	97.5% KM (Chebyshev)
Copper	41	0	560	84	No	Yes	Yes	Gamma	150	95% KM (Chebyshev)
Manganese	37	0	1,800	350	No	No	No	No Distribution	580	95% KM (Chebyshev)
Mercury	318	0.0283	160	9	No	No	No	No Distribution	15	97.5% KM (Chebyshev)
Nickel	41	0	2,100	110	No	No	No	No Distribution	350	95% KM (Chebyshev)
Vanadium	37	0	280	24	No	No	No	No Distribution	78	97.5% KM (Chebyshev)
Dibenzofuran	33	0.2121	16	2	No	Yes	Yes	Gamma	4.8	95% KM (Chebyshev)
Dieldrin	32	0.5313	0.024	0.0045	No	Yes	Yes	Gamma	0.005	95% KM (t)
Dioxins (as TCDD equivalents)	8	0	230	75	Yes	Yes	No	Normal	130	95% Student's-t
PCBs	272	0.4007	23	0.59	No	No	No	No Distribution	1.3	97.5% KM (Chebyshev)
1,2,4-Trichlorobenzene	326	0.6411	380	6.8	No	No	No	No Distribution	17	97.5% KM (Chebyshev)
1,2,4-Trimethylbenzene	6	0	28	9	Yes	Yes	Yes	Normal	19	95% KM (t)
1,2-Dichlorobenzene	326	0.3865	1,100	15	No	No	No	No Distribution	38	97.5% KM (Chebyshev)
1,4-Dichlorobenzene	326	0.3129	3,000	25	No	No	No	No Distribution	84	97.5% KM (Chebyshev)
Benzene	325	0.1415	46	2.8	No	No	No	No Distribution	4.7	97.5% KM (Chebyshev)
Chlorobenzene	325	0.2769	1,500	19	No	No	No	No Distribution	52	97.5% KM (Chebyshev)
Ethylbenzene	325	0.2862	380	4.3	No	No	No	No Distribution	12	97.5% KM (Chebyshev)
Hexachlorobenzene	37	0.2162	19	1.2	No	No	Yes	Lognormal	6.4	99% KM (Chebyshev)
Pentachlorobenzene	4	0	6.7	1.9	na	na	na	na	6.7	Maximum detected
Unres. comb. of 1,2,3/4,5 Tetrachlorobenzene	4	0	21	6.9	na	na	na	na	21	Maximum detected
Xylenes, total	325	0.1938	310	28	No	No	No	No Distribution	45	97.5% KM (Chebyshev)
2-Methylnaphthalene	33	0.1515	37	6.4	No	Yes	No	Gamma	13	95% KM (Chebyshev)
Benz[a]anthracene	305	0.0492	31	2.3	No	No	No	No Distribution	4	97.5% KM (Chebyshev)
Benzo[a]pyrene	305	0.0721	32	1.8	No	No	Yes	Lognormal	3.2	97.5% KM (Chebyshev)
Benzo[b]fluoranthene	305	0.0721	28	1.9	No	No	Yes	Lognormal	3.2	97.5% KM (Chebyshev)
Benzo[k]fluoranthene	305	0.1541	17	0.88	No	No	Yes	Lognormal	1.5	97.5% KM (Chebyshev)
Chrysene	305	0.0426	30	2.3	No	No	No	No Distribution	3.9	97.5% KM (Chebyshev)
Dibenz[a,h]anthracene	305	0.1574	5.6	0.4	No	No	Yes	Lognormal	0.58	97.5% KM (Chebyshev)
Fluoranthene	305	0.0328	53	5	No	No	No	No Distribution	8.2	97.5% KM (Chebyshev)
Fluorene	305	0.3213	340	3.2	No	No	Yes	Lognormal	10	97.5% KM (Chebyshev)
Indeno[1,2,3-cd]pyrene	305	0.0951	14	0.92	No	No	Yes	Lognormal	1.5	97.5% KM (Chebyshev)
Naphthalene	322	0.1739	820	83	No	No	No	No Distribution	130	97.5% KM (Chebyshev)
Phenanthrene	305	0.0328	100	7.1	No	No	No	No Distribution	12	97.5% KM (Chebyshev)

Notes: All concentrations except dioxins are reported in mg/kg and rounded to two significant figures. Dioxins (as TCDD equivalents) is reported in ng/kg.

[a] - Maximum detected length-weighted average concentration.

[b] - Arithmetic average concentration with non-detected results included at the full detection limit.

[c] - ProUCL 4.0 was used for the unweighted assessment based on core length-weighted average concentrations. The UCL reported represents the method recommended by ProUCL. For most parameters, this was a Kaplan-Meier non-parametric method that accounts for multiple detection limits.

na - not applicable

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

ALUMINUM (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	673.3	Minimum Detected	6.512
Maximum Detected	12538	Maximum Detected	9.436
Mean of Detected	3951	Mean of Detected	8.086
SD of Detected	2404	SD of Detected	0.677
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.906	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3951	Mean	8.086
SD	2404	SD	0.677
95% DL/2 (t) UCL	4618	95% H-Stat (DL/2) UCL	5156

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.51	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	1574		
nu star	185.8		
A-D Test Statistic	0.495	Nonparametric Statistics	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	3951
5% K-S Critical Value	0.146	SD	2371
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	395.2
		95% KM (t) UCL	4618
Assuming Gamma Distribution		95% KM (z) UCL	4601
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4618
Minimum	673.3	95% KM (bootstrap t) UCL	4717
Maximum	12538	95% KM (BCA) UCL	4650
Mean	3951	95% KM (Percentile Bootstrap) UCL	4629
Median	4262	95% KM (Chebyshev) UCL	5674
SD	2404	97.5% KM (Chebyshev) UCL	6419
k star	2.51	99% KM (Chebyshev) UCL	7883
Theta star	1574		
Nu star	185.8	Potential UCLs to Use	
AppChi2	155.2	95% KM (BCA) UCL	4650
95% Gamma Approximate UCL	4728		
95% Adjusted Gamma UCL	4765		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

ANTIMONY (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	34
Number of Distinct Detected Data	34	Number of Non-Detect Data	3
Number of Missing Values	291	Percent Non-Detects	8.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.252	Minimum Detected	-1.378
Maximum Detected	11.65	Maximum Detected	2.455
Mean of Detected	2.132	Mean of Detected	0.152
SD of Detected	2.662	SD of Detected	1.074
Minimum Non-Detect	0.3	Minimum Non-Detect	-1.204
Maximum Non-Detect	0.471	Maximum Non-Detect	-0.754

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	27
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	27.03%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.704	Shapiro Wilk Test Statistic	0.916
5% Shapiro Wilk Critical Value	0.933	5% Shapiro Wilk Critical Value	0.933
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.974	Mean	5.65E-04
SD	2.606	SD	1.153
95% DL/2 (t) UCL	2.698	95% H-Stat (DL/2) UCL	2.614
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.422	Mean in Log Scale	0.0172
SD	3.18	SD in Log Scale	1.128
95% MLE (t) UCL	2.305	Mean in Original Scale	1.978
95% MLE (Tiku) UCL	2.327	SD in Original Scale	2.603
		95% Percentile Bootstrap UCL	2.716
		95% BCA Bootstrap UCL	2.848
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.894	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.386		
nu star	60.76		
A-D Test Statistic	1.97	Nonparametric Statistics	
5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	1.983
5% K-S Critical Value	0.156	SD	2.564
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.428
		95% KM (t) UCL	2.705
Assuming Gamma Distribution		95% KM (z) UCL	2.687
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.704
Minimum	1.00E-09	95% KM (bootstrap t) UCL	2.971
Maximum	11.65	95% KM (BCA) UCL	2.742
Mean	1.959	95% KM (Percentile Bootstrap) UCL	2.715
Median	0.824	95% KM (Chebyshev) UCL	3.848
SD	2.617	97.5% KM (Chebyshev) UCL	4.655
k star	0.303	99% KM (Chebyshev) UCL	6.241
Theta star	6.471		
Nu star	22.41	Potential UCLs to Use	
AppChi2	12.64	97.5% KM (Chebyshev) UCL	4.655
95% Gamma Approximate UCL	3.472		
95% Adjusted Gamma UCL	3.562		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

ARSENIC (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	36
Number of Distinct Detected Data	36	Number of Non-Detect Data	1
Number of Missing Values	291	Percent Non-Detects	2.70%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.865	Minimum Detected	-0.145
Maximum Detected	26.99	Maximum Detected	3.296
Mean of Detected	6.486	Mean of Detected	1.545
SD of Detected	5.221	SD of Detected	0.89
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.8	Shapiro Wilk Test Statistic	0.897
5% Shapiro Wilk Critical Value	0.935	5% Shapiro Wilk Critical Value	0.935
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.316	Mean	1.456
SD	5.252	SD	1.031
95% DL/2 (t) UCL	7.774	95% H-Stat (DL/2) UCL	9.688

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.249	Mean in Log Scale	1.486
SD	5.288	SD in Log Scale	0.948
95% MLE (t) UCL	7.717	Mean in Original Scale	6.326
95% MLE (Tiku) UCL	7.656	SD in Original Scale	5.241
		95% Percentile Bootstrap UCL	7.8
		95% BCA Bootstrap UCL	8.083

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.565	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	4.145		
nu star	112.7		
A-D Test Statistic	1.077	Nonparametric Statistics	
5% A-D Critical Value	0.764	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.764	Mean	6.335
5% K-S Critical Value	0.149	SD	5.159
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.86
		95% KM (t) UCL	7.787
Assuming Gamma Distribution		95% KM (z) UCL	7.75
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.786
Minimum	1.00E-09	95% KM (bootstrap t) UCL	8.271
Maximum	26.99	95% KM (BCA) UCL	7.786
Mean	6.311	95% KM (Percentile Bootstrap) UCL	7.833
Median	6.028	95% KM (Chebyshev) UCL	10.08
SD	5.258	97.5% KM (Chebyshev) UCL	11.71
k star	0.639	99% KM (Chebyshev) UCL	14.89
Theta star	9.881		
Nu star	47.27	Potential UCLs to Use	
AppChi2	32.49	95% KM (Chebyshev) UCL	10.08
95% Gamma Approximate UCL	9.182		
95% Adjusted Gamma UCL	9.335		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BARIUM (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	31.34	Minimum Detected	3.445
Maximum Detected	2817	Maximum Detected	7.943
Mean of Detected	599.1	Mean of Detected	5.665
SD of Detected	773.5	SD of Detected	1.252
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.7	Shapiro Wilk Test Statistic	0.961
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	599.1	Mean	5.665
SD	773.5	SD	1.252
95% DL/2 (t) UCL	813.8	95% H-Stat (DL/2) UCL	1109

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.763	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	784.9		
nu star	56.49		
A-D Test Statistic	1.01	Nonparametric Statistics	
5% A-D Critical Value	0.785	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.785	Mean	599.1
5% K-S Critical Value	0.15	SD	763
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	127.2
		95% KM (t) UCL	813.8
Assuming Gamma Distribution		95% KM (z) UCL	808.3
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	813.8
Minimum	31.34	95% KM (bootstrap t) UCL	883.6
Maximum	2817	95% KM (BCA) UCL	821.5
Mean	599.1	95% KM (Percentile Bootstrap) UCL	816.9
Median	285.2	95% KM (Chebyshev) UCL	1153
SD	773.5	97.5% KM (Chebyshev) UCL	1393
k star	0.763	99% KM (Chebyshev) UCL	1864
Theta star	784.9		
Nu star	56.49	Potential UCLs to Use	
AppChi2	40.21	95% KM (Chebyshev) UCL	1153
95% Gamma Approximate UCL	841.6		
95% Adjusted Gamma UCL	854.2		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

CADMIUM (mg/kg)

General Statistics

Number of Valid Data	41	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	4
Number of Missing Values	287	Percent Non-Detects	9.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0468	Minimum Detected	-3.061
Maximum Detected	20.84	Maximum Detected	3.037
Mean of Detected	3.95	Mean of Detected	0.399
SD of Detected	5.519	SD of Detected	1.551
Minimum Non-Detect	0.044	Minimum Non-Detect	-3.124
Maximum Non-Detect	0.987	Maximum Non-Detect	-0.0131

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	22
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	46.34%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.696	Shapiro Wilk Test Statistic	0.972
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.59	Mean	0.184
SD	5.352	SD	1.656
95% DL/2 (t) UCL	4.997	95% H-Stat (DL/2) UCL	9.377

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.857	Mean in Log Scale	0.169
SD	8.065	SD in Log Scale	1.661
95% MLE (t) UCL	2.978	Mean in Original Scale	3.584
95% MLE (Tiku) UCL	3.38	SD in Original Scale	5.356
		95% Percentile Bootstrap UCL	5.008
		95% BCA Bootstrap UCL	5.322

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.596	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	6.623		
nu star	44.13		
A-D Test Statistic	0.727	Nonparametric Statistics	
5% A-D Critical Value	0.8	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.8	Mean	3.588
5% K-S Critical Value	0.152	SD	5.288
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.837
		95% KM (t) UCL	4.997
Assuming Gamma Distribution		95% KM (z) UCL	4.965
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.994
Minimum	1.00E-09	95% KM (bootstrap t) UCL	5.561
Maximum	20.84	95% KM (BCA) UCL	5.113
Mean	3.564	95% KM (Percentile Bootstrap) UCL	4.99
Median	1.071	95% KM (Chebyshev) UCL	7.237
SD	5.368	97.5% KM (Chebyshev) UCL	8.816
k star	0.242	99% KM (Chebyshev) UCL	11.92
Theta star	14.75		
Nu star	19.82	Potential UCLs to Use	
AppChi2	10.72	95% KM (Chebyshev) UCL	7.237
95% Gamma Approximate UCL	6.591		
95% Adjusted Gamma UCL	6.745		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

CHROMIUM (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.2	Minimum Detected	1.163
Maximum Detected	3711	Maximum Detected	8.219
Mean of Detected	166	Mean of Detected	3.65
SD of Detected	604.5	SD of Detected	1.455
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.256	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	166	Mean	3.65
SD	604.5	SD	1.455
95% DL/2 (t) UCL	333.8	95% H-Stat (DL/2) UCL	226.9

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.425	Data appear Lognormal at 5% Significance Level	
Theta Star	390.8		
nu star	31.44		
A-D Test Statistic	3.087	Nonparametric Statistics	
5% A-D Critical Value	0.825	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.825	Mean	166
5% K-S Critical Value	0.154	SD	596.3
Data not Gamma Distributed at 5% Significance Level		SE of Mean	99.38
		95% KM (t) UCL	333.8
Assuming Gamma Distribution		95% KM (z) UCL	329.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	333.8
Minimum	3.2	95% KM (bootstrap t) UCL	1272
Maximum	3711	95% KM (BCA) UCL	370.2
Mean	166	95% KM (Percentile Bootstrap) UCL	360.8
Median	31.72	95% KM (Chebyshev) UCL	599.2
SD	604.5	97.5% KM (Chebyshev) UCL	786.6
k star	0.425	99% KM (Chebyshev) UCL	1155
Theta star	390.8		
Nu star	31.44	Potential UCLs to Use	
AppChi2	19.63	97.5% KM (Chebyshev) UCL	786.6
95% Gamma Approximate UCL	265.9		
95% Adjusted Gamma UCL	271.6		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

COBALT (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.29	Minimum Detected	-1.238
Maximum Detected	179	Maximum Detected	5.187
Mean of Detected	12.72	Mean of Detected	1.322
SD of Detected	34.07	SD of Detected	1.227
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.372	Shapiro Wilk Test Statistic	0.819
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	12.72	Mean	1.322
SD	34.07	SD	1.227
95% DL/2 (t) UCL	22.17	95% H-Stat (DL/2) UCL	13.73

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.494	Data do not follow a Discernable Distribution (0.05)	
Theta Star	25.76		
nu star	36.53		
A-D Test Statistic	6.056	Nonparametric Statistics	
5% A-D Critical Value	0.811	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.811	Mean	12.72
5% K-S Critical Value	0.153	SD	33.6
Data not Gamma Distributed at 5% Significance Level		SE of Mean	5.6
		95% KM (t) UCL	22.17
Assuming Gamma Distribution		95% KM (z) UCL	21.93
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	22.17
Minimum	0.29	95% KM (bootstrap t) UCL	49.98
Maximum	179	95% KM (BCA) UCL	23.19
Mean	12.72	95% KM (Percentile Bootstrap) UCL	22.66
Median	3.22	95% KM (Chebyshev) UCL	37.13
SD	34.07	97.5% KM (Chebyshev) UCL	47.69
k star	0.494	99% KM (Chebyshev) UCL	68.44
Theta star	25.76		
Nu star	36.53	Potential UCLs to Use	
AppChi2	23.69	97.5% KM (Chebyshev) UCL	47.69
95% Gamma Approximate UCL	19.6		
95% Adjusted Gamma UCL	19.98		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

COPPER (mg/kg)

General Statistics

Number of Valid Data	41	Number of Detected Data	41
Number of Distinct Detected Data	41	Number of Non-Detect Data	0
Number of Missing Values	287	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.8	Minimum Detected	0.588
Maximum Detected	561	Maximum Detected	6.33
Mean of Detected	83.68	Mean of Detected	3.874
SD of Detected	101.8	SD of Detected	1.165
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.661	Shapiro Wilk Test Statistic	0.954
5% Shapiro Wilk Critical Value	0.941	5% Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	83.68	Mean	3.874
SD	101.8	SD	1.165
95% DL/2 (t) UCL	110.5	95% H-Stat (DL/2) UCL	151.3

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.979	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	85.48		
nu star	80.27		
A-D Test Statistic	0.679	Nonparametric Statistics	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	83.68
5% K-S Critical Value	0.142	SD	100.6
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	15.9
		95% KM (t) UCL	110.5
Assuming Gamma Distribution		95% KM (z) UCL	109.8
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	110.5
Minimum	1.8	95% KM (bootstrap t) UCL	130.1
Maximum	561	95% KM (BCA) UCL	112.5
Mean	83.68	95% KM (Percentile Bootstrap) UCL	111.4
Median	56.32	95% KM (Chebyshev) UCL	153
SD	101.8	97.5% KM (Chebyshev) UCL	183
k star	0.979	99% KM (Chebyshev) UCL	241.9
Theta star	85.48		
Nu star	80.27	Potential UCLs to Use	
AppChi2	60.63	95% KM (Chebyshev) UCL	153
95% Gamma Approximate UCL	110.8		
95% Adjusted Gamma UCL	111.9		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

MANGANESE (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	123.6	Minimum Detected	4.817
Maximum Detected	1790	Maximum Detected	7.49
Mean of Detected	349.3	Mean of Detected	5.636
SD of Detected	322.3	SD of Detected	0.591
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.604	Shapiro Wilk Test Statistic	0.878
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	349.3	Mean	5.636
SD	322.3	SD	0.591
95% DL/2 (t) UCL	438.8	95% H-Stat (DL/2) UCL	405.9

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.25	Data do not follow a Discernable Distribution (0.05)	
Theta Star	155.2		
nu star	166.5		
A-D Test Statistic	2.556	Nonparametric Statistics	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	349.3
5% K-S Critical Value	0.146	SD	317.9
Data not Gamma Distributed at 5% Significance Level		SE of Mean	52.99
		95% KM (t) UCL	438.8
Assuming Gamma Distribution		95% KM (z) UCL	436.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	438.8
Minimum	123.6	95% KM (bootstrap t) UCL	512.8
Maximum	1790	95% KM (BCA) UCL	452.9
Mean	349.3	95% KM (Percentile Bootstrap) UCL	441.6
Median	235.1	95% KM (Chebyshev) UCL	580.3
SD	322.3	97.5% KM (Chebyshev) UCL	680.2
k star	2.25	99% KM (Chebyshev) UCL	876.5
Theta star	155.2		
Nu star	166.5	Potential UCLs to Use	
AppChi2	137.7	95% KM (Chebyshev) UCL	580.3
95% Gamma Approximate UCL	422.5		
95% Adjusted Gamma UCL	426		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

MERCURY (mg/kg)

General Statistics

Number of Valid Data	318	Number of Detected Data	309
Number of Distinct Detected Data	305	Number of Non-Detect Data	9
Number of Missing Values	10	Percent Non-Detects	2.83%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.008	Minimum Detected	-4.828
Maximum Detected	156	Maximum Detected	5.05
Mean of Detected	9.291	Mean of Detected	0.507
SD of Detected	16.38	SD of Detected	2.244
Minimum Non-Detect	0.0067	Minimum Non-Detect	-5.006
Maximum Non-Detect	0.361	Maximum Non-Detect	-1.018

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	81
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	237
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	25.47%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.294	Lilliefors Test Statistic	0.0662
5% Lilliefors Critical Value	0.0504	5% Lilliefors Critical Value	0.0504
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.029	Mean	0.371
SD	16.22	SD	2.362
95% DL/2 (t) UCL	10.53	95% H-Stat (DL/2) UCL	32.87
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.513	Mean in Log Scale	0.376
SD	19.8	SD in Log Scale	2.35
95% MLE (t) UCL	7.344	Mean in Original Scale	9.028
95% MLE (Tiku) UCL	7.367	SD in Original Scale	16.22
		95% Percentile Bootstrap UCL	10.57
		95% BCA Bootstrap UCL	10.81
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.383	Data do not follow a Discernable Distribution (0.05)	
Theta Star	24.26		
nu star	236.7		
A-D Test Statistic	6.045	Nonparametric Statistics	
5% A-D Critical Value	0.85	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.85	Mean	9.028
5% K-S Critical Value	0.0553	SD	16.19
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.909
		95% KM (t) UCL	10.53
Assuming Gamma Distribution		95% KM (z) UCL	10.52
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	10.53
Minimum	1.00E-09	95% KM (bootstrap t) UCL	10.79
Maximum	156	95% KM (BCA) UCL	10.62
Mean	9.028	95% KM (Percentile Bootstrap) UCL	10.58
Median	1.663	95% KM (Chebyshev) UCL	12.99
SD	16.22	97.5% KM (Chebyshev) UCL	14.71
k star	0.3	99% KM (Chebyshev) UCL	18.08
Theta star	30.11		
Nu star	190.7	Potential UCLs to Use	
AppChi2	159.7	97.5% KM (Chebyshev) UCL	14.71
95% Gamma Approximate UCL	10.78		
95% Adjusted Gamma UCL	10.79		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

NICKEL (mg/kg)

General Statistics			
Number of Valid Data	41	Number of Detected Data	41
Number of Distinct Detected Data	41	Number of Non-Detect Data	0
Number of Missing Values	287	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3	Minimum Detected	1.099
Maximum Detected	2090	Maximum Detected	7.645
Mean of Detected	111.1	Mean of Detected	3.279
SD of Detected	348.3	SD of Detected	1.362
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.325	Shapiro Wilk Test Statistic	0.904
5% Shapiro Wilk Critical Value	0.941	5% Shapiro Wilk Critical Value	0.941
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	111.1	Mean	3.279
SD	348.3	SD	1.362
95% DL/2 (t) UCL	202.6	95% H-Stat (DL/2) UCL	122.2
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.434	Data do not follow a Discernable Distribution (0.05)	
Theta Star	255.7		
nu star	35.61		
A-D Test Statistic	5.215	Nonparametric Statistics	
5% A-D Critical Value	0.824	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.824	Mean	111.1
5% K-S Critical Value	0.147	SD	344
Data not Gamma Distributed at 5% Significance Level		SE of Mean	54.39
		95% KM (t) UCL	202.6
Assuming Gamma Distribution		95% KM (z) UCL	200.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	202.6
Minimum	3	95% KM (bootstrap t) UCL	389.5
Maximum	2090	95% KM (BCA) UCL	215.8
Mean	111.1	95% KM (Percentile Bootstrap) UCL	210.5
Median	27.32	95% KM (Chebyshev) UCL	348.1
SD	348.3	97.5% KM (Chebyshev) UCL	450.7
k star	0.434	99% KM (Chebyshev) UCL	652.2
Theta star	255.7		
Nu star	35.61	Potential UCLs to Use	
AppChi2	22.95	95% KM (Chebyshev) UCL	348.1
95% Gamma Approximate UCL	172.3		
95% Adjusted Gamma UCL	175.1		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

VANADIUM (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	37
Number of Distinct Detected Data	37	Number of Non-Detect Data	0
Number of Missing Values	291	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.753	Minimum Detected	0.562
Maximum Detected	279	Maximum Detected	5.631
Mean of Detected	23.65	Mean of Detected	2.248
SD of Detected	53.14	SD of Detected	1.11
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.416	Shapiro Wilk Test Statistic	0.878
5% Shapiro Wilk Critical Value	0.936	5% Shapiro Wilk Critical Value	0.936
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	23.65	Mean	2.248
SD	53.14	SD	1.11
95% DL/2 (t) UCL	38.4	95% H-Stat (DL/2) UCL	27.93

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.629	Data do not follow a Discernable Distribution (0.05)	
Theta Star	37.59		
nu star	46.56		
A-D Test Statistic	4.282	Nonparametric Statistics	
5% A-D Critical Value	0.797	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.797	Mean	23.65
5% K-S Critical Value	0.152	SD	52.41
Data not Gamma Distributed at 5% Significance Level		SE of Mean	8.736
		95% KM (t) UCL	38.4
Assuming Gamma Distribution		95% KM (z) UCL	38.02
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	38.4
Minimum	1.753	95% KM (bootstrap t) UCL	57.4
Maximum	279	95% KM (BCA) UCL	38.9
Mean	23.65	95% KM (Percentile Bootstrap) UCL	39.84
Median	9.179	95% KM (Chebyshev) UCL	61.73
SD	53.14	97.5% KM (Chebyshev) UCL	78.21
k star	0.629	99% KM (Chebyshev) UCL	110.6
Theta star	37.59		
Nu star	46.56	Potential UCLs to Use	
AppChi2	31.91	97.5% KM (Chebyshev) UCL	78.21
95% Gamma Approximate UCL	34.52		
95% Adjusted Gamma UCL	35.1		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

DIBENZOFURAN (mg/kg)

General Statistics

Number of Valid Data	33	Number of Detected Data	26
Number of Distinct Detected Data	26	Number of Non-Detect Data	7
Number of Missing Values	295	Percent Non-Detects	21.21%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0476	Minimum Detected	-3.044
Maximum Detected	16.35	Maximum Detected	2.794
Mean of Detected	2.417	Mean of Detected	-0.0461
SD of Detected	4.12	SD of Detected	1.453
Minimum Non-Detect	0.0537	Minimum Non-Detect	-2.925
Maximum Non-Detect	1.087	Maximum Non-Detect	0.0837

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	14
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	57.58%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.532	Shapiro Wilk Test Statistic	0.969
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.937	Mean	-0.597
SD	3.763	SD	1.763
95% DL/2 (t) UCL	3.046	95% H-Stat (DL/2) UCL	6.157
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.579
		SD in Log Scale	1.674
		Mean in Original Scale	1.924
		SD in Original Scale	3.768
		95% Percentile Bootstrap UCL	3.088
		95% BCA Bootstrap UCL	3.463
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.606	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	3.986		
nu star	31.54		
A-D Test Statistic	0.781	Nonparametric Statistics	
5% A-D Critical Value	0.793	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.793	Mean	1.927
5% K-S Critical Value	0.179	SD	3.709
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.659
		95% KM (t) UCL	3.043
Assuming Gamma Distribution		95% KM (z) UCL	3.01
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.036
Minimum	1.00E-09	95% KM (bootstrap t) UCL	5.439
Maximum	16.35	95% KM (BCA) UCL	3.102
Mean	1.933	95% KM (Percentile Bootstrap) UCL	3.096
Median	0.624	95% KM (Chebyshev) UCL	4.798
SD	3.765	97.5% KM (Chebyshev) UCL	6.04
k star	0.194	99% KM (Chebyshev) UCL	8.48
Theta star	9.981		
Nu star	12.78	Potential UCLs to Use	
AppChi2	5.745	95% KM (Chebyshev) UCL	4.798
95% Gamma Approximate UCL	4.299		
95% Adjusted Gamma UCL	4.489		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

DIELDRIN (mg/kg)

General Statistics

Number of Valid Data	32	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	17
Number of Missing Values	296	Percent Non-Detects	53.13%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00104	Minimum Detected	-6.873
Maximum Detected	0.0243	Maximum Detected	-3.717
Mean of Detected	0.00619	Mean of Detected	-5.602
SD of Detected	0.00681	SD of Detected	1.044
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.00901	Maximum Non-Detect	-4.709

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	28
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	87.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.77	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00372	Mean	-6.288
SD	0.00526	SD	1.164
95% DL/2 (t) UCL	0.0053	95% H-Stat (DL/2) UCL	0.00473

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.703
		SD in Log Scale	1.31
		Mean in Original Scale	0.00318
		SD in Original Scale	0.00541
		95% Percentile Bootstrap UCL	0.00484
		95% BCA Bootstrap UCL	0.00526

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.928	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.00667		
nu star	27.83		
A-D Test Statistic	0.648	Nonparametric Statistics	
5% A-D Critical Value	0.761	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.761	Mean	0.00357
5% K-S Critical Value	0.227	SD	0.00516
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	9.50E-04
		95% KM (t) UCL	0.00518
Assuming Gamma Distribution		95% KM (z) UCL	0.00514
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.00514
Minimum	0.00104	95% KM (bootstrap t) UCL	0.00622
Maximum	0.0243	95% KM (BCA) UCL	0.00536
Mean	0.00609	95% KM (Percentile Bootstrap) UCL	0.00523
Median	0.00462	95% KM (Chebyshev) UCL	0.00771
SD	0.00519	97.5% KM (Chebyshev) UCL	0.00951
k star	1.511	99% KM (Chebyshev) UCL	0.013
Theta star	0.00403		
Nu star	96.7	Potential UCLs to Use	
AppChi2	75.02	95% KM (t) UCL	0.00518
95% Gamma Approximate UCL	0.00785		
95% Adjusted Gamma UCL	0.00796		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

DIOXINS (as TCDD equivalents)

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		Log-transformed Statistics	
Minimum	0.6	Minimum of Log Data	-0.51083
Maximum	229.25	Maximum of Log Data	5.434813
Mean	74.90375	Mean of log Data	2.891502
Median	64.715	SD of log Data	2.474948
SD	80.30804		
Coefficient of Variation	1.07215		
Skewness	0.97689		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.883714	Shapiro Wilk Test Statistic	0.809705
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	128.6969	95% H-UCL	425641.8
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	701.9146
95% Adjusted-CLT UCL	132.0848	97.5% Chebyshev (MVUE) UCL	936.9635
95% Modified-t UCL	130.3313	99% Chebyshev (MVUE) UCL	1398.672

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.366343	Data appear Normal at 5% Significance Level	
Theta Star	204.4636		
MLE of Mean	74.90375		
MLE of Standard Deviation	123.7542		
nu star	5.861484		
Approximate Chi Square Value (.05)	1.569493	Nonparametric Statistics	
Adjusted Level of Significance	0.01946	95% CLT UCL	121.6064
Adjusted Chi Square Value	1.075581	95% Jackknife UCL	128.6969
		95% Standard Bootstrap UCL	118.4452
Anderson-Darling Test Statistic	0.617797	95% Bootstrap-t UCL	149.8426
Anderson-Darling 5% Critical Value	0.770601	95% Hall's Bootstrap UCL	141.6336
Kolmogorov-Smirnov Test Statistic	0.251247	95% Percentile Bootstrap UCL	119.74
Kolmogorov-Smirnov 5% Critical Value	0.310868	95% BCA Bootstrap UCL	129.14
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	198.6667
		97.5% Chebyshev(Mean, Sd) UCL	252.2191
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	357.4123
95% Approximate Gamma UCL	279.7381		
95% Adjusted Gamma UCL	408.1951		

Potential UCL to Use		Use 95% Student's-t UCL	128.6969

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

PCBs (mg/kg)

General Statistics			
Number of Valid Data	272	Number of Detected Data	163
Number of Distinct Detected Data	163	Number of Non-Detect Data	109
Number of Missing Values	19	Percent Non-Detects	40.07%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00448	Minimum Detected	-5.408
Maximum Detected	23	Maximum Detected	3.135
Mean of Detected	0.96	Mean of Detected	-1.856
SD of Detected	2.5	SD of Detected	1.917
Minimum Non-Detect	0.00485	Minimum Non-Detect	-5.329
Maximum Non-Detect	0.278	Maximum Non-Detect	-1.282

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	217
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	55
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	79.78%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.351	Lilliefors Test Statistic	0.114
5% Lilliefors Critical Value	0.0694	5% Lilliefors Critical Value	0.0694
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.583	Mean	-2.832
SD	1.987	SD	1.984
95% DL/2 (t) UCL	0.782	95% H-Stat (DL/2) UCL	0.51
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.234
		SD in Log Scale	2.291
		Mean in Original Scale	0.578
		SD in Original Scale	1.989
		95% Percentile Bootstrap UCL	0.79
		95% BCA Bootstrap UCL	0.861
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.365	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.629		
nu star	119		
A-D Test Statistic	9.933	Nonparametric Statistics	
5% A-D Critical Value	0.852	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.852	Mean	0.58
5% K-S Critical Value	0.0788	SD	1.984
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.121
		95% KM (t) UCL	0.779
Assuming Gamma Distribution		95% KM (z) UCL	0.778
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.779
Minimum	0.00448	95% KM (bootstrap t) UCL	0.882
Maximum	23	95% KM (BCA) UCL	0.794
Mean	0.781	95% KM (Percentile Bootstrap) UCL	0.788
Median	0.342	95% KM (Chebyshev) UCL	1.106
SD	1.949	97.5% KM (Chebyshev) UCL	1.334
k star	0.539	99% KM (Chebyshev) UCL	1.781
Theta star	1.449		
Nu star	293.1	Potential UCLs to Use	
AppChi2	254.4	97.5% KM (Chebyshev) UCL	1.334
95% Gamma Approximate UCL	0.899		
95% Adjusted Gamma UCL	0.9		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

1,2,4-TRICHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	326	Number of Detected Data	117
Number of Distinct Detected Data	117	Number of Non-Detect Data	209
Number of Missing Values	2	Percent Non-Detects	64.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00385	Minimum Detected	-5.559
Maximum Detected	382.8	Maximum Detected	5.947
Mean of Detected	15.92	Mean of Detected	0.931
SD of Detected	51.51	SD of Detected	2.482
Minimum Non-Detect	0.00651	Minimum Non-Detect	-5.035
Maximum Non-Detect	32.03	Maximum Non-Detect	3.467

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	319
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.379	Lilliefors Test Statistic	0.205
5% Lilliefors Critical Value	0.0819	5% Lilliefors Critical Value	0.0819
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.257	Mean	-1.753
SD	31.67	SD	3.277
95% DL/2 (t) UCL	9.15	95% H-Stat (DL/2) UCL	36.59

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.087
		SD in Log Scale	2.736
		Mean in Original Scale	5.732
		SD in Original Scale	31.71
		95% Percentile Bootstrap UCL	8.889
		95% BCA Bootstrap UCL	10.07

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.36	Data do not follow a Discernable Distribution (0.05)	
Theta Star	44.22		
nu star	84.26		

A-D Test Statistic	4.008	Nonparametric Statistics	
5% A-D Critical Value	0.852	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.852	Mean	5.811
5% K-S Critical Value	0.0916	SD	31.66
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.761
		95% KM (t) UCL	8.717
Assuming Gamma Distribution		95% KM (z) UCL	8.708
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.709
Minimum	0.00385	95% KM (bootstrap t) UCL	12.81
Maximum	382.8	95% KM (BCA) UCL	9.322
Mean	16.38	95% KM (Percentile Bootstrap) UCL	8.979
Median	12.48	95% KM (Chebyshev) UCL	13.49
SD	31.36	97.5% KM (Chebyshev) UCL	16.81
k star	0.822	99% KM (Chebyshev) UCL	23.34
Theta star	19.92		
Nu star	536.2	Potential UCLs to Use	
AppChi2	483.5	97.5% KM (Chebyshev) UCL	16.81
95% Gamma Approximate UCL	18.16		
95% Adjusted Gamma UCL	18.17		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

1,2,4-TRIMETHYLBENZENE (mg/kg)

General Statistics

Number of Valid Data	6	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	0
Number of Missing Values	311	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.017	Minimum Detected	-4.075
Maximum Detected	28	Maximum Detected	3.332
Mean of Detected	9.036	Mean of Detected	0.124
SD of Detected	11.97	SD of Detected	3.238
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Test Statistic	0.852
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.036	Mean	0.124
SD	11.97	SD	3.238
95% DL/2 (t) UCL	18.88	95% H-Stat (DL/2) UCL	1.14E+10

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.275	Data appear Normal at 5% Significance Level	
Theta Star	32.89		
nu star	3.297		
A-D Test Statistic	0.356	Nonparametric Statistics	
5% A-D Critical Value	0.762	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.762	Mean	9.036
5% K-S Critical Value	0.356	SD	10.93
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	4.887
		95% KM (t) UCL	18.88
Assuming Gamma Distribution		95% KM (z) UCL	17.07
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	18.88
Minimum	0.017	95% KM (bootstrap t) UCL	56.12
Maximum	28	95% KM (BCA) UCL	16.69
Mean	9.036	95% KM (Percentile Bootstrap) UCL	17.04
Median	3.062	95% KM (Chebyshev) UCL	30.34
SD	11.97	97.5% KM (Chebyshev) UCL	39.56
k star	0.275	99% KM (Chebyshev) UCL	57.66
Theta star	32.89		
Nu star	3.297	Potential UCLs to Use	
AppChi2	0.466	95% KM (t) UCL	18.88
95% Gamma Approximate UCL	63.98	95% KM (Percentile Bootstrap) UCL	17.04
95% Adjusted Gamma UCL	140.4		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

1,2-DICHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	326	Number of Detected Data	200
Number of Distinct Detected Data	200	Number of Non-Detect Data	126
Number of Missing Values	2	Percent Non-Detects	38.65%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.20E-04	Minimum Detected	-7.775
Maximum Detected	1078	Maximum Detected	6.982
Mean of Detected	23.88	Mean of Detected	0.489
SD of Detected	83.65	SD of Detected	3.325
Minimum Non-Detect	0.00658	Minimum Non-Detect	-5.023
Maximum Non-Detect	25.32	Maximum Non-Detect	3.232

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	282
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	44
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	86.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.388	Lilliefors Test Statistic	0.165
5% Lilliefors Critical Value	0.0626	5% Lilliefors Critical Value	0.0626
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	14.74	Mean	-1.343
SD	66.47	SD	3.674
95% DL/2 (t) UCL	20.81	95% H-Stat (DL/2) UCL	226.9

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.37
		SD in Log Scale	3.517
		Mean in Original Scale	14.66
		SD in Original Scale	66.49
		95% Percentile Bootstrap UCL	21.47
		95% BCA Bootstrap UCL	25.41

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.262	Data do not follow a Discernable Distribution (0.05)	
Theta Star	91.17		
nu star	104.8		

		Nonparametric Statistics	
A-D Test Statistic	1.916	Kaplan-Meier (KM) Method	
5% A-D Critical Value	0.886	Mean	14.67
K-S Test Statistic	0.886	SD	66.38
5% K-S Critical Value	0.0696	SE of Mean	3.686
Data not Gamma Distributed at 5% Significance Level		95% KM (t) UCL	20.75
Assuming Gamma Distribution		95% KM (z) UCL	20.73
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	20.74
Minimum	1.00E-09	95% KM (bootstrap t) UCL	28.29
Maximum	1078	95% KM (BCA) UCL	21.79
Mean	15.66	95% KM (Percentile Bootstrap) UCL	21.5
Median	2.394	95% KM (Chebyshev) UCL	30.73
SD	66.32	97.5% KM (Chebyshev) UCL	37.69
k star	0.255	99% KM (Chebyshev) UCL	51.34
Theta star	61.39		
Nu star	166.3	Potential UCLs to Use	
AppChi2	137.5	97.5% KM (Chebyshev) UCL	37.69
95% Gamma Approximate UCL	18.94		
95% Adjusted Gamma UCL	18.95		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

1,4-DICHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	326	Number of Detected Data	224
Number of Distinct Detected Data	224	Number of Non-Detect Data	102
Number of Missing Values	2	Percent Non-Detects	31.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.78E-04	Minimum Detected	-7.038
Maximum Detected	3026	Maximum Detected	8.015
Mean of Detected	35.92	Mean of Detected	0.45
SD of Detected	205.8	SD of Detected	3.456
Minimum Non-Detect	0.00658	Minimum Non-Detect	-5.023
Maximum Non-Detect	25.32	Maximum Non-Detect	3.232

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	272
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	54
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.44%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.431	Lilliefors Test Statistic	0.156
5% Lilliefors Critical Value	0.0592	5% Lilliefors Critical Value	0.0592
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	24.77	Mean	-1.03
SD	171.3	SD	3.777
95% DL/2 (t) UCL	40.42	95% H-Stat (DL/2) UCL	520.8

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.105
		SD in Log Scale	3.698
		Mean in Original Scale	24.69
		SD in Original Scale	171.3
		95% Percentile Bootstrap UCL	43.12
		95% BCA Bootstrap UCL	58.06

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.23	Data do not follow a Discernable Distribution (0.05)	
Theta Star	156.3		
nu star	103		

		Nonparametric Statistics	
A-D Test Statistic	3.978	Kaplan-Meier (KM) Method	
5% A-D Critical Value	0.901	Mean	24.7
K-S Test Statistic	0.901	SD	171
5% K-S Critical Value	0.067	SE of Mean	9.495
Data not Gamma Distributed at 5% Significance Level		95% KM (t) UCL	40.36
		95% KM (z) UCL	40.32
Assuming Gamma Distribution		95% KM (jackknife) UCL	40.35
Gamma ROS Statistics using Extrapolated Data		95% KM (bootstrap t) UCL	84.61
Minimum	1.00E-09	95% KM (BCA) UCL	45.13
Maximum	3026	95% KM (Percentile Bootstrap) UCL	43.26
Mean	24.73	95% KM (Chebyshev) UCL	66.09
Median	0.109	97.5% KM (Chebyshev) UCL	83.99
SD	171.3	99% KM (Chebyshev) UCL	119.2
k star	0.0898		
Theta star	275.5		
Nu star	58.53	Potential UCLs to Use	
AppChi2	41.94	97.5% KM (Chebyshev) UCL	83.99
95% Gamma Approximate UCL	34.52		
95% Adjusted Gamma UCL	34.57		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BENZENE (mg/kg)

General Statistics

Number of Valid Data	325	Number of Detected Data	279
Number of Distinct Detected Data	275	Number of Non-Detect Data	46
Number of Missing Values	2	Percent Non-Detects	14.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.94E-04	Minimum Detected	-7.613
Maximum Detected	45.86	Maximum Detected	3.826
Mean of Detected	3.248	Mean of Detected	-1.101
SD of Detected	5.867	SD of Detected	3.069
Minimum Non-Detect	0.00139	Minimum Non-Detect	-6.578
Maximum Non-Detect	9.48	Maximum Non-Detect	2.249

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	300
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	25
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	92.31%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.29	Lilliefors Test Statistic	0.162
5% Lilliefors Critical Value	0.053	5% Lilliefors Critical Value	0.053
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.811	Mean	-1.679
SD	5.548	SD	3.245
95% DL/2 (t) UCL	3.319	95% H-Stat (DL/2) UCL	53.58

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.686
		SD in Log Scale	3.214
		Mean in Original Scale	2.79
		SD in Original Scale	5.551
		95% Percentile Bootstrap UCL	3.311
		95% BCA Bootstrap UCL	3.408

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.301	Data do not follow a Discernable Distribution (0.05)	
Theta Star	10.78		
nu star	168.2		

A-D Test Statistic	4.065	Nonparametric Statistics	
5% A-D Critical Value	0.87	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.87	Mean	2.796
5% K-S Critical Value	0.0592	SD	5.542
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.308
		95% KM (t) UCL	3.304
Assuming Gamma Distribution		95% KM (z) UCL	3.303
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.304
Minimum	1.00E-09	95% KM (bootstrap t) UCL	3.401
Maximum	45.86	95% KM (BCA) UCL	3.337
Mean	2.795	95% KM (Percentile Bootstrap) UCL	3.308
Median	0.44	95% KM (Chebyshev) UCL	4.139
SD	5.549	97.5% KM (Chebyshev) UCL	4.72
k star	0.16	99% KM (Chebyshev) UCL	5.861
Theta star	17.47		
Nu star	104	Potential UCLs to Use	
AppChi2	81.47	97.5% KM (Chebyshev) UCL	4.72
95% Gamma Approximate UCL	3.568		
95% Adjusted Gamma UCL	3.571		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

CHLOROBENZENE (mg/kg)

General Statistics			
Number of Valid Data	325	Number of Detected Data	235
Number of Distinct Detected Data	235	Number of Non-Detect Data	90
Number of Missing Values	2	Percent Non-Detects	27.69%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0012	Minimum Detected	-6.725
Maximum Detected	1504	Maximum Detected	7.316
Mean of Detected	26.33	Mean of Detected	0.308
SD of Detected	109.5	SD of Detected	3.28
Minimum Non-Detect	0.00658	Minimum Non-Detect	-5.023
Maximum Non-Detect	25.32	Maximum Non-Detect	3.232

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	279
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	46
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.85%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.405	Lilliefors Test Statistic	0.14
5% Lilliefors Critical Value	0.0578	5% Lilliefors Critical Value	0.0578
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.1	Mean	-1.044
SD	93.77	SD	3.656
95% DL/2 (t) UCL	27.68	95% H-Stat (DL/2) UCL	323.6
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.075
		SD in Log Scale	3.594
		Mean in Original Scale	19.04
		SD in Original Scale	93.78
		95% Percentile Bootstrap UCL	28.77
		95% BCA Bootstrap UCL	34.54
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.241	Data do not follow a Discernable Distribution (0.05)	
Theta Star	109.3		
nu star	113.2		
A-D Test Statistic	4.032	Nonparametric Statistics	
5% A-D Critical Value	0.896	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.896	Mean	19.05
5% K-S Critical Value	0.0655	SD	93.64
Data not Gamma Distributed at 5% Significance Level		SE of Mean	5.205
		95% KM (t) UCL	27.64
Assuming Gamma Distribution		95% KM (z) UCL	27.61
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	27.63
Minimum	1.00E-09	95% KM (bootstrap t) UCL	39.2
Maximum	1504	95% KM (BCA) UCL	29.32
Mean	19.07	95% KM (Percentile Bootstrap) UCL	28.68
Median	0.199	95% KM (Chebyshev) UCL	41.74
SD	93.78	97.5% KM (Chebyshev) UCL	51.56
k star	0.0983	99% KM (Chebyshev) UCL	70.84
Theta star	194		
Nu star	63.87	Potential UCLs to Use	
AppChi2	46.49	97.5% KM (Chebyshev) UCL	51.56
95% Gamma Approximate UCL	26.2		
95% Adjusted Gamma UCL	26.24		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

ETHYLBENZENE (mg/kg)

General Statistics

Number of Valid Data	325	Number of Detected Data	232
Number of Distinct Detected Data	230	Number of Non-Detect Data	93
Number of Missing Values	2	Percent Non-Detects	28.62%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00103	Minimum Detected	-6.881
Maximum Detected	376.1	Maximum Detected	5.93
Mean of Detected	5.487	Mean of Detected	-0.9
SD of Detected	27.81	SD of Detected	2.959
Minimum Non-Detect	0.00139	Minimum Non-Detect	-6.578
Maximum Non-Detect	26.11	Maximum Non-Detect	3.262

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	322
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	99.08%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.422	Lilliefors Test Statistic	0.17
5% Lilliefors Critical Value	0.0582	5% Lilliefors Critical Value	0.0582
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.117	Mean	-1.984
SD	23.61	SD	3.325
95% DL/2 (t) UCL	6.278	95% H-Stat (DL/2) UCL	42.51

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.201
		SD in Log Scale	3.316
		Mean in Original Scale	3.92
		SD in Original Scale	23.61
		95% Percentile Bootstrap UCL	6.32
		95% BCA Bootstrap UCL	7.705

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.269	Data do not follow a Discernable Distribution (0.05)	
Theta Star	20.4		
nu star	124.8		

A-D Test Statistic	6.099	Nonparametric Statistics	
5% A-D Critical Value	0.883	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.883	Mean	3.959
5% K-S Critical Value	0.0655	SD	23.57
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.311
		95% KM (t) UCL	6.12
Assuming Gamma Distribution		95% KM (z) UCL	6.114
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.119
Minimum	1.00E-09	95% KM (bootstrap t) UCL	13.33
Maximum	376.1	95% KM (BCA) UCL	6.595
Mean	4.051	95% KM (Percentile Bootstrap) UCL	6.365
Median	0.165	95% KM (Chebyshev) UCL	9.671
SD	23.6	97.5% KM (Chebyshev) UCL	12.14
k star	0.109	99% KM (Chebyshev) UCL	17
Theta star	37.04		
Nu star	71.09	Potential UCLs to Use	
AppChi2	52.68	97.5% KM (Chebyshev) UCL	12.14
95% Gamma Approximate UCL	5.466		
95% Adjusted Gamma UCL	5.474		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

HEXACHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	37	Number of Detected Data	29
Number of Distinct Detected Data	29	Number of Non-Detect Data	8
Number of Missing Values	291	Percent Non-Detects	21.62%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0106	Minimum Detected	-4.551
Maximum Detected	18.51	Maximum Detected	2.918
Mean of Detected	1.342	Mean of Detected	-1.257
SD of Detected	3.629	SD of Detected	1.699
Minimum Non-Detect	0.00106	Minimum Non-Detect	-6.849
Maximum Non-Detect	2.5	Maximum Non-Detect	0.916

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	34
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	91.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.386	Shapiro Wilk Test Statistic	0.972
5% Shapiro Wilk Critical Value	0.926	5% Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.12	Mean	-1.691
SD	3.236	SD	2.115
95% DL/2 (t) UCL	2.018	95% H-Stat (DL/2) UCL	6.058

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.781
		SD in Log Scale	1.908
		Mean in Original Scale	1.063
		SD in Original Scale	3.246
		95% Percentile Bootstrap UCL	2.021
		95% BCA Bootstrap UCL	2.633

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.4	Data appear Lognormal at 5% Significance Level	
Theta Star	3.353		
nu star	23.22		

A-D Test Statistic	2.07	Nonparametric Statistics	
5% A-D Critical Value	0.829	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.829	Mean	1.075
5% K-S Critical Value	0.174	SD	3.199
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.535
		95% KM (t) UCL	1.979
Assuming Gamma Distribution		95% KM (z) UCL	1.955
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.974
Minimum	1.00E-09	95% KM (bootstrap t) UCL	5.673
Maximum	18.51	95% KM (BCA) UCL	2.079
Mean	1.097	95% KM (Percentile Bootstrap) UCL	2.044
Median	0.286	95% KM (Chebyshev) UCL	3.409
SD	3.238	97.5% KM (Chebyshev) UCL	4.419
k star	0.192	99% KM (Chebyshev) UCL	6.403
Theta star	5.722		
Nu star	14.19	Potential UCLs to Use	
AppChi2	6.7	99% KM (Chebyshev) UCL	6.403
95% Gamma Approximate UCL	2.323		
95% Adjusted Gamma UCL	2.403		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

PENTACHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	4	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	0
Number of Missing Values	293	Percent Non-Detects	0.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable PENTACHLOROBENZENE (mg/kg) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

UNRES. COMB. OF 1,2,3/4,5 TETRACHLOROBENZENE (mg/kg)

General Statistics

Number of Valid Data	4	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	0
Number of Missing Values	293	Percent Non-Detects	0.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable UNRES. COMB. OF 1,2,3/4,5 TETRACHLOROBENZENE (mg/kg) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

XYLENES, TOTAL (mg/kg)

General Statistics

Number of Valid Data	325	Number of Detected Data	262
Number of Distinct Detected Data	262	Number of Non-Detect Data	63
Number of Missing Values	2	Percent Non-Detects	19.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00245	Minimum Detected	-6.01
Maximum Detected	314.3	Maximum Detected	5.75
Mean of Detected	34.32	Mean of Detected	0.802
SD of Detected	55.01	SD of Detected	3.604
Minimum Non-Detect	0.00308	Minimum Non-Detect	-5.782
Maximum Non-Detect	0.971	Maximum Non-Detect	-0.0299

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	159
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	166
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	48.92%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.266	Lilliefors Test Statistic	0.174
5% Lilliefors Critical Value	0.0547	5% Lilliefors Critical Value	0.0547
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	27.68	Mean	-0.281
SD	51.21	SD	3.95
95% DL/2 (t) UCL	32.36	95% H-Stat (DL/2) UCL	2622

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.293
		SD in Log Scale	3.963
		Mean in Original Scale	27.67
		SD in Original Scale	51.21
		95% Percentile Bootstrap UCL	32.43
		95% BCA Bootstrap UCL	33.06

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.258	Data do not follow a Discernable Distribution (0.05)	
Theta Star	133		
nu star	135.2		

		Nonparametric Statistics	
A-D Test Statistic	5.503	Kaplan-Meier (KM) Method	
5% A-D Critical Value	0.889	Mean	27.67
K-S Test Statistic	0.889	SD	51.13
5% K-S Critical Value	0.0619	SE of Mean	2.842
Data not Gamma Distributed at 5% Significance Level		95% KM (t) UCL	32.36
Assuming Gamma Distribution		95% KM (z) UCL	32.35
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	32.36
Minimum	1.00E-09	95% KM (bootstrap t) UCL	32.89
Maximum	314.3	95% KM (BCA) UCL	32.37
Mean	27.67	95% KM (Percentile Bootstrap) UCL	32.37
Median	1.28	95% KM (Chebyshev) UCL	40.06
SD	51.21	97.5% KM (Chebyshev) UCL	45.42
k star	0.12	99% KM (Chebyshev) UCL	55.95
Theta star	231.3		
Nu star	77.77	Potential UCLs to Use	
AppChi2	58.46	97.5% KM (Chebyshev) UCL	45.42
95% Gamma Approximate UCL	36.81		
95% Adjusted Gamma UCL	36.86		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

2-METHYLNAPHTHALENE (mg/kg)

General Statistics

Number of Valid Data	33	Number of Detected Data	28
Number of Distinct Detected Data	28	Number of Non-Detect Data	5
Number of Missing Values	295	Percent Non-Detects	15.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0436	Minimum Detected	-3.133
Maximum Detected	37.37	Maximum Detected	3.621
Mean of Detected	7.503	Mean of Detected	1.059
SD of Detected	8.905	SD of Detected	1.834
Minimum Non-Detect	0.0537	Minimum Non-Detect	-2.925
Maximum Non-Detect	0.122	Maximum Non-Detect	-2.107

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	26
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	21.21%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.759	Shapiro Wilk Test Statistic	0.893
5% Shapiro Wilk Critical Value	0.924	5% Shapiro Wilk Critical Value	0.924
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.372	Mean	0.391
SD	8.62	SD	2.332
95% DL/2 (t) UCL	8.913	95% H-Stat (DL/2) UCL	93.2

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.005	Mean in Log Scale	0.577
SD	10.11	SD in Log Scale	2.045
95% MLE (t) UCL	7.985	Mean in Original Scale	6.384
95% MLE (Tiku) UCL	7.99	SD in Original Scale	8.61
		95% Percentile Bootstrap UCL	8.92
		95% BCA Bootstrap UCL	9.552

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.595	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	12.6		
nu star	33.34		

A-D Test Statistic	0.367	Nonparametric Statistics	
5% A-D Critical Value	0.796	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.796	Mean	6.374
5% K-S Critical Value	0.173	SD	8.487
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.504
		95% KM (t) UCL	8.922
Assuming Gamma Distribution		95% KM (z) UCL	8.848
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.915
Minimum	1.00E-09	95% KM (bootstrap t) UCL	10.2
Maximum	37.37	95% KM (BCA) UCL	9.04
Mean	6.366	95% KM (Percentile Bootstrap) UCL	8.957
Median	4	95% KM (Chebyshev) UCL	12.93
SD	8.624	97.5% KM (Chebyshev) UCL	15.77
k star	0.186	99% KM (Chebyshev) UCL	21.34
Theta star	34.22		
Nu star	12.28	Potential UCLs to Use	
AppChi2	5.411	95% KM (Chebyshev) UCL	12.93
95% Gamma Approximate UCL	14.45		
95% Adjusted Gamma UCL	15.1		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BENZO(A)ANTHRACENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	290
Number of Distinct Detected Data	287	Number of Non-Detect Data	15
Number of Missing Values	23	Percent Non-Detects	4.92%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00251	Minimum Detected	-5.987
Maximum Detected	31.46	Maximum Detected	3.449
Mean of Detected	2.442	Mean of Detected	-0.579
SD of Detected	4.901	SD of Detected	1.96
Minimum Non-Detect	0.00472	Minimum Non-Detect	-5.356
Maximum Non-Detect	1.172	Maximum Non-Detect	0.159

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	196
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	109
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	64.26%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.309	Lilliefors Test Statistic	0.073
5% Lilliefors Critical Value	0.052	5% Lilliefors Critical Value	0.052
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.324	Mean	-0.765
SD	4.806	SD	2.108
95% DL/2 (t) UCL	2.778	95% H-Stat (DL/2) UCL	5.301

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.755
		SD in Log Scale	2.073
		Mean in Original Scale	2.323
		SD in Original Scale	4.807
		95% Percentile Bootstrap UCL	2.792
		95% BCA Bootstrap UCL	2.854

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.438	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.575		
nu star	254		
A-D Test Statistic	5.126	Nonparametric Statistics	
5% A-D Critical Value	0.836	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.836	Mean	2.323
5% K-S Critical Value	0.0568	SD	4.799
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.275
		95% KM (t) UCL	2.777
Assuming Gamma Distribution		95% KM (z) UCL	2.776
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.777
Minimum	1.00E-09	95% KM (bootstrap t) UCL	2.858
Maximum	31.46	95% KM (BCA) UCL	2.792
Mean	2.322	95% KM (Percentile Bootstrap) UCL	2.781
Median	0.519	95% KM (Chebyshev) UCL	3.523
SD	4.807	97.5% KM (Chebyshev) UCL	4.042
k star	0.287	99% KM (Chebyshev) UCL	5.062
Theta star	8.085		
Nu star	175.2	Potential UCLs to Use	
AppChi2	145.6	97.5% KM (Chebyshev) UCL	4.042
95% Gamma Approximate UCL	2.794		
95% Adjusted Gamma UCL	2.796		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BENZO(A)PYRENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	283
Number of Distinct Detected Data	279	Number of Non-Detect Data	22
Number of Missing Values	23	Percent Non-Detects	7.21%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00358	Minimum Detected	-5.632
Maximum Detected	32.12	Maximum Detected	3.469
Mean of Detected	1.886	Mean of Detected	-0.88
SD of Detected	4.081	SD of Detected	1.908
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	2.429	Maximum Non-Detect	0.887

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	253
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	52
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	82.95%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.322	Lilliefors Test Statistic	0.0502
5% Lilliefors Critical Value	0.0527	5% Lilliefors Critical Value	0.0527
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.758	Mean	-1.127
SD	3.958	SD	2.102
95% DL/2 (t) UCL	2.132	95% H-Stat (DL/2) UCL	3.427

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.124
		SD in Log Scale	2.061
		Mean in Original Scale	1.752
		SD in Original Scale	3.959
		95% Percentile Bootstrap UCL	2.138
		95% BCA Bootstrap UCL	2.196

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.427	Data appear Lognormal at 5% Significance Level	
Theta Star	4.414		
nu star	241.9		
A-D Test Statistic	6.681	Nonparametric Statistics	
5% A-D Critical Value	0.839	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.839	Mean	1.754
5% K-S Critical Value	0.0577	SD	3.953
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.227
		95% KM (t) UCL	2.128
Assuming Gamma Distribution		95% KM (z) UCL	2.127
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.128
Minimum	1.00E-09	95% KM (bootstrap t) UCL	2.213
Maximum	32.12	95% KM (BCA) UCL	2.148
Mean	1.751	95% KM (Percentile Bootstrap) UCL	2.136
Median	0.32	95% KM (Chebyshev) UCL	2.742
SD	3.96	97.5% KM (Chebyshev) UCL	3.17
k star	0.252	99% KM (Chebyshev) UCL	4.01
Theta star	6.94		
Nu star	153.9	Potential UCLs to Use	
AppChi2	126.2	97.5% KM (Chebyshev) UCL	3.17
95% Gamma Approximate UCL	2.135		
95% Adjusted Gamma UCL	2.137		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BENZO(B)FLUORANTHENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	283
Number of Distinct Detected Data	283	Number of Non-Detect Data	22
Number of Missing Values	23	Percent Non-Detects	7.21%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00453	Minimum Detected	-5.398
Maximum Detected	27.8	Maximum Detected	3.325
Mean of Detected	2	Mean of Detected	-0.691
SD of Detected	3.911	SD of Detected	1.811
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	2.429	Maximum Non-Detect	0.887

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	247
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	58
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	80.98%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.305	Lilliefors Test Statistic	0.0428
5% Lilliefors Critical Value	0.0527	5% Lilliefors Critical Value	0.0527
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.863	Mean	-0.956
SD	3.8	SD	2.049
95% DL/2 (t) UCL	2.222	95% H-Stat (DL/2) UCL	3.566

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.935
		SD in Log Scale	1.974
		Mean in Original Scale	1.858
		SD in Original Scale	3.801
		95% Percentile Bootstrap UCL	2.233
		95% BCA Bootstrap UCL	2.285

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.462	Data appear Lognormal at 5% Significance Level	
Theta Star	4.331		
nu star	261.3		

A-D Test Statistic	6.587	Nonparametric Statistics	
5% A-D Critical Value	0.83	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.83	Mean	1.859
5% K-S Critical Value	0.0574	SD	3.795
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.218
		95% KM (t) UCL	2.218
Assuming Gamma Distribution		95% KM (z) UCL	2.217
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.218
Minimum	1.00E-09	95% KM (bootstrap t) UCL	2.291
Maximum	27.8	95% KM (BCA) UCL	2.226
Mean	1.857	95% KM (Percentile Bootstrap) UCL	2.235
Median	0.41	95% KM (Chebyshev) UCL	2.808
SD	3.802	97.5% KM (Chebyshev) UCL	3.219
k star	0.262	99% KM (Chebyshev) UCL	4.025
Theta star	7.096		
Nu star	159.6	Potential UCLs to Use	
AppChi2	131.4	97.5% KM (Chebyshev) UCL	3.219
95% Gamma Approximate UCL	2.256		
95% Adjusted Gamma UCL	2.258		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

BENZO(K)FLUORANTHENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	258
Number of Distinct Detected Data	256	Number of Non-Detect Data	47
Number of Missing Values	23	Percent Non-Detects	15.41%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00224	Minimum Detected	-6.1
Maximum Detected	17.25	Maximum Detected	2.848
Mean of Detected	0.962	Mean of Detected	-1.364
SD of Detected	1.986	SD of Detected	1.777
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	9.3	Maximum Non-Detect	2.23

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	302
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	99.02%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.314	Lilliefors Test Statistic	0.0452
5% Lilliefors Critical Value	0.0552	5% Lilliefors Critical Value	0.0552
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.847	Mean	-1.72
SD	1.867	SD	1.969
95% DL/2 (t) UCL	1.023	95% H-Stat (DL/2) UCL	1.296

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.782
		SD in Log Scale	1.946
		Mean in Original Scale	0.819
		SD in Original Scale	1.857
		95% Percentile Bootstrap UCL	1.002
		95% BCA Bootstrap UCL	1.029

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.479	Data appear Lognormal at 5% Significance Level	
Theta Star	2.009		
nu star	247.1		
A-D Test Statistic	5.349	Nonparametric Statistics	
5% A-D Critical Value	0.826	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.826	Mean	0.824
5% K-S Critical Value	0.0604	SD	1.855
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.107
		95% KM (t) UCL	0.999
Assuming Gamma Distribution		95% KM (z) UCL	0.999
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.999
Minimum	1.00E-09	95% KM (bootstrap t) UCL	1.043
Maximum	17.25	95% KM (BCA) UCL	1.011
Mean	0.828	95% KM (Percentile Bootstrap) UCL	1.008
Median	0.183	95% KM (Chebyshev) UCL	1.288
SD	1.855	97.5% KM (Chebyshev) UCL	1.489
k star	0.199	99% KM (Chebyshev) UCL	1.884
Theta star	4.151		
Nu star	121.7	Potential UCLs to Use	
AppChi2	97.2	97.5% KM (Chebyshev) UCL	1.489
95% Gamma Approximate UCL	1.036		
95% Adjusted Gamma UCL	1.037		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

CHRYSENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	292
Number of Distinct Detected Data	288	Number of Non-Detect Data	13
Number of Missing Values	23	Percent Non-Detects	4.26%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00453	Minimum Detected	-5.398
Maximum Detected	29.97	Maximum Detected	3.4
Mean of Detected	2.42	Mean of Detected	-0.463
SD of Detected	4.383	SD of Detected	1.966
Minimum Non-Detect	0.00472	Minimum Non-Detect	-5.356
Maximum Non-Detect	0.16	Maximum Non-Detect	-1.833

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	74
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	231
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	24.26%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.291	Lilliefors Test Statistic	0.1
5% Lilliefors Critical Value	0.0518	5% Lilliefors Critical Value	0.0518
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.318	Mean	-0.647
SD	4.316	SD	2.125
95% DL/2 (t) UCL	2.726	95% H-Stat (DL/2) UCL	6.313

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.448	Mean in Log Scale	-0.623
SD	5.19	SD in Log Scale	2.075
95% MLE (t) UCL	1.938	Mean in Original Scale	2.318
95% MLE (Tiku) UCL	1.94	SD in Original Scale	4.315
		95% Percentile Bootstrap UCL	2.745
		95% BCA Bootstrap UCL	2.787

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.473	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.12		
nu star	276.1		

A-D Test Statistic	2.924	Nonparametric Statistics	
5% A-D Critical Value	0.828	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.828	Mean	2.318
5% K-S Critical Value	0.0563	SD	4.309
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.247
		95% KM (t) UCL	2.726
Assuming Gamma Distribution		95% KM (z) UCL	2.724
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.725
Minimum	1.00E-09	95% KM (bootstrap t) UCL	2.795
Maximum	29.97	95% KM (BCA) UCL	2.725
Mean	2.317	95% KM (Percentile Bootstrap) UCL	2.741
Median	0.693	95% KM (Chebyshev) UCL	3.395
SD	4.316	97.5% KM (Chebyshev) UCL	3.861
k star	0.315	99% KM (Chebyshev) UCL	4.777
Theta star	7.363		
Nu star	192	Potential UCLs to Use	
AppChi2	160.9	97.5% KM (Chebyshev) UCL	3.861
95% Gamma Approximate UCL	2.764		
95% Adjusted Gamma UCL	2.767		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

DIBENZO(A,H)ANTHRACENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	257
Number of Distinct Detected Data	254	Number of Non-Detect Data	48
Number of Missing Values	23	Percent Non-Detects	15.74%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00153	Minimum Detected	-6.483
Maximum Detected	5.6	Maximum Detected	1.723
Mean of Detected	0.392	Mean of Detected	-2.042
SD of Detected	0.723	SD of Detected	1.577
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	9.3	Maximum Non-Detect	2.23

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	305
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.295	Lilliefors Test Statistic	0.0466
5% Lilliefors Critical Value	0.0553	5% Lilliefors Critical Value	0.0553
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.364	Mean	-2.309
SD	0.721	SD	1.769
95% DL/2 (t) UCL	0.432	95% H-Stat (DL/2) UCL	0.495

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.382
		SD in Log Scale	1.7
		Mean in Original Scale	0.334
		SD in Original Scale	0.677
		95% Percentile Bootstrap UCL	0.402
		95% BCA Bootstrap UCL	0.409

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.56	Data appear Lognormal at 5% Significance Level	
Theta Star	0.699		
nu star	288		

A-D Test Statistic	5.662	Nonparametric Statistics	
5% A-D Critical Value	0.815	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.815	Mean	0.338
5% K-S Critical Value	0.0601	SD	0.677
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.039
		95% KM (t) UCL	0.402
Assuming Gamma Distribution		95% KM (z) UCL	0.402
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.402
Minimum	1.00E-09	95% KM (bootstrap t) UCL	0.415
Maximum	5.6	95% KM (BCA) UCL	0.406
Mean	0.342	95% KM (Percentile Bootstrap) UCL	0.405
Median	0.109	95% KM (Chebyshev) UCL	0.508
SD	0.676	97.5% KM (Chebyshev) UCL	0.581
k star	0.236	99% KM (Chebyshev) UCL	0.726
Theta star	1.445		
Nu star	144.2	Potential UCLs to Use	
AppChi2	117.5	97.5% KM (Chebyshev) UCL	0.581
95% Gamma Approximate UCL	0.42		
95% Adjusted Gamma UCL	0.42		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

FLUORANTHENE (mg/kg)

General Statistics			
Number of Valid Data	305	Number of Detected Data	295
Number of Distinct Detected Data	293	Number of Non-Detect Data	10
Number of Missing Values	23	Percent Non-Detects	3.28%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00632	Minimum Detected	-5.065
Maximum Detected	53.18	Maximum Detected	3.974
Mean of Detected	5.152	Mean of Detected	0.224
SD of Detected	9.215	SD of Detected	2.054
Minimum Non-Detect	0.00489	Minimum Non-Detect	-5.32
Maximum Non-Detect	0.0656	Maximum Non-Detect	-2.725

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	44
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	261
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	14.43%

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.288	Lilliefors Test Statistic	0.123
5% Lilliefors Critical Value	0.0516	5% Lilliefors Critical Value	0.0516
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.983	Mean	0.0528
SD	9.109	SD	2.23
95% DL/2 (t) UCL	5.844	95% H-Stat (DL/2) UCL	16.78
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.01	Mean in Log Scale	0.0797
SD	10.11	SD in Log Scale	2.171
95% MLE (t) UCL	4.965	Mean in Original Scale	4.984
95% MLE (Tiku) UCL	4.921	SD in Original Scale	9.109
		95% Percentile Bootstrap UCL	5.871
		95% BCA Bootstrap UCL	5.979
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.453	Data do not follow a Discernable Distribution (0.05)	
Theta Star	11.37		
nu star	267.3		
A-D Test Statistic	3.445	Nonparametric Statistics	
5% A-D Critical Value	0.833	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.833	Mean	4.983
5% K-S Critical Value	0.056	SD	9.094
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.522
		95% KM (t) UCL	5.844
Assuming Gamma Distribution		95% KM (z) UCL	5.841
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.844
Minimum	1.00E-09	95% KM (bootstrap t) UCL	5.963
Maximum	53.18	95% KM (BCA) UCL	5.885
Mean	4.983	95% KM (Percentile Bootstrap) UCL	5.868
Median	1.56	95% KM (Chebyshev) UCL	7.257
SD	9.109	97.5% KM (Chebyshev) UCL	8.241
k star	0.327	99% KM (Chebyshev) UCL	10.17
Theta star	15.22		
Nu star	199.7	Potential UCLs to Use	
AppChi2	168	97.5% KM (Chebyshev) UCL	8.241
95% Gamma Approximate UCL	5.923		
95% Adjusted Gamma UCL	5.928		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

FLUORENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	207
Number of Distinct Detected Data	207	Number of Non-Detect Data	98
Number of Missing Values	23	Percent Non-Detects	32.13%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00453	Minimum Detected	-5.398
Maximum Detected	335.8	Maximum Detected	5.817
Mean of Detected	4.731	Mean of Detected	-0.657
SD of Detected	24.2	SD of Detected	2.212
Minimum Non-Detect	0.00296	Minimum Non-Detect	-5.824
Maximum Non-Detect	0.866	Maximum Non-Detect	-0.144

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	221
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	84
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.46%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.423	Lilliefors Test Statistic	0.0402
5% Lilliefors Critical Value	0.0616	5% Lilliefors Critical Value	0.0616
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.229	Mean	-1.555
SD	20.04	SD	2.358
95% DL/2 (t) UCL	5.123	95% H-Stat (DL/2) UCL	4.588

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.873
		SD in Log Scale	2.589
		Mean in Original Scale	3.216
		SD in Original Scale	20.04
		95% Percentile Bootstrap UCL	5.382
		95% BCA Bootstrap UCL	7.195

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.309	Data appear Lognormal at 5% Significance Level	
Theta Star	15.32		
nu star	127.9		
A-D Test Statistic	8.606	Nonparametric Statistics	
5% A-D Critical Value	0.867	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.867	Mean	3.219
5% K-S Critical Value	0.0682	SD	20.01
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.148
		95% KM (t) UCL	5.114
Assuming Gamma Distribution		95% KM (z) UCL	5.108
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.112
Minimum	1.00E-09	95% KM (bootstrap t) UCL	9.329
Maximum	335.8	95% KM (BCA) UCL	5.541
Mean	3.229	95% KM (Percentile Bootstrap) UCL	5.388
Median	0.174	95% KM (Chebyshev) UCL	8.225
SD	20.04	97.5% KM (Chebyshev) UCL	10.39
k star	0.105	99% KM (Chebyshev) UCL	14.65
Theta star	30.84		
Nu star	63.87	Potential UCLs to Use	
AppChi2	46.48	97.5% KM (Chebyshev) UCL	10.39
95% Gamma Approximate UCL	4.437		
95% Adjusted Gamma UCL	4.444		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

INDENO(1,2,3-CD)PYRENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	276
Number of Distinct Detected Data	274	Number of Non-Detect Data	29
Number of Missing Values	23	Percent Non-Detects	9.51%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00264	Minimum Detected	-5.937
Maximum Detected	13.8	Maximum Detected	2.625
Mean of Detected	0.964	Mean of Detected	-1.381
SD of Detected	1.915	SD of Detected	1.765
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	9.3	Maximum Non-Detect	2.23

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	302
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	99.02%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.308	Lilliefors Test Statistic	0.0386
5% Lilliefors Critical Value	0.0533	5% Lilliefors Critical Value	0.0533
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.898	Mean	-1.624
SD	1.852	SD	1.96
95% DL/2 (t) UCL	1.073	95% H-Stat (DL/2) UCL	1.479

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.644
		SD in Log Scale	1.905
		Mean in Original Scale	0.876
		SD in Original Scale	1.842
		95% Percentile Bootstrap UCL	1.058
		95% BCA Bootstrap UCL	1.078

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.474	Data appear Lognormal at 5% Significance Level	
Theta Star	2.035		
nu star	261.4		
A-D Test Statistic	6.427	Nonparametric Statistics	
5% A-D Critical Value	0.827	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.827	Mean	0.88
5% K-S Critical Value	0.0582	SD	1.84
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.106
		95% KM (t) UCL	1.054
Assuming Gamma Distribution		95% KM (z) UCL	1.053
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.054
Minimum	1.00E-09	95% KM (bootstrap t) UCL	1.09
Maximum	13.8	95% KM (BCA) UCL	1.063
Mean	0.88	95% KM (Percentile Bootstrap) UCL	1.059
Median	0.202	95% KM (Chebyshev) UCL	1.34
SD	1.841	97.5% KM (Chebyshev) UCL	1.54
k star	0.26	99% KM (Chebyshev) UCL	1.931
Theta star	3.379		
Nu star	158.9	Potential UCLs to Use	
AppChi2	130.7	97.5% KM (Chebyshev) UCL	1.54
95% Gamma Approximate UCL	1.069		
95% Adjusted Gamma UCL	1.07		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

NAPHTHALENE (mg/kg)

General Statistics

Number of Valid Data	322	Number of Detected Data	266
Number of Distinct Detected Data	263	Number of Non-Detect Data	56
Number of Missing Values	6	Percent Non-Detects	17.39%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	815	Maximum Detected	6.703
Mean of Detected	100.7	Mean of Detected	1.612
SD of Detected	144.9	SD of Detected	4.025
Minimum Non-Detect	0.00658	Minimum Non-Detect	-5.023
Maximum Non-Detect	0.341	Maximum Non-Detect	-1.076

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	138
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	184
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	42.86%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.243	Lilliefors Test Statistic	0.213
5% Lilliefors Critical Value	0.0543	5% Lilliefors Critical Value	0.0543
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	83.2	Mean	0.431
SD	137.1	SD	4.486
95% DL/2 (t) UCL	95.8	95% H-Stat (DL/2) UCL	57451

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	14.91	Mean in Log Scale	0.574
SD	206.6	SD in Log Scale	4.307
95% MLE (t) UCL	33.9	Mean in Original Scale	83.2
95% MLE (Tiku) UCL	36.76	SD in Original Scale	137.1
		95% Percentile Bootstrap UCL	96.19
		95% BCA Bootstrap UCL	97.15

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.238	Data do not follow a Discernable Distribution (0.05)	
Theta Star	422.6		
nu star	126.8		

		Nonparametric Statistics	
A-D Test Statistic	10.39		
5% A-D Critical Value	0.898	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.898	Mean	83.2
5% K-S Critical Value	0.0616	SD	136.9
Data not Gamma Distributed at 5% Significance Level		SE of Mean	7.641
		95% KM (t) UCL	95.8
Assuming Gamma Distribution		95% KM (z) UCL	95.77
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	95.8
Minimum	0.003	95% KM (bootstrap t) UCL	97.58
Maximum	815	95% KM (BCA) UCL	96.16
Mean	83.35	95% KM (Percentile Bootstrap) UCL	95.93
Median	2.032	95% KM (Chebyshev) UCL	116.5
SD	137	97.5% KM (Chebyshev) UCL	130.9
k star	0.231	99% KM (Chebyshev) UCL	159.2
Theta star	361.3		
Nu star	148.6	Potential UCLs to Use	
AppChi2	121.4	97.5% KM (Chebyshev) UCL	130.9
95% Gamma Approximate UCL	102		
95% Adjusted Gamma UCL	102.1		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

PHENANTHRENE (mg/kg)

General Statistics

Number of Valid Data	305	Number of Detected Data	295
Number of Distinct Detected Data	291	Number of Non-Detect Data	10
Number of Missing Values	23	Percent Non-Detects	3.28%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00348	Minimum Detected	-5.66
Maximum Detected	104.2	Maximum Detected	4.646
Mean of Detected	7.366	Mean of Detected	0.443
SD of Detected	13.64	SD of Detected	2.283
Minimum Non-Detect	0.00454	Minimum Non-Detect	-5.395
Maximum Non-Detect	0.0656	Maximum Non-Detect	-2.725

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	50
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	255
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	16.39%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.295	Lilliefors Test Statistic	0.17
5% Lilliefors Critical Value	0.0516	5% Lilliefors Critical Value	0.0516
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	7.125	Mean	0.263
SD	13.48	SD	2.458
95% DL/2 (t) UCL	8.398	95% H-Stat (DL/2) UCL	37.85

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.432	Mean in Log Scale	0.295
SD	15.19	SD in Log Scale	2.389
95% MLE (t) UCL	6.868	Mean in Original Scale	7.125
95% MLE (Tiku) UCL	6.813	SD in Original Scale	13.48
		95% Percentile Bootstrap UCL	8.45
		95% BCA Bootstrap UCL	8.601

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.418	Data do not follow a Discernable Distribution (0.05)	
Theta Star	17.62		
nu star	246.7		
A-D Test Statistic	3.362	Nonparametric Statistics	
5% A-D Critical Value	0.841	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.841	Mean	7.125
5% K-S Critical Value	0.0563	SD	13.46
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.772
		95% KM (t) UCL	8.398
Assuming Gamma Distribution		95% KM (z) UCL	8.395
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.398
Minimum	1.00E-09	95% KM (bootstrap t) UCL	8.614
Maximum	104.2	95% KM (BCA) UCL	8.427
Mean	7.125	95% KM (Percentile Bootstrap) UCL	8.446
Median	2.476	95% KM (Chebyshev) UCL	10.49
SD	13.48	97.5% KM (Chebyshev) UCL	11.95
k star	0.309	99% KM (Chebyshev) UCL	14.81
Theta star	23.06		
Nu star	188.4	Potential UCLs to Use	
AppChi2	157.7	97.5% KM (Chebyshev) UCL	11.95
95% Gamma Approximate UCL	8.514		
95% Adjusted Gamma UCL	8.521		

Note: DL/2 is not a recommended method.