APPENDIX A
PRO UCL OUTPUT

9385994

APPENDIX A-1

SOUTH OF MARLIN SURFACE SOIL

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	J:\1352 - Gulfco RI\risk\data queries oct 07\EPC tables with onehalf DL\95% detect frequency SURFACE
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result or 1/2 SDL (2-methylnaphthalene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	53

Raw Statistics		Log-transformed Statistics	
Minimum	0.0047	Minimum of Log Data	-5.354
Maximum	0.501	Maximum of Log Data	-0.691
Mean	0.0293	Mean of log Data	-4.479
Median	0.0055	SD of log Data	1.145
SD	0.0715		
Coefficient of Variation	2.438		
Skewness	5.333		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.365	Lilliefors Test Statistic	0.335
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0424	95% H-UCL	0.0295
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0363
95% Adjusted-CLT UCL	0.0472	97.5% Chebyshev (MVUE) UCL	0.0427
95% Modified-t UCL	0.0432	99% Chebyshev (MVUE) UCL	0.0552
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.628	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0467		
nu star	104.3		
Approximate Chi Square Value (.05)	81.71	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0423
Adjusted Chi Square Value	81.36	95% Jackknife UCL	0.0424
		95% Standard Bootstrap UCL	0.0424
Anderson-Darling Test Statistic	11.06	95% Bootstrap-t UCL	0.0633
Anderson-Darling 5% Critical Value	0.804	95% Hall's Bootstrap UCL	0.104
Kolmogorov-Smirnov Test Statistic	0.333	95% Percentile Bootstrap UCL	0.0432
Kolmogorov-Smirnov 5% Critical Value	0.103	95% BCA Bootstrap UCL	0.0486
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0636
		97.5% Chebyshev(Mean, Sd) UCL	0.0784
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.107
95% Approximate Gamma UCL	0.0374		
95% Adjusted Gamma UCL	0.0376		

Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0784

Result or 1/2 SDL (4,4'-ddd)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	55

Raw Statistics		Log-transformed Statistics	
Minimum	1.1750E-4	Minimum of Log Data	-9.049
Maximum	0.0243	Maximum of Log Data	-3.717
Mean	7.8940E-4	Mean of log Data	-8.519
Median	1.3300E-4	SD of log Data	1.087
SD	0.0030		
Coefficient of Variation	3.894		
Skewness	6.54		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.435	Lilliefors Test Statistic	0.428
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0013	95% H-UCL	4.7561E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.8317E-4
95% Adjusted-CLT UCL	0.0016	97.5% Chebyshev (MVUE) UCL	6.8130E-4
95% Modified-t UCL	0.0013	99% Chebyshev (MVUE) UCL	8.7406E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.458	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0017		
nu star	76.06		
Approximate Chi Square Value (.05)	56.97	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0013
Adjusted Chi Square Value	56.68	95% Jackknife UCL	0.0013
		95% Standard Bootstrap UCL	0.0013
Anderson-Darling Test Statistic	22.2	95% Bootstrap-t UCL	0.0031
Anderson-Darling 5% Critical Value	0.827	95% Hall's Bootstrap UCL	0.0034
Kolmogorov-Smirnov Test Statistic	0.467	95% Percentile Bootstrap UCL	0.0014
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.0017
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0022
		97.5% Chebyshev(Mean, Sd) UCL	0.0029
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0041
95% Approximate Gamma UCL	0.0010		
95% Adjusted Gamma UCL	0.0010		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0029

Result or 1/2 SDL (4,4'-dde)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	65
Raw Statistics		Log-transformed Statistics	
Minimum	1.6300E-4	Minimum of Log Data	-8.722
Maximum	0.0693	Maximum of Log Data	-2.669
Mean	0.0019	Mean of log Data	-7.87
Median	1.8900E-4	SD of log Data	1.305
SD	0.0080		
Coefficient of Variation	4.214		
Skewness	7.636		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.414	Lilliefors Test Statistic	0.358
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0033	95% H-UCL	0.0012
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0015
95% Adjusted-CLT UCL	0.0041	97.5% Chebyshev (MVUE) UCL	0.0019
95% Modified-t UCL	0.0034	99% Chebyshev (MVUE) UCL	0.0025
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.402	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0047		
nu star	66.7		
Approximate Chi Square Value (.05)	48.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0033
Adjusted Chi Square Value	48.63	95% Jackknife UCL	0.0033
		95% Standard Bootstrap UCL	0.0033
Anderson-Darling Test Statistic	15.79	95% Bootstrap-t UCL	0.0083
Anderson-Darling 5% Critical Value	0.84	95% Hall's Bootstrap UCL	0.0083
Kolmogorov-Smirnov Test Statistic	0.364	95% Percentile Bootstrap UCL	0.0035
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.0046
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0057
		97.5% Chebyshev(Mean, Sd) UCL	0.0074
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0107
95% Approximate Gamma UCL	0.0026		
95% Adjusted Gamma UCL	0.0026		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0074

Result or 1/2 SDL (4,4'-ddt)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	67
Raw Statistics		Log-transformed Statistics	
Minimum	6.2500E-5	Minimum of Log Data	-9.68

Maximum	0.0625	Maximum of Log Data	-2.773
Mean	0.0038	Mean of log Data	-7.704
Median	3.1700E-4	SD of log Data	2.095
SD	0.0092		
Coefficient of Variation	2.422		
Skewness	4.079		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.342	Lilliefors Test Statistic	0.255
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0055	95% H-UCL	0.0090
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0096
95% Adjusted-CLT UCL	0.006	97.5% Chebyshev (MVUE) UCL	0.0122
95% Modified-t UCL	0.0056	99% Chebyshev (MVUE) UCL	0.0173
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.315	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0122		
nu star	52.37		
Approximate Chi Square Value (.05)	36.75	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0055
Adjusted Chi Square Value	36.52	95% Jackknife UCL	0.0055
		95% Standard Bootstrap UCL	0.0055
Anderson-Darling Test Statistic	7.358	95% Bootstrap-t UCL	0.0063
Anderson-Darling 5% Critical Value	0.861	95% Hall's Bootstrap UCL	0.0066
Kolmogorov-Smirnov Test Statistic	0.235	95% Percentile Bootstrap UCL	0.0055
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0061
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0082
		97.5% Chebyshev(Mean, Sd) UCL	0.0102
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.014
95% Approximate Gamma UCL	0.0054		
95% Adjusted Gamma UCL	0.0055		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.014

Result or 1/2 SDL (acenaphthene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	67

Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.438
Maximum	1.69	Maximum of Log Data	0.525
Mean	0.0595	Mean of log Data	-4.288
Median	0.0051	SD of log Data	1.443
SD	0.2		
Coefficient of Variation	3.372		

Skewness	7.061		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.392	Lilliefors Test Statistic	0.328
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0961	95% H-UCL	0.0597
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0734
95% Adjusted-CLT UCL	0.114	97.5% Chebyshev (MVUE) UCL	0.0887
95% Modified-t UCL	0.0989	99% Chebyshev (MVUE) UCL	0.119
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.434	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.137		
nu star	72.06		
Approximate Chi Square Value (.05)	53.51	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0956
Adjusted Chi Square Value	53.23	95% Jackknife UCL	0.0961
		95% Standard Bootstrap UCL	0.0952
Anderson-Darling Test Statistic	10.45	95% Bootstrap-t UCL	0.178
Anderson-Darling 5% Critical Value	0.832	95% Hall's Bootstrap UCL	0.236
Kolmogorov-Smirnov Test Statistic	0.313	95% Percentile Bootstrap UCL	0.0981
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.119
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.155
		97.5% Chebyshev(Mean, Sd) UCL	0.197
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.278
95% Approximate Gamma UCL	0.0801		
95% Adjusted Gamma UCL	0.0805		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.197

Result or 1/2 SDL (acenaphthylene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	46
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.312
Maximum	0.935	Maximum of Log Data	-0.0672
Mean	0.0382	Mean of log Data	-4.444
Median	0.0057	SD of log Data	1.267
SD	0.11		
Coefficient of Variation	2.876		
Skewness	6.947		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.381	Lilliefors Test Statistic	0.384

Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0582	95% H-UCL	0.0372
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0459
95% Adjusted-CLT UCL	0.0678	97.5% Chebyshev (MVUE) UCL	0.0546
95% Modified-t UCL	0.0598	99% Chebyshev (MVUE) UCL	0.0717
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.522	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0731		
nu star	86.68		
Approximate Chi Square Value (.05)	66.22	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.058
Adjusted Chi Square Value	65.91	95% Jackknife UCL	0.0582
		95% Standard Bootstrap UCL	0.0584
Anderson-Darling Test Statistic	13.38	95% Bootstrap-t UCL	0.0853
Anderson-Darling 5% Critical Value	0.815	95% Hall's Bootstrap UCL	0.132
Kolmogorov-Smirnov Test Statistic	0.393	95% Percentile Bootstrap UCL	0.0601
Kolmogorov-Smirnov 5% Critical Value	0.103	95% BCA Bootstrap UCL	0.0744
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0907
		97.5% Chebyshev(Mean, Sd) UCL	0.113
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.158
95% Approximate Gamma UCL	0.05		
95% Adjusted Gamma UCL	0.0502		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.113

Result or 1/2 SDL (aluminum)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	79
Raw Statistics		Log-transformed Statistics	
Minimum	414	Minimum of Log Data	6.026
Maximum	15200	Maximum of Log Data	9.629
Mean	5335	Mean of log Data	8.345
Median	4650	SD of log Data	0.757
SD	3345		
Coefficient of Variation	0.627		
Skewness	0.744		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0927	Lilliefors Test Statistic	0.088
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5946	95% H-UCL	6635

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7839
95% Adjusted-CLT UCL	5971	97.5% Chebyshev (MVUE) UCL	8817
95% Modified-t UCL	5951	99% Chebyshev (MVUE) UCL	10737
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.187	Data appear Normal at 5% Significance Level	
Theta Star	2439		
nu star	363.1		
Approximate Chi Square Value (.05)	320	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	5939
Adjusted Chi Square Value	319.2	95% Jackknife UCL	5946
		95% Standard Bootstrap UCL	5930
Anderson-Darling Test Statistic	0.468	95% Bootstrap-t UCL	5983
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	5976
Kolmogorov-Smirnov Test Statistic	0.074	95% Percentile Bootstrap UCL	5953
Kolmogorov-Smirnov 5% Critical Value	0.0992	95% BCA Bootstrap UCL	5953
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6936
		97.5% Chebyshev(Mean, Sd) UCL	7628
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8989
95% Approximate Gamma UCL	6055		
95% Adjusted Gamma UCL	6068		
Potential UCL to Use		Use 95% Student's-t UCL	5946

Result or 1/2 SDL (anthracene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	63
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.316
Maximum	2.46	Maximum of Log Data	0.9
Mean	0.0961	Mean of log Data	-3.855
Median	0.0112	SD of log Data	1.589
SD	0.293		
Coefficient of Variation	3.053		
Skewness	6.861		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.378	Lilliefors Test Statistic	0.25
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.15	95% H-UCL	0.123
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.15
95% Adjusted-CLT UCL	0.175	97.5% Chebyshev (MVUE) UCL	0.183
95% Modified-t UCL	0.154	99% Chebyshev (MVUE) UCL	0.249
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.422	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.227		
nu star	70.13		
Approximate Chi Square Value (.05)	51.85	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.149
Adjusted Chi Square Value	51.57	95% Jackknife UCL	0.15
		95% Standard Bootstrap UCL	0.15
Anderson-Darling Test Statistic	7.484	95% Bootstrap-t UCL	0.244
Anderson-Darling 5% Critical Value	0.835	95% Hall's Bootstrap UCL	0.369
Kolmogorov-Smirnov Test Statistic	0.229	95% Percentile Bootstrap UCL	0.155
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.19
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.236
		97.5% Chebyshev(Mean, Sd) UCL	0.297
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.416
95% Approximate Gamma UCL	0.13		
95% Adjusted Gamma UCL	0.131		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.297

Result or 1/2 SDL (antimony)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	49
Raw Statistics		Log-transformed Statistics	
Minimum	0.095	Minimum of Log Data	-2.354
Maximum	5.14	Maximum of Log Data	1.637
Mean	1.118	Mean of log Data	-0.619
Median	0.23	SD of log Data	1.266
SD	1.228		
Coefficient of Variation	1.099		
Skewness	1.098		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.307	Lilliefors Test Statistic	0.281
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.342	95% H-UCL	1.703
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.102
95% Adjusted-CLT UCL	1.357	97.5% Chebyshev (MVUE) UCL	2.5
95% Modified-t UCL	1.345	99% Chebyshev (MVUE) UCL	3.283
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.79	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.414		
nu star	131.2		
Approximate Chi Square Value (.05)	105.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	1.339

Adjusted Chi Square Value	105.3	95% Jackknife UCL	1.342
		95% Standard Bootstrap UCL	1.334
Anderson-Darling Test Statistic	6.492	95% Bootstrap-t UCL	1.364
Anderson-Darling 5% Critical Value	0.791	95% Hall's Bootstrap UCL	1.357
Kolmogorov-Smirnov Test Statistic	0.302	95% Percentile Bootstrap UCL	1.349
Kolmogorov-Smirnov 5% Critical Value	0.102	95% BCA Bootstrap UCL	1.365
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.705
		97.5% Chebyshev(Mean, Sd) UCL	1.959
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.459
95% Approximate Gamma UCL	1.387		
95% Adjusted Gamma UCL	1.392		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	1.959

Result or 1/2 SDL (aroclor-1254)

General Statistics			
Number of Valid Samples	86	Number of Unique Samples	63
Raw Statistics		Log-transformed Statistics	
Minimum	0.0016	Minimum of Log Data	-6.422
Maximum	7.98	Maximum of Log Data	2.077
Mean	0.137	Mean of log Data	-5.526
Median	0.0018	SD of log Data	1.783
SD	0.875		
Coefficient of Variation	6.368		
Skewness	8.719		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.446	Lilliefors Test Statistic	0.425
Lilliefors Critical Value	0.0955	Lilliefors Critical Value	0.0955
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.294	95% H-UCL	0.0354
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0417
95% Adjusted-CLT UCL	0.387	97.5% Chebyshev (MVUE) UCL	0.0517
95% Modified-t UCL	0.309	99% Chebyshev (MVUE) UCL	0.0714
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.207	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.663		
nu star	35.66		
Approximate Chi Square Value (.05)	22.99	Nonparametric Statistics	
Adjusted Level of Significance	0.0472	95% CLT UCL	0.293
Adjusted Chi Square Value	22.82	95% Jackknife UCL	0.294
		95% Standard Bootstrap UCL	0.294
Anderson-Darling Test Statistic	23.56	95% Bootstrap-t UCL	1.17
Anderson-Darling 5% Critical Value	0.908	95% Hall's Bootstrap UCL	0.859
Kolmogorov-Smirnov Test Statistic	0.451	95% Percentile Bootstrap UCL	0.323

Kolmogorov-Smirnov 5% Critical Value	0.107	95% BCA Bootstrap UCL	0.45
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.548
		97.5% Chebyshev(Mean, Sd) UCL	0.726
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.076
95% Approximate Gamma UCL	0.213		
95% Adjusted Gamma UCL	0.215		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.726

Result or 1/2 SDL (arsenic)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	78
Raw Statistics		Log-transformed Statistics	
Minimum	0.085	Minimum of Log Data	-2.465
Maximum	24.3	Maximum of Log Data	3.19
Mean	3.735	Mean of log Data	0.735
Median	2.49	SD of log Data	1.257
SD	4.012		
Coefficient of Variation	1.074		
Skewness	2.522		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.186	Lilliefors Test Statistic	0.128
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.467	95% H-UCL	6.497
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.02
95% Adjusted-CLT UCL	4.589	97.5% Chebyshev (MVUE) UCL	9.533
95% Modified-t UCL	4.488	99% Chebyshev (MVUE) UCL	12.5
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.964	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	3.873		
nu star	160.1		
Approximate Chi Square Value (.05)	131.8	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	4.459
Adjusted Chi Square Value	131.4	95% Jackknife UCL	4.467
		95% Standard Bootstrap UCL	4.439
Anderson-Darling Test Statistic	0.324	95% Bootstrap-t UCL	4.598
Anderson-Darling 5% Critical Value	0.783	95% Hall's Bootstrap UCL	4.764
Kolmogorov-Smirnov Test Statistic	0.061	95% Percentile Bootstrap UCL	4.487
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	4.531
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.654
		97.5% Chebyshev(Mean, Sd) UCL	6.485
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.116
95% Approximate Gamma UCL	4.535		

95% Adjusted Gamma UCL	4.551		
Potential UCL to Use		Use 95% Approximate Gamma UCL	4.535

Result or 1/2 SDL (barium)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	79
Raw Statistics		Log-transformed Statistics	
Minimum	18.6	Minimum of Log Data	2.923
Maximum	2180	Maximum of Log Data	7.687
Mean	345.2	Mean of log Data	5.482
Median	206	SD of log Data	0.84
SD	349		
Coefficient of Variation	1.011		
Skewness	2.74		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.199	Lilliefors Test Statistic	0.096
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	408.9	95% H-UCL	415.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	496.4
95% Adjusted-CLT UCL	420.5	97.5% Chebyshev (MVUE) UCL	564
95% Modified-t UCL	410.9	99% Chebyshev (MVUE) UCL	696.9
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.478	Data appear Lognormal at 5% Significance Level	
Theta Star	233.6		
nu star	245.3		
Approximate Chi Square Value (.05)	210	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	408.2
Adjusted Chi Square Value	209.5	95% Jackknife UCL	408.9
		95% Standard Bootstrap UCL	409.3
Anderson-Darling Test Statistic	2.05	95% Bootstrap-t UCL	434.7
Anderson-Darling 5% Critical Value	0.77	95% Hall's Bootstrap UCL	439
Kolmogorov-Smirnov Test Statistic	0.146	95% Percentile Bootstrap UCL	412.1
Kolmogorov-Smirnov 5% Critical Value	0.0998	95% BCA Bootstrap UCL	421.9
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	512.2
		97.5% Chebyshev(Mean, Sd) UCL	584.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	726.4
95% Approximate Gamma UCL	403.2		
95% Adjusted Gamma UCL	404.3		
Potential UCL to Use		Use 95% H-UCL	415.1

Result or 1/2 SDL (benzo(a)anthracene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	70

Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.415
Maximum	5.02	Maximum of Log Data	1.613
Mean	0.345	Mean of log Data	-3.502
Median	0.0053	SD of log Data	2.25
SD	0.793		
Coefficient of Variation	2.297		
Skewness	3.493		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.364	Lilliefors Test Statistic	0.285
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.49	95% H-UCL	0.941
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.942
95% Adjusted-CLT UCL	0.524	97.5% Chebyshev (MVUE) UCL	1.202
95% Modified-t UCL	0.495	99% Chebyshev (MVUE) UCL	1.712
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.283	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.22		
nu star	46.96		
Approximate Chi Square Value (.05)	32.23	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.488
Adjusted Chi Square Value	32.02	95% Jackknife UCL	0.49
		95% Standard Bootstrap UCL	0.486
Anderson-Darling Test Statistic	9.314	95% Bootstrap-t UCL	0.547
Anderson-Darling 5% Critical Value	0.872	95% Hall's Bootstrap UCL	0.565
Kolmogorov-Smirnov Test Statistic	0.281	95% Percentile Bootstrap UCL	0.506
Kolmogorov-Smirnov 5% Critical Value	0.107	95% BCA Bootstrap UCL	0.532
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.724
		97.5% Chebyshev(Mean, Sd) UCL	0.888
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.211
95% Approximate Gamma UCL	0.503		
95% Adjusted Gamma UCL	0.506		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.211

Result or 1/2 SDL (benzo(a)pyrene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	80

Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.419
Maximum	4.57	Maximum of Log Data	1.52
Mean	0.452	Mean of log Data	-2.692
Median	0.0514	SD of log Data	2.07
SD	0.92		
Coefficient of Variation	2.036		
Skewness	2.73		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.329	Lilliefors Test Statistic	0.106
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.62	95% H-UCL	1.269
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.37
95% Adjusted-CLT UCL	0.651	97.5% Chebyshev (MVUE) UCL	1.731
95% Modified-t UCL	0.625	99% Chebyshev (MVUE) UCL	2.44
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.349	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.296		
nu star	57.92		
Approximate Chi Square Value (.05)	41.43	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.618
Adjusted Chi Square Value	41.18	95% Jackknife UCL	0.62
		95% Standard Bootstrap UCL	0.621
Anderson-Darling Test Statistic	4.332	95% Bootstrap-t UCL	0.692
Anderson-Darling 5% Critical Value	0.853	95% Hall's Bootstrap UCL	0.646
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL	0.622
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.651
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.892
		97.5% Chebyshev(Mean, Sd) UCL	1.083
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.457
95% Approximate Gamma UCL	0.632		
95% Adjusted Gamma UCL	0.636		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.457

Result or 1/2 SDL (benzo(b)fluoranthene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	79

Raw Statistics		Log-transformed Statistics	
Minimum	0.0033	Minimum of Log Data	-5.688
Maximum	5.42	Maximum of Log Data	1.69
Mean	0.582	Mean of log Data	-2.042
Median	0.113	SD of log Data	1.921

SD	1.074		
Coefficient of Variation	1.846		
Skewness	2.709		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.314	Lilliefors Test Statistic	0.0761
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.778	95% H-UCL	1.638
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.857
95% Adjusted-CLT UCL	0.813	97.5% Chebyshev (MVUE) UCL	2.326
95% Modified-t UCL	0.784	99% Chebyshev (MVUE) UCL	3.247
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.425	Data appear Lognormal at 5% Significance Level	
Theta Star	1.369		
nu star	70.59		
Approximate Chi Square Value (.05)	52.25	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.776
Adjusted Chi Square Value	51.97	95% Jackknife UCL	0.778
		95% Standard Bootstrap UCL	0.771
Anderson-Darling Test Statistic	2.74	95% Bootstrap-t UCL	0.839
Anderson-Darling 5% Critical Value	0.835	95% Hall's Bootstrap UCL	0.821
Kolmogorov-Smirnov Test Statistic	0.166	95% Percentile Bootstrap UCL	0.79
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.827
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.096
		97.5% Chebyshev(Mean, Sd) UCL	1.318
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.755
95% Approximate Gamma UCL	0.786		
95% Adjusted Gamma UCL	0.79		
Potential UCL to Use		Use 95% H-UCL	1.638

Result or 1/2 SDL (benzo(g,h,i)perylene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	73

Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.418
Maximum	4.24	Maximum of Log Data	1.445
Mean	0.324	Mean of log Data	-2.987
Median	0.0493	SD of log Data	2.033
SD	0.706		
Coefficient of Variation	2.182		
Skewness	3.466		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.326	Lilliefors Test Statistic	0.179
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.452	95% H-UCL	0.854
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.934
95% Adjusted-CLT UCL	0.483	97.5% Chebyshev (MVUE) UCL	1.178
95% Modified-t UCL	0.457	99% Chebyshev (MVUE) UCL	1.657
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.355	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.911		
nu star	58.96		
Approximate Chi Square Value (.05)	42.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.451
Adjusted Chi Square Value	42.05	95% Jackknife UCL	0.452
		95% Standard Bootstrap UCL	0.449
Anderson-Darling Test Statistic	4.478	95% Bootstrap-t UCL	0.498
Anderson-Darling 5% Critical Value	0.852	95% Hall's Bootstrap UCL	0.504
Kolmogorov-Smirnov Test Statistic	0.172	95% Percentile Bootstrap UCL	0.453
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.499
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.661
		97.5% Chebyshev(Mean, Sd) UCL	0.807
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.095
95% Approximate Gamma UCL	0.451		
95% Adjusted Gamma UCL	0.454		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.095

Result or 1/2 SDL (benzo(k)fluoranthene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	59
Raw Statistics		Log-transformed Statistics	
Minimum	0.0068	Minimum of Log Data	-4.984
Maximum	4.25	Maximum of Log Data	1.447
Mean	0.24	Mean of log Data	-3.413
Median	0.0081	SD of log Data	1.887
SD	0.601		
Coefficient of Variation	2.507		
Skewness	4.388		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.349	Lilliefors Test Statistic	0.3
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.349	95% H-UCL	0.381
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.437
95% Adjusted-CLT UCL	0.382	97.5% Chebyshev (MVUE) UCL	0.546
95% Modified-t UCL	0.355	99% Chebyshev (MVUE) UCL	0.76
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.336	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.713		
nu star	55.81		
Approximate Chi Square Value (.05)	39.64	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.348
Adjusted Chi Square Value	39.4	95% Jackknife UCL	0.349
		95% Standard Bootstrap UCL	0.348
Anderson-Darling Test Statistic	9.793	95% Bootstrap-t UCL	0.407
Anderson-Darling 5% Critical Value	0.856	95% Hall's Bootstrap UCL	0.464
Kolmogorov-Smirnov Test Statistic	0.285	95% Percentile Bootstrap UCL	0.356
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.389
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.527
		97.5% Chebyshev(Mean, Sd) UCL	0.651
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.896
95% Approximate Gamma UCL	0.337		
95% Adjusted Gamma UCL	0.339		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.651

Result or 1/2 SDL (beryllium)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	60
Raw Statistics		Log-transformed Statistics	
Minimum	0.0015	Minimum of Log Data	-6.47
Maximum	4.6	Maximum of Log Data	1.526
Mean	0.408	Mean of log Data	-1.368
Median	0.32	SD of log Data	1.136
SD	0.525		
Coefficient of Variation	1.287		
Skewness	6.344		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.22	Lilliefors Test Statistic	0.159
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.504	95% H-UCL	0.653
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.803
95% Adjusted-CLT UCL	0.546	97.5% Chebyshev (MVUE) UCL	0.943
95% Modified-t UCL	0.511	99% Chebyshev (MVUE) UCL	1.218

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.163	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.351		
nu star	193.1		
Approximate Chi Square Value (.05)	162	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.503
Adjusted Chi Square Value	161.5	95% Jackknife UCL	0.504
		95% Standard Bootstrap UCL	0.502
Anderson-Darling Test Statistic	0.998	95% Bootstrap-t UCL	0.59
Anderson-Darling 5% Critical Value	0.778	95% Hall's Bootstrap UCL	0.909
Kolmogorov-Smirnov Test Statistic	0.096	95% Percentile Bootstrap UCL	0.512
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.577
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.659
		97.5% Chebyshev(Mean, Sd) UCL	0.768
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.982
95% Approximate Gamma UCL	0.487		
95% Adjusted Gamma UCL	0.488		
Potential UCL to Use		Use 95% Approximate Gamma UCL	0.487

Result or 1/2 SDL (biphenyl)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	44
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.318
Maximum	0.0807	Maximum of Log Data	-2.517
Mean	0.015	Mean of log Data	-4.739
Median	0.0056	SD of log Data	0.899
SD	0.0197		
Coefficient of Variation	1.313		
Skewness	1.973		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.433	Lilliefors Test Statistic	0.415
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0186	95% H-UCL	0.0162
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0195
95% Adjusted-CLT UCL	0.019	97.5% Chebyshev (MVUE) UCL	0.0223
95% Modified-t UCL	0.0186	99% Chebyshev (MVUE) UCL	0.0279
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.035	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0145		
nu star	171.9		

Approximate Chi Square Value (.05)	142.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0185
Adjusted Chi Square Value	142.1	95% Jackknife UCL	0.0186
		95% Standard Bootstrap UCL	0.0185
Anderson-Darling Test Statistic	16.91	95% Bootstrap-t UCL	0.0193
Anderson-Darling 5% Critical Value	0.781	95% Hall's Bootstrap UCL	0.0188
Kolmogorov-Smirnov Test Statistic	0.438	95% Percentile Bootstrap UCL	0.0186
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.0191
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0244
		97.5% Chebyshev(Mean, Sd) UCL	0.0285
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0365
95% Approximate Gamma UCL	0.0181		
95% Adjusted Gamma UCL	0.0181		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0244

Result or 1/2 SDL (boron)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	63
Raw Statistics		Log-transformed Statistics	
Minimum	0.475	Minimum of Log Data	-0.744
Maximum	54.4	Maximum of Log Data	3.996
Mean	4.662	Mean of log Data	0.66
Median	1.07	SD of log Data	1.351
SD	7.296		
Coefficient of Variation	1.565		
Skewness	4.319		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.283	Lilliefors Test Statistic	0.261
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5.994	95% H-UCL	7.093
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.751
95% Adjusted-CLT UCL	6.384	97.5% Chebyshev (MVUE) UCL	10.49
95% Modified-t UCL	6.057	99% Chebyshev (MVUE) UCL	13.92
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.672	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.938		
nu star	111.5		
Approximate Chi Square Value (.05)	88.15	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	5.979
Adjusted Chi Square Value	87.78	95% Jackknife UCL	5.994
		95% Standard Bootstrap UCL	6.015
Anderson-Darling Test Statistic	5.465	95% Bootstrap-t UCL	6.686

Anderson-Darling 5% Critical Value	0.8	95% Hall's Bootstrap UCL	12.01
Kolmogorov-Smirnov Test Statistic	0.251	95% Percentile Bootstrap UCL	6.051
Kolmogorov-Smirnov 5% Critical Value	0.102	95% BCA Bootstrap UCL	6.577
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.152
		97.5% Chebyshev(Mean, Sd) UCL	9.663
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	12.63
95% Approximate Gamma UCL	5.898		
95% Adjusted Gamma UCL	5.922		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	9.663

Result or 1/2 SDL (butyl benzyl phthalate)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	45
Raw Statistics		Log-transformed Statistics	
Minimum	0.0054	Minimum of Log Data	-5.212
Maximum	0.297	Maximum of Log Data	-1.214
Mean	0.0187	Mean of log Data	-4.645
Median	0.0062	SD of log Data	0.914
SD	0.0388		
Coefficient of Variation	2.069		
Skewness	5.405		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.381	Lilliefors Test Statistic	0.407
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0258	95% H-UCL	0.0181
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0219
95% Adjusted-CLT UCL	0.0284	97.5% Chebyshev (MVUE) UCL	0.0251
95% Modified-t UCL	0.0262	99% Chebyshev (MVUE) UCL	0.0314
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.854	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0219		
nu star	141.8		
Approximate Chi Square Value (.05)	115.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0257
Adjusted Chi Square Value	114.9	95% Jackknife UCL	0.0258
		95% Standard Bootstrap UCL	0.0257
Anderson-Darling Test Statistic	16.12	95% Bootstrap-t UCL	0.0343
Anderson-Darling 5% Critical Value	0.788	95% Hall's Bootstrap UCL	0.0581
Kolmogorov-Smirnov Test Statistic	0.427	95% Percentile Bootstrap UCL	0.0265
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.0297
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0373
		97.5% Chebyshev(Mean, Sd) UCL	0.0453

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0611
95% Approximate Gamma UCL	0.0231		
95% Adjusted Gamma UCL	0.0231		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0373

Result or 1/2 SDL (cadmium)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	47
Raw Statistics		Log-transformed Statistics	
Minimum	0.0085	Minimum of Log Data	-4.768
Maximum	9.71	Maximum of Log Data	2.273
Mean	0.464	Mean of log Data	-2.309
Median	0.23	SD of log Data	2.023
SD	1.141		
Coefficient of Variation	2.458		
Skewness	6.868		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.345	Lilliefors Test Statistic	0.221
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.672	95% H-UCL	1.636
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.796
95% Adjusted-CLT UCL	0.771	97.5% Chebyshev (MVUE) UCL	2.263
95% Modified-t UCL	0.688	99% Chebyshev (MVUE) UCL	3.181
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.416	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.116		
nu star	69.03		
Approximate Chi Square Value (.05)	50.91	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.67
Adjusted Chi Square Value	50.63	95% Jackknife UCL	0.672
		95% Standard Bootstrap UCL	0.665
Anderson-Darling Test Statistic	3.831	95% Bootstrap-t UCL	1.001
Anderson-Darling 5% Critical Value	0.837	95% Hall's Bootstrap UCL	1.548
Kolmogorov-Smirnov Test Statistic	0.195	95% Percentile Bootstrap UCL	0.696
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.822
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.01
		97.5% Chebyshev(Mean, Sd) UCL	1.246
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.71
95% Approximate Gamma UCL	0.629		
95% Adjusted Gamma UCL	0.633		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.71

Result or 1/2 SDL (carbazole)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	68

Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.444
Maximum	1.54	Maximum of Log Data	0.432
Mean	0.0612	Mean of log Data	-4.243
Median	0.0051	SD of log Data	1.457
SD	0.192		
Coefficient of Variation	3.132		
Skewness	6.428		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.383	Lilliefors Test Statistic	0.302
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0962	95% H-UCL	0.0641
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0787
95% Adjusted-CLT UCL	0.112	97.5% Chebyshev (MVUE) UCL	0.0953
95% Modified-t UCL	0.0987	99% Chebyshev (MVUE) UCL	0.128
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.438	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.14		
nu star	72.73		
Approximate Chi Square Value (.05)	54.09	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0958
Adjusted Chi Square Value	53.81	95% Jackknife UCL	0.0962
		95% Standard Bootstrap UCL	0.0954
Anderson-Darling Test Statistic	9.829	95% Bootstrap-t UCL	0.171
Anderson-Darling 5% Critical Value	0.831	95% Hall's Bootstrap UCL	0.246
Kolmogorov-Smirnov Test Statistic	0.284	95% Percentile Bootstrap UCL	0.0994
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.123
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.153
		97.5% Chebyshev(Mean, Sd) UCL	0.193
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.27
95% Approximate Gamma UCL	0.0823		
95% Adjusted Gamma UCL	0.0827		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.193

Result or 1/2 SDL (chromium)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	75

Raw Statistics		Log-transformed Statistics	
Minimum	3.37	Minimum of Log Data	1.215
Maximum	136	Maximum of Log Data	4.913
Mean	16.08	Mean of log Data	2.58
Median	12.6	SD of log Data	0.568
SD	15.7		
Coefficient of Variation	0.977		
Skewness	5.833		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.227	Lilliefors Test Statistic	0.0598
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	18.94	95% H-UCL	17.45
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	19.97
95% Adjusted-CLT UCL	20.09	97.5% Chebyshev (MVUE) UCL	21.91
95% Modified-t UCL	19.13	99% Chebyshev (MVUE) UCL	25.74
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.597	Data appear Lognormal at 5% Significance Level	
Theta Star	6.19		
nu star	431.1		
Approximate Chi Square Value (.05)	384	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	18.91
Adjusted Chi Square Value	383.2	95% Jackknife UCL	18.94
		95% Standard Bootstrap UCL	18.82
Anderson-Darling Test Statistic	2.059	95% Bootstrap-t UCL	21.55
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	31.63
Kolmogorov-Smirnov Test Statistic	0.113	95% Percentile Bootstrap UCL	19.12
Kolmogorov-Smirnov 5% Critical Value	0.099	95% BCA Bootstrap UCL	20.49
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	23.59
		97.5% Chebyshev(Mean, Sd) UCL	26.84
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	33.22
95% Approximate Gamma UCL	18.05		
95% Adjusted Gamma UCL	18.09		
Potential UCL to Use		Use 95% H-UCL	17.45

Result or 1/2 SDL (chrysene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	82

Raw Statistics		Log-transformed Statistics	
Minimum	0.0042	Minimum of Log Data	-5.47
Maximum	4.87	Maximum of Log Data	1.583

Mean	0.409	Mean of log Data	-2.736
Median	0.0493	SD of log Data	2.052
SD	0.836		
Coefficient of Variation	2.044		
Skewness	3.079		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.322	Lilliefors Test Statistic	0.0982
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.562	95% H-UCL	1.156
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.256
95% Adjusted-CLT UCL	0.593	97.5% Chebyshev (MVUE) UCL	1.586
95% Modified-t UCL	0.567	99% Chebyshev (MVUE) UCL	2.233
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.358	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.142		
nu star	59.42		
Approximate Chi Square Value (.05)	42.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.56
Adjusted Chi Square Value	42.45	95% Jackknife UCL	0.562
		95% Standard Bootstrap UCL	0.557
Anderson-Darling Test Statistic	3.941	95% Bootstrap-t UCL	0.617
Anderson-Darling 5% Critical Value	0.851	95% Hall's Bootstrap UCL	0.604
Kolmogorov-Smirnov Test Statistic	0.203	95% Percentile Bootstrap UCL	0.57
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.607
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.809
		97.5% Chebyshev(Mean, Sd) UCL	0.982
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.322
95% Approximate Gamma UCL	0.569		
95% Adjusted Gamma UCL	0.572		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.322

Result or 1/2 SDL (cobalt)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	79

Raw Statistics		Log-transformed Statistics	
Minimum	0.0125	Minimum of Log Data	-4.382
Maximum	16	Maximum of Log Data	2.773
Mean	3.705	Mean of log Data	1.069
Median	3.49	SD of log Data	0.946
SD	2.249		
Coefficient of Variation	0.607		
Skewness	2.18		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.107	Lilliefors Test Statistic	0.182
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.116	95% H-UCL	5.716
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.921
95% Adjusted-CLT UCL	4.175	97.5% Chebyshev (MVUE) UCL	7.962
95% Modified-t UCL	4.126	99% Chebyshev (MVUE) UCL	10
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.153	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.721		
nu star	357.5		
Approximate Chi Square Value (.05)	314.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	4.111
Adjusted Chi Square Value	313.9	95% Jackknife UCL	4.116
		95% Standard Bootstrap UCL	4.118
Anderson-Darling Test Statistic	1.75	95% Bootstrap-t UCL	4.185
Anderson-Darling 5% Critical Value	0.763	95% Hall's Bootstrap UCL	4.256
Kolmogorov-Smirnov Test Statistic	0.112	95% Percentile Bootstrap UCL	4.137
Kolmogorov-Smirnov 5% Critical Value	0.0993	95% BCA Bootstrap UCL	4.198
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.781
		97.5% Chebyshev(Mean, Sd) UCL	5.247
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.161
95% Approximate Gamma UCL	4.21		
95% Adjusted Gamma UCL	4.219		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	4.781

Result or 1/2 SDL (copper)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	78
Raw Statistics		Log-transformed Statistics	
Minimum	1.55	Minimum of Log Data	0.438
Maximum	216	Maximum of Log Data	5.375
Mean	27.98	Mean of log Data	2.929
Median	16.4	SD of log Data	0.844
SD	35.35		
Coefficient of Variation	1.263		
Skewness	3.794		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.26	Lilliefors Test Statistic	0.0827
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973

Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	34.43	95% H-UCL	32.45
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	38.82
95% Adjusted-CLT UCL	36.09	97.5% Chebyshev (MVUE) UCL	44.12
95% Modified-t UCL	34.7	99% Chebyshev (MVUE) UCL	54.55
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.342	Data appear Lognormal at 5% Significance Level	
Theta Star	20.85		
nu star	222.7		
Approximate Chi Square Value (.05)	189.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	34.36
Adjusted Chi Square Value	188.6	95% Jackknife UCL	34.43
		95% Standard Bootstrap UCL	34.22
Anderson-Darling Test Statistic	3.103	95% Bootstrap-t UCL	37.53
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL	39.93
Kolmogorov-Smirnov Test Statistic	0.147	95% Percentile Bootstrap UCL	34.91
Kolmogorov-Smirnov 5% Critical Value	0.1	95% BCA Bootstrap UCL	36.81
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	44.89
		97.5% Chebyshev(Mean, Sd) UCL	52.21
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	66.58
95% Approximate Gamma UCL	32.94		
95% Adjusted Gamma UCL	33.04		
Potential UCL to Use		Use 95% H-UCL	32.45

Result or 1/2 SDL (dibenz(a,h)anthracene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	78
Raw Statistics		Log-transformed Statistics	
Minimum	0.0042	Minimum of Log Data	-5.466
Maximum	1.64	Maximum of Log Data	0.495
Mean	0.155	Mean of log Data	-3.578
Median	0.0061	SD of log Data	1.966
SD	0.303		
Coefficient of Variation	1.952		
Skewness	3.008		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.31	Lilliefors Test Statistic	0.299
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.21	95% H-UCL	0.396
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.443

95% Adjusted-CLT UCL	0.222	97.5% Chebyshev (MVUE) UCL	0.556
95% Modified-t UCL	0.212	99% Chebyshev (MVUE) UCL	0.779
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.38	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.408		
nu star	63.11		
Approximate Chi Square Value (.05)	45.83	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.21
Adjusted Chi Square Value	45.57	95% Jackknife UCL	0.21
		95% Standard Bootstrap UCL	0.21
Anderson-Darling Test Statistic	6.569	95% Bootstrap-t UCL	0.229
Anderson-Darling 5% Critical Value	0.846	95% Hall's Bootstrap UCL	0.225
Kolmogorov-Smirnov Test Statistic	0.285	95% Percentile Bootstrap UCL	0.214
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.222
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.3
		97.5% Chebyshev(Mean, Sd) UCL	0.363
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.486
95% Approximate Gamma UCL	0.214		
95% Adjusted Gamma UCL	0.215		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.363

Result or 1/2 SDL (dibenzofuran)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	48
Raw Statistics		Log-transformed Statistics	
Minimum	0.0062	Minimum of Log Data	-5.083
Maximum	0.821	Maximum of Log Data	-0.197
Mean	0.0378	Mean of log Data	-4.288
Median	0.0071	SD of log Data	1.133
SD	0.107		
Coefficient of Variation	2.831		
Skewness	6.111		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.384	Lilliefors Test Statistic	0.376
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0574	95% H-UCL	0.0351
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0431
95% Adjusted-CLT UCL	0.0656	97.5% Chebyshev (MVUE) UCL	0.0506
95% Modified-t UCL	0.0587	99% Chebyshev (MVUE) UCL	0.0653
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.594	Data do not follow a Discernable Distribution (0.05)	

Theta Star	0.0636		
nu star	98.68		
Approximate Chi Square Value (.05)	76.76	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0572
Adjusted Chi Square Value	76.42	95% Jackknife UCL	0.0574
		95% Standard Bootstrap UCL	0.0568
Anderson-Darling Test Statistic	13.02	95% Bootstrap-t UCL	0.104
Anderson-Darling 5% Critical Value	0.808	95% Hall's Bootstrap UCL	0.15
Kolmogorov-Smirnov Test Statistic	0.378	95% Percentile Bootstrap UCL	0.0589
Kolmogorov-Smirnov 5% Critical Value	0.103	95% BCA Bootstrap UCL	0.0688
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0891
		97.5% Chebyshev(Mean, Sd) UCL	0.111
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.155
95% Approximate Gamma UCL	0.0486		
95% Adjusted Gamma UCL	0.0488		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.111

Result or 1/2 SDL (dieldrin)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	57
Raw Statistics		Log-transformed Statistics	
Minimum	7.0000E-5	Minimum of Log Data	-9.567
Maximum	0.0205	Maximum of Log Data	-3.887
Mean	9.9705E-4	Mean of log Data	-8.475
Median	8.3000E-5	SD of log Data	1.456
SD	0.0030		
Coefficient of Variation	3.053		
Skewness	5.171		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.38	Lilliefors Test Statistic	0.314
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0015	95% H-UCL	9.2982E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0011
95% Adjusted-CLT UCL	0.0017	97.5% Chebyshev (MVUE) UCL	0.0013
95% Modified-t UCL	0.0015	99% Chebyshev (MVUE) UCL	0.0018
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.411	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0024		
nu star	68.17		
Approximate Chi Square Value (.05)	50.17	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0015
Adjusted Chi Square Value	49.9	95% Jackknife UCL	0.0015

		95% Standard Bootstrap UCL	0.0015
Anderson-Darling Test Statistic	12.18	95% Bootstrap-t UCL	0.0022
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	0.0035
Kolmogorov-Smirnov Test Statistic	0.309	95% Percentile Bootstrap UCL	0.0016
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.0018
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0024
		97.5% Chebyshev(Mean, Sd) UCL	0.0030
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0043
95% Approximate Gamma UCL	0.0013		
95% Adjusted Gamma UCL	0.0013		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0030

Result or 1/2 SDL (di-n-butyl phthalate)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	55
Raw Statistics		Log-transformed Statistics	
Minimum	0.0126	Minimum of Log Data	-4.378
Maximum	0.753	Maximum of Log Data	-0.284
Mean	0.048	Mean of log Data	-3.781
Median	0.0143	SD of log Data	0.966
SD	0.102		
Coefficient of Variation	2.121		
Skewness	4.995		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.375	Lilliefors Test Statistic	0.401
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0666	95% H-UCL	0.0459
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0558
95% Adjusted-CLT UCL	0.0729	97.5% Chebyshev (MVUE) UCL	0.0643
95% Modified-t UCL	0.0676	99% Chebyshev (MVUE) UCL	0.081
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.777	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0618		
nu star	129		
Approximate Chi Square Value (.05)	103.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0664
Adjusted Chi Square Value	103.4	95% Jackknife UCL	0.0666
		95% Standard Bootstrap UCL	0.0664
Anderson-Darling Test Statistic	15.92	95% Bootstrap-t UCL	0.0837
Anderson-Darling 5% Critical Value	0.791	95% Hall's Bootstrap UCL	0.129
Kolmogorov-Smirnov Test Statistic	0.421	95% Percentile Bootstrap UCL	0.0691
Kolmogorov-Smirnov 5% Critical Value	0.102	95% BCA Bootstrap UCL	0.074

Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0967
		97.5% Chebyshev(Mean, Sd) UCL	0.118
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.159
95% Approximate Gamma UCL	0.0597		
95% Adjusted Gamma UCL	0.0599		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0967

Result or 1/2 SDL (endosulfan sulfate)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	63
Raw Statistics		Log-transformed Statistics	
Minimum	1.3250E-4	Minimum of Log Data	-8.929
Maximum	0.0713	Maximum of Log Data	-2.641
Mean	0.002	Mean of log Data	-8.01
Median	1.5450E-4	SD of log Data	1.391
SD	0.0084		
Coefficient of Variation	4.216		
Skewness	7.243		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.424	Lilliefors Test Statistic	0.34
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0035	95% H-UCL	0.0013
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0016
95% Adjusted-CLT UCL	0.0043	97.5% Chebyshev (MVUE) UCL	0.0019
95% Modified-t UCL	0.0036	99% Chebyshev (MVUE) UCL	0.0025
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.365	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0054		
nu star	60.65		
Approximate Chi Square Value (.05)	43.74	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0035
Adjusted Chi Square Value	43.48	95% Jackknife UCL	0.0035
		95% Standard Bootstrap UCL	0.0035
Anderson-Darling Test Statistic	15.84	95% Bootstrap-t UCL	0.0080
Anderson-Darling 5% Critical Value	0.849	95% Hall's Bootstrap UCL	0.0090
Kolmogorov-Smirnov Test Statistic	0.343	95% Percentile Bootstrap UCL	0.0036
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0047
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0060
		97.5% Chebyshev(Mean, Sd) UCL	0.0077
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0112
95% Approximate Gamma UCL	0.0027		
95% Adjusted Gamma UCL	0.0027		

Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0077

Result or 1/2 SDL (endrin aldehyde)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	69
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.6800E-4	Minimum of Log Data	-8.692
Maximum	0.0738	Maximum of Log Data	-2.606
Mean	0.0023	Mean of log Data	-7.729
Median	1.9500E-4	SD of log Data	1.421
SD	0.0089		
Coefficient of Variation	3.782		
Skewness	6.88		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.403	Lilliefors Test Statistic	0.36
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0039	95% H-UCL	0.0018
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0022
95% Adjusted-CLT UCL	0.0047	97.5% Chebyshev (MVUE) UCL	0.0027
95% Modified-t UCL	0.0041	99% Chebyshev (MVUE) UCL	0.0036
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.387	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0061		
nu star	64.22		
Approximate Chi Square Value (.05)	46.78	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0039
Adjusted Chi Square Value	46.52	95% Jackknife UCL	0.0039
		95% Standard Bootstrap UCL	0.0039
Anderson-Darling Test Statistic	14.52	95% Bootstrap-t UCL	0.0074
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	0.0097
Kolmogorov-Smirnov Test Statistic	0.363	95% Percentile Bootstrap UCL	0.0041
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.0050
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0066
		97.5% Chebyshev(Mean, Sd) UCL	0.0084
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0121
95% Approximate Gamma UCL	0.0032		
95% Adjusted Gamma UCL	0.0032		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0084

Result or 1/2 SDL (endrin ketone)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	67

Raw Statistics		Log-transformed Statistics	
Minimum	2.1300E-4	Minimum of Log Data	-8.454
Maximum	0.02	Maximum of Log Data	-3.912
Mean	0.0016	Mean of log Data	-7.554
Median	2.4500E-4	SD of log Data	1.31
SD	0.0034		
Coefficient of Variation	2.05		
Skewness	3.169		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.359	Lilliefors Test Statistic	0.362
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0023	95% H-UCL	0.0017
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0022
95% Adjusted-CLT UCL	0.0024	97.5% Chebyshev (MVUE) UCL	0.0026
95% Modified-t UCL	0.0023	99% Chebyshev (MVUE) UCL	0.0034
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.528	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0031		
nu star	87.68		
Approximate Chi Square Value (.05)	67.09	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0023
Adjusted Chi Square Value	66.77	95% Jackknife UCL	0.0023
		95% Standard Bootstrap UCL	0.0023
Anderson-Darling Test Statistic	13.72	95% Bootstrap-t UCL	0.0025
Anderson-Darling 5% Critical Value	0.815	95% Hall's Bootstrap UCL	0.0024
Kolmogorov-Smirnov Test Statistic	0.373	95% Percentile Bootstrap UCL	0.0023
Kolmogorov-Smirnov 5% Critical Value	0.103	95% BCA Bootstrap UCL	0.0025
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0033
		97.5% Chebyshev(Mean, Sd) UCL	0.0040
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0054
95% Approximate Gamma UCL	0.0021		
95% Adjusted Gamma UCL	0.0022		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0040

Result or 1/2 SDL (fluoranthene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	78

Raw Statistics		Log-transformed Statistics	

Minimum	0.0053	Minimum of Log Data	-5.231
Maximum	14.2	Maximum of Log Data	2.653
Mean	0.799	Mean of log Data	-2.284
Median	0.0748	SD of log Data	2.188
SD	1.943		
Coefficient of Variation	2.431		
Skewness	4.772		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.341	Lilliefors Test Statistic	0.089
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.154	95% H-UCL	2.656
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.735
95% Adjusted-CLT UCL	1.269	97.5% Chebyshev (MVUE) UCL	3.477
95% Modified-t UCL	1.173	99% Chebyshev (MVUE) UCL	4.936
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.326	Data appear Lognormal at 5% Significance Level	
Theta Star	2.453		
nu star	54.08		
Approximate Chi Square Value (.05)	38.19	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	1.15
Adjusted Chi Square Value	37.95	95% Jackknife UCL	1.154
		95% Standard Bootstrap UCL	1.149
Anderson-Darling Test Statistic	3.83	95% Bootstrap-t UCL	1.4
Anderson-Darling 5% Critical Value	0.859	95% Hall's Bootstrap UCL	2.632
Kolmogorov-Smirnov Test Statistic	0.183	95% Percentile Bootstrap UCL	1.187
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	1.304
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.729
		97.5% Chebyshev(Mean, Sd) UCL	2.131
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.921
95% Approximate Gamma UCL	1.132		
95% Adjusted Gamma UCL	1.139		
Potential UCL to Use		Use 95% H-UCL	2.656

Result or 1/2 SDL (fluorene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	76

Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.449
Maximum	1.11	Maximum of Log Data	0.104
Mean	0.0515	Mean of log Data	-4.291
Median	0.0050	SD of log Data	1.395
SD	0.152		

Coefficient of Variation	2.942		
Skewness	5.801		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.378	Lilliefors Test Statistic	0.312
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0792	95% H-UCL	0.0544
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.067
95% Adjusted-CLT UCL	0.0902	97.5% Chebyshev (MVUE) UCL	0.0807
95% Modified-t UCL	0.0809	99% Chebyshev (MVUE) UCL	0.108
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.473	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.109		
nu star	78.47		
Approximate Chi Square Value (.05)	59.06	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0789
Adjusted Chi Square Value	58.76	95% Jackknife UCL	0.0792
		95% Standard Bootstrap UCL	0.0786
Anderson-Darling Test Statistic	9.551	95% Bootstrap-t UCL	0.138
Anderson-Darling 5% Critical Value	0.823	95% Hall's Bootstrap UCL	0.208
Kolmogorov-Smirnov Test Statistic	0.297	95% Percentile Bootstrap UCL	0.0817
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.0957
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.124
		97.5% Chebyshev(Mean, Sd) UCL	0.155
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.217
95% Approximate Gamma UCL	0.0684		
95% Adjusted Gamma UCL	0.0688		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.155

Result or 1/2 SDL (gamma-chlordane)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	57

Raw Statistics		Log-transformed Statistics	
Minimum	1.1000E-4	Minimum of Log Data	-9.115
Maximum	0.0156	Maximum of Log Data	-4.16
Mean	8.2679E-4	Mean of log Data	-8.449
Median	1.2500E-4	SD of log Data	1.205
SD	0.0024		
Coefficient of Variation	2.992		
Skewness	4.837		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	

Lilliefors Test Statistic	0.411	Lilliefors Test Statistic	0.4
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0012	95% H-UCL	6.1126E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.5378E-4
95% Adjusted-CLT UCL	0.0014	97.5% Chebyshev (MVUE) UCL	8.9135E-4
95% Modified-t UCL	0.0013	99% Chebyshev (MVUE) UCL	0.0011
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.465	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0017		
nu star	77.18		
Approximate Chi Square Value (.05)	57.94	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0012
Adjusted Chi Square Value	57.65	95% Jackknife UCL	0.0012
		95% Standard Bootstrap UCL	0.0012
Anderson-Darling Test Statistic	19.32	95% Bootstrap-t UCL	0.0017
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	0.0019
Kolmogorov-Smirnov Test Statistic	0.428	95% Percentile Bootstrap UCL	0.0013
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.0015
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0020
		97.5% Chebyshev(Mean, Sd) UCL	0.0025
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0035
95% Approximate Gamma UCL	0.0011		
95% Adjusted Gamma UCL	0.0011		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0025

Result or 1/2 SDL (indeno(1,2,3-cd)pyrene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	78
Raw Statistics		Log-transformed Statistics	
Minimum	0.0071	Minimum of Log Data	-4.948
Maximum	6.49	Maximum of Log Data	1.87
Mean	0.47	Mean of log Data	-2.172
Median	0.11	SD of log Data	1.821
SD	0.94		
Coefficient of Variation	2		
Skewness	3.998		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.319	Lilliefors Test Statistic	0.156
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

95% Student's-t UCL	0.642	95% H-UCL	1.122
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.305
95% Adjusted-CLT UCL	0.688	97.5% Chebyshev (MVUE) UCL	1.624
95% Modified-t UCL	0.649	99% Chebyshev (MVUE) UCL	2.251
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.446	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.053		
nu star	74.09		
Approximate Chi Square Value (.05)	55.27	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.64
Adjusted Chi Square Value	54.98	95% Jackknife UCL	0.642
		95% Standard Bootstrap UCL	0.638
Anderson-Darling Test Statistic	3.485	95% Bootstrap-t UCL	0.722
Anderson-Darling 5% Critical Value	0.829	95% Hall's Bootstrap UCL	0.812
Kolmogorov-Smirnov Test Statistic	0.196	95% Percentile Bootstrap UCL	0.656
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL	0.69
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.92
		97.5% Chebyshev(Mean, Sd) UCL	1.115
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.497
95% Approximate Gamma UCL	0.63		
95% Adjusted Gamma UCL	0.634		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	1.115

Result or 1/2 SDL (iron)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	73
Raw Statistics		Log-transformed Statistics	
Minimum	3450	Minimum of Log Data	8.146
Maximum	77100	Maximum of Log Data	11.25
Mean	16285	Mean of log Data	9.548
Median	13400	SD of log Data	0.52
SD	11193		
Coefficient of Variation	0.687		
Skewness	3.11		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.205	Lilliefors Test Statistic	0.0958
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	18329	95% H-UCL	17845
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	20231
95% Adjusted-CLT UCL	18754	97.5% Chebyshev (MVUE) UCL	22055
95% Modified-t UCL	18399	99% Chebyshev (MVUE) UCL	25638

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.376	Data appear Lognormal at 5% Significance Level	
Theta Star	4824		
nu star	560.3		
Approximate Chi Square Value (.05)	506.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	18306
Adjusted Chi Square Value	505.5	95% Jackknife UCL	18329
		95% Standard Bootstrap UCL	18299
Anderson-Darling Test Statistic	2.12	95% Bootstrap-t UCL	18935
Anderson-Darling 5% Critical Value	0.758	95% Hall's Bootstrap UCL	19503
Kolmogorov-Smirnov Test Statistic	0.137	95% Percentile Bootstrap UCL	18453
Kolmogorov-Smirnov 5% Critical Value	0.0987	95% BCA Bootstrap UCL	18869
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21640
		97.5% Chebyshev(Mean, Sd) UCL	23957
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28509
95% Approximate Gamma UCL	18019		
95% Adjusted Gamma UCL	18051		
Potential UCL to Use		Use 95% H-UCL	17845

Result or 1/2 SDL (lead)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	80
Raw Statistics		Log-transformed Statistics	
Minimum	2.82	Minimum of Log Data	1.037
Maximum	643	Maximum of Log Data	6.466
Mean	69.61	Mean of log Data	3.584
Median	34.4	SD of log Data	1.077
SD	112.8		
Coefficient of Variation	1.62		
Skewness	3.653		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.277	Lilliefors Test Statistic	0.0781
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	90.2	95% H-UCL	84.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	103.5
95% Adjusted-CLT UCL	95.27	97.5% Chebyshev (MVUE) UCL	120.8
95% Modified-t UCL	91.03	99% Chebyshev (MVUE) UCL	154.8
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.864	Data appear Lognormal at 5% Significance Level	
Theta Star	80.56		
nu star	143.4		
Approximate Chi Square Value (.05)	116.8	Nonparametric Statistics	

Adjusted Level of Significance	0.0471	95% CLT UCL	89.97
Adjusted Chi Square Value	116.3	95% Jackknife UCL	90.2
		95% Standard Bootstrap UCL	89.75
Anderson-Darling Test Statistic	3.258	95% Bootstrap-t UCL	100.5
Anderson-Darling 5% Critical Value	0.787	95% Hall's Bootstrap UCL	94.9
Kolmogorov-Smirnov Test Statistic	0.139	95% Percentile Bootstrap UCL	91.31
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	95.36
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	123.6
		97.5% Chebyshev(Mean, Sd) UCL	146.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	192.8
95% Approximate Gamma UCL	85.51		
95% Adjusted Gamma UCL	85.82		
Potential UCL to Use		Use 95% H-UCL	84.5

Result or 1/2 SDL (lithium)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	80

Raw Statistics		Log-transformed Statistics	
Minimum	0.65	Minimum of Log Data	-0.431
Maximum	28	Maximum of Log Data	3.332
Mean	7.856	Mean of log Data	1.76
Median	6.44	SD of log Data	0.847
SD	5.715		
Coefficient of Variation	0.728		
Skewness	1.032		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.148	Lilliefors Test Statistic	0.0724
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	8.899	95% H-UCL	10.12
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.11
95% Adjusted-CLT UCL	8.963	97.5% Chebyshev (MVUE) UCL	13.77
95% Modified-t UCL	8.911	99% Chebyshev (MVUE) UCL	17.03
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.749	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	4.492		
nu star	290.3		
Approximate Chi Square Value (.05)	251.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	8.887
Adjusted Chi Square Value	251.2	95% Jackknife UCL	8.899
		95% Standard Bootstrap UCL	8.869
Anderson-Darling Test Statistic	0.362	95% Bootstrap-t UCL	9.045
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	9.048

Kolmogorov-Smirnov Test Statistic	0.0621	95% Percentile Bootstrap UCL	8.862
Kolmogorov-Smirnov 5% Critical Value	0.0996	95% BCA Bootstrap UCL	9.001
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	10.59
		97.5% Chebyshev(Mean, Sd) UCL	11.77
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	14.1
95% Approximate Gamma UCL	9.055		
95% Adjusted Gamma UCL	9.078		
Potential UCL to Use		Use 95% Approximate Gamma UCL	9.055

Result or 1/2 SDL (manganese)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	71
Raw Statistics		**Log-transformed Statistics**	
Minimum	59.3	Minimum of Log Data	4.083
Maximum	892	Maximum of Log Data	6.793
Mean	257.4	Mean of log Data	5.455
Median	224	SD of log Data	0.426
SD	129.3		
Coefficient of Variation	0.502		
Skewness	2.305		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.196	Lilliefors Test Statistic	0.102
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	281.1	95% H-UCL	278.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	310.2
95% Adjusted-CLT UCL	284.6	97.5% Chebyshev (MVUE) UCL	333.7
95% Modified-t UCL	281.7	99% Chebyshev (MVUE) UCL	379.8
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.208	Data do not follow a Discernable Distribution (0.05)	
Theta Star	49.43		
nu star	864.6		
Approximate Chi Square Value (.05)	797.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	280.8
Adjusted Chi Square Value	796.2	95% Jackknife UCL	281.1
		95% Standard Bootstrap UCL	280.6
Anderson-Darling Test Statistic	1.874	95% Bootstrap-t UCL	288.2
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	288.5
Kolmogorov-Smirnov Test Statistic	0.132	95% Percentile Bootstrap UCL	282.3
Kolmogorov-Smirnov 5% Critical Value	0.0983	95% BCA Bootstrap UCL	286.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	319.3
		97.5% Chebyshev(Mean, Sd) UCL	346.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	398.7

95% Approximate Gamma UCL	279.1		
95% Adjusted Gamma UCL	279.5		
Potential UCL to Use		Use 95% Student's-t UCL	281.1
		or 95% Modified-t UCL	281.7

Result or 1/2 SDL (mercury)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	55
Raw Statistics		Log-transformed Statistics	
Minimum	0.001	Minimum of Log Data	-6.908
Maximum	0.66	Maximum of Log Data	-0.416
Mean	0.0227	Mean of log Data	-4.95
Median	0.0065	SD of log Data	1.339
SD	0.0752		
Coefficient of Variation	3.315		
Skewness	7.742		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.387	Lilliefors Test Statistic	0.0883
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0364	95% H-UCL	0.0254
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0314
95% Adjusted-CLT UCL	0.0437	97.5% Chebyshev (MVUE) UCL	0.0376
95% Modified-t UCL	0.0376	99% Chebyshev (MVUE) UCL	0.0498
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.528	Data appear Lognormal at 5% Significance Level	
Theta Star	0.0429		
nu star	87.68		
Approximate Chi Square Value (.05)	67.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0362
Adjusted Chi Square Value	66.78	95% Jackknife UCL	0.0364
		95% Standard Bootstrap UCL	0.0365
Anderson-Darling Test Statistic	5.016	95% Bootstrap-t UCL	0.0699
Anderson-Darling 5% Critical Value	0.815	95% Hall's Bootstrap UCL	0.0863
Kolmogorov-Smirnov Test Statistic	0.208	95% Percentile Bootstrap UCL	0.0377
Kolmogorov-Smirnov 5% Critical Value	0.103	95% BCA Bootstrap UCL	0.0485
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0586
		97.5% Chebyshev(Mean, Sd) UCL	0.0742
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.105
95% Approximate Gamma UCL	0.0296		
95% Adjusted Gamma UCL	0.0298		
Potential UCL to Use		Use 95% H-UCL	0.0254

Result or 1/2 SDL (molybdenum)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	67

Raw Statistics		Log-transformed Statistics	
Minimum	0.034	Minimum of Log Data	-3.381
Maximum	8.42	Maximum of Log Data	2.131
Mean	1.306	Mean of log Data	-0.575
Median	0.91	SD of log Data	1.522
SD	1.588		
Coefficient of Variation	1.216		
Skewness	2.126		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.23	Lilliefors Test Statistic	0.136
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.596	95% H-UCL	2.859
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.492
95% Adjusted-CLT UCL	1.637	97.5% Chebyshev (MVUE) UCL	4.25
95% Modified-t UCL	1.603	99% Chebyshev (MVUE) UCL	5.739
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.698	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.872		
nu star	115.8		
Approximate Chi Square Value (.05)	91.98	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	1.593
Adjusted Chi Square Value	91.61	95% Jackknife UCL	1.596
		95% Standard Bootstrap UCL	1.589
Anderson-Darling Test Statistic	0.65	95% Bootstrap-t UCL	1.662
Anderson-Darling 5% Critical Value	0.797	95% Hall's Bootstrap UCL	1.639
Kolmogorov-Smirnov Test Statistic	0.0752	95% Percentile Bootstrap UCL	1.596
Kolmogorov-Smirnov 5% Critical Value	0.102	95% BCA Bootstrap UCL	1.645
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2.066
		97.5% Chebyshev(Mean, Sd) UCL	2.395
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3.041
95% Approximate Gamma UCL	1.645		
95% Adjusted Gamma UCL	1.652		
Potential UCL to Use		Use 95% Approximate Gamma UCL	1.645

Result or 1/2 SDL (nickel)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	67

Raw Statistics		Log-transformed Statistics	
Minimum	2.84	Minimum of Log Data	1.044
Maximum	36.7	Maximum of Log Data	3.603
Mean	11.64	Mean of log Data	2.373
Median	11.2	SD of log Data	0.411
SD	4.938		
Coefficient of Variation	0.424		
Skewness	1.825		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.13	Lilliefors Test Statistic	0.0874
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	12.54	95% H-UCL	12.67
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14.05
95% Adjusted-CLT UCL	12.65	97.5% Chebyshev (MVUE) UCL	15.08
95% Modified-t UCL	12.56	99% Chebyshev (MVUE) UCL	17.1
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	6.095	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.91		
nu star	1012		
Approximate Chi Square Value (.05)	938.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	12.53
Adjusted Chi Square Value	937.7	95% Jackknife UCL	12.54
		95% Standard Bootstrap UCL	12.55
Anderson-Darling Test Statistic	0.505	95% Bootstrap-t UCL	12.68
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	12.78
Kolmogorov-Smirnov Test Statistic	0.0926	95% Percentile Bootstrap UCL	12.53
Kolmogorov-Smirnov 5% Critical Value	0.0982	95% BCA Bootstrap UCL	12.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14
		97.5% Chebyshev(Mean, Sd) UCL	15.02
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	17.03
95% Approximate Gamma UCL	12.54		
95% Adjusted Gamma UCL	12.56		
Potential UCL to Use		Use 95% Approximate Gamma UCL	12.54

Result or 1/2 SDL (phenanthrene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	74

Raw Statistics		Log-transformed Statistics	
Minimum	0.0057	Minimum of Log Data	-5.159
Maximum	12.6	Maximum of Log Data	2.534

Mean	0.512	Mean of log Data	-2.572
Median	0.063	SD of log Data	2.001
SD	1.543		
Coefficient of Variation	3.013		
Skewness	6.446		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.371	Lilliefors Test Statistic	0.132
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.794	95% H-UCL	1.186
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.312
95% Adjusted-CLT UCL	0.919	97.5% Chebyshev (MVUE) UCL	1.651
95% Modified-t UCL	0.814	99% Chebyshev (MVUE) UCL	2.317
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.348	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.472		
nu star	57.78		
Approximate Chi Square Value (.05)	41.31	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.791
Adjusted Chi Square Value	41.06	95% Jackknife UCL	0.794
		95% Standard Bootstrap UCL	0.795
Anderson-Darling Test Statistic	4.225	95% Bootstrap-t UCL	1.251
Anderson-Darling 5% Critical Value	0.853	95% Hall's Bootstrap UCL	1.967
Kolmogorov-Smirnov Test Statistic	0.182	95% Percentile Bootstrap UCL	0.802
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.965
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.251
		97.5% Chebyshev(Mean, Sd) UCL	1.57
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.198
95% Approximate Gamma UCL	0.717		
95% Adjusted Gamma UCL	0.721		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	2.198

Result or 1/2 SDL (pyrene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	76

Raw Statistics		Log-transformed Statistics	
Minimum	0.0055	Minimum of Log Data	-5.194
Maximum	8.47	Maximum of Log Data	2.137
Mean	0.533	Mean of log Data	-2.413
Median	0.075	SD of log Data	1.994
SD	1.209		
Coefficient of Variation	2.27		
Skewness	4.319		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.333	Lilliefors Test Statistic	0.0815
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.754	95% H-UCL	1.366
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.514
95% Adjusted-CLT UCL	0.818	97.5% Chebyshev (MVUE) UCL	1.905
95% Modified-t UCL	0.764	99% Chebyshev (MVUE) UCL	2.672
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.368	Data appear Lognormal at 5% Significance Level	
Theta Star	1.449		
nu star	61.04		
Approximate Chi Square Value (.05)	44.07	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.751
Adjusted Chi Square Value	43.82	95% Jackknife UCL	0.754
		95% Standard Bootstrap UCL	0.753
Anderson-Darling Test Statistic	3.7	95% Bootstrap-t UCL	0.873
Anderson-Darling 5% Critical Value	0.849	95% Hall's Bootstrap UCL	1.429
Kolmogorov-Smirnov Test Statistic	0.175	95% Percentile Bootstrap UCL	0.764
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.821
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.112
		97.5% Chebyshev(Mean, Sd) UCL	1.362
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.854
95% Approximate Gamma UCL	0.738		
95% Adjusted Gamma UCL	0.742		
Potential UCL to Use		Use 95% H-UCL	1.366

Result or 1/2 SDL (selenium)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	0.21	Minimum of Log Data	-1.561
Maximum	0.48	Maximum of Log Data	-0.734
Mean	0.258	Mean of log Data	-1.377
Median	0.24	SD of log Data	0.202
SD	0.0663		
Coefficient of Variation	0.257		
Skewness	2.645		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.363	Lilliefors Test Statistic	0.322
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.27	95% H-UCL	0.267
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.282
95% Adjusted-CLT UCL	0.272	97.5% Chebyshev (MVUE) UCL	0.293
95% Modified-t UCL	0.271	99% Chebyshev (MVUE) UCL	0.315
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	20.56	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0126		
nu star	3413		
Approximate Chi Square Value (.05)	3278	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.27
Adjusted Chi Square Value	3276	95% Jackknife UCL	0.27
		95% Standard Bootstrap UCL	0.27
Anderson-Darling Test Statistic	13.15	95% Bootstrap-t UCL	0.274
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	0.272
Kolmogorov-Smirnov Test Statistic	0.338	95% Percentile Bootstrap UCL	0.271
Kolmogorov-Smirnov 5% Critical Value	0.0978	95% BCA Bootstrap UCL	0.273
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.29
		97.5% Chebyshev(Mean, Sd) UCL	0.304
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.331
95% Approximate Gamma UCL	0.269		
95% Adjusted Gamma UCL	0.269		
Potential UCL to Use		Use 95% Student's-t UCL	0.27
		or 95% Modified-t UCL	0.271

Result or 1/2 SDL (silver)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	24
Raw Statistics		Log-transformed Statistics	
Minimum	0.0235	Minimum of Log Data	-3.751
Maximum	0.99	Maximum of Log Data	-0.0101
Mean	0.0573	Mean of log Data	-3.388
Median	0.0265	SD of log Data	0.715
SD	0.125		
Coefficient of Variation	2.178		
Skewness	5.862		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.439	Lilliefors Test Statistic	0.413
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.08	95% H-UCL	0.0511

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0599
95% Adjusted-CLT UCL	0.0892	97.5% Chebyshev (MVUE) UCL	0.0671
95% Modified-t UCL	0.0815	99% Chebyshev (MVUE) UCL	0.081
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.053	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0544		
nu star	174.9		
Approximate Chi Square Value (.05)	145.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0798
Adjusted Chi Square Value	144.8	95% Jackknife UCL	0.08
		95% Standard Bootstrap UCL	0.0798
Anderson-Darling Test Statistic	21.47	95% Bootstrap-t UCL	0.108
Anderson-Darling 5% Critical Value	0.78	95% Hall's Bootstrap UCL	0.151
Kolmogorov-Smirnov Test Statistic	0.444	95% Percentile Bootstrap UCL	0.0815
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.0919
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.117
		97.5% Chebyshev(Mean, Sd) UCL	0.143
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.193
95% Approximate Gamma UCL	0.0689		
95% Adjusted Gamma UCL	0.0691		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.117

Result or 1/2 SDL (strontium)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	76
Raw Statistics		Log-transformed Statistics	
Minimum	16.5	Minimum of Log Data	2.803
Maximum	527	Maximum of Log Data	6.267
Mean	70.61	Mean of log Data	4.06
Median	57.3	SD of log Data	0.583
SD	63.98		
Coefficient of Variation	0.906		
Skewness	5.044		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.241	Lilliefors Test Statistic	0.105
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	82.29	95% H-UCL	77.64
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	89.08
95% Adjusted-CLT UCL	86.31	97.5% Chebyshev (MVUE) UCL	97.96
95% Modified-t UCL	82.94	99% Chebyshev (MVUE) UCL	115.4
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	2.606	Data do not follow a Discernable Distribution (0.05)	
Theta Star	27.1		
nu star	432.5		
Approximate Chi Square Value (.05)	385.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	82.16
Adjusted Chi Square Value	384.5	95% Jackknife UCL	82.29
		95% Standard Bootstrap UCL	81.58
Anderson-Darling Test Statistic	2.313	95% Bootstrap-t UCL	91.45
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	135.7
Kolmogorov-Smirnov Test Statistic	0.156	95% Percentile Bootstrap UCL	82.83
Kolmogorov-Smirnov 5% Critical Value	0.099	95% BCA Bootstrap UCL	86.92
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	101.2
		97.5% Chebyshev(Mean, Sd) UCL	114.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	140.5
95% Approximate Gamma UCL	79.26		
95% Adjusted Gamma UCL	79.42		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	101.2

Result or 1/2 SDL (tin)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	35
Raw Statistics		Log-transformed Statistics	
Minimum	0.23	Minimum of Log Data	-1.47
Maximum	4.95	Maximum of Log Data	1.599
Mean	0.611	Mean of log Data	-0.898
Median	0.265	SD of log Data	0.768
SD	0.793		
Coefficient of Variation	1.296		
Skewness	3.22		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.325	Lilliefors Test Statistic	0.334
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.756	95% H-UCL	0.65
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.769
95% Adjusted-CLT UCL	0.787	97.5% Chebyshev (MVUE) UCL	0.866
95% Modified-t UCL	0.761	99% Chebyshev (MVUE) UCL	1.057
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.334	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.458		
nu star	221.4		
Approximate Chi Square Value (.05)	188	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.755

Adjusted Chi Square Value	187.4	95% Jackknife UCL	0.756
		95% Standard Bootstrap UCL	0.756
Anderson-Darling Test Statistic	11.5	95% Bootstrap-t UCL	0.816
Anderson-Darling 5% Critical Value	0.774	95% Hall's Bootstrap UCL	0.816
Kolmogorov-Smirnov Test Statistic	0.339	95% Percentile Bootstrap UCL	0.768
Kolmogorov-Smirnov 5% Critical Value	0.1	95% BCA Bootstrap UCL	0.802
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.991
		97.5% Chebyshev(Mean, Sd) UCL	1.155
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.477
95% Approximate Gamma UCL	0.72		
95% Adjusted Gamma UCL	0.722		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.991

Result or 1/2 SDL (titanium)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	71

Raw Statistics		**Log-transformed Statistics**	
Minimum	11.5	Minimum of Log Data	2.442
Maximum	645	Maximum of Log Data	6.469
Mean	29.8	Mean of log Data	3.055
Median	19.5	SD of log Data	0.544
SD	69.4		
Coefficient of Variation	2.329		
Skewness	8.71		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.396	Lilliefors Test Statistic	0.193
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	42.47	95% H-UCL	27.51
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	31.33
95% Adjusted-CLT UCL	50.11	97.5% Chebyshev (MVUE) UCL	34.27
95% Modified-t UCL	43.68	99% Chebyshev (MVUE) UCL	40.05
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.568	Data do not follow a Discernable Distribution (0.05)	
Theta Star	19.01		
nu star	260.3		
Approximate Chi Square Value (.05)	223.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	42.33
Adjusted Chi Square Value	223.3	95% Jackknife UCL	42.47
		95% Standard Bootstrap UCL	42.22
Anderson-Darling Test Statistic	11.79	95% Bootstrap-t UCL	96.34
Anderson-Darling 5% Critical Value	0.769	95% Hall's Bootstrap UCL	87.12
Kolmogorov-Smirnov Test Statistic	0.289	95% Percentile Bootstrap UCL	44.62

Kolmogorov-Smirnov 5% Critical Value	0.0998	95% BCA Bootstrap UCL	53.78
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	63
		97.5% Chebyshev(Mean, Sd) UCL	77.37
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	105.6
95% Approximate Gamma UCL	34.64		
95% Adjusted Gamma UCL	34.73		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	63

Result or 1/2 SDL (vanadium)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	67
Raw Statistics		Log-transformed Statistics	
Minimum	5.42	Minimum of Log Data	1.69
Maximum	45.6	Maximum of Log Data	3.82
Mean	13.76	Mean of log Data	2.538
Median	12.9	SD of log Data	0.404
SD	6.248		
Coefficient of Variation	0.454		
Skewness	2.186		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.113	Lilliefors Test Statistic	0.0671
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	14.9	95% H-UCL	14.87
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.46
95% Adjusted-CLT UCL	15.06	97.5% Chebyshev (MVUE) UCL	17.65
95% Modified-t UCL	14.93	99% Chebyshev (MVUE) UCL	19.98
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.932	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.319		
nu star	984.6		
Approximate Chi Square Value (.05)	912.8	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	14.89
Adjusted Chi Square Value	911.6	95% Jackknife UCL	14.9
		95% Standard Bootstrap UCL	14.89
Anderson-Darling Test Statistic	0.532	95% Bootstrap-t UCL	15.15
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	15.36
Kolmogorov-Smirnov Test Statistic	0.0752	95% Percentile Bootstrap UCL	14.94
Kolmogorov-Smirnov 5% Critical Value	0.0982	95% BCA Bootstrap UCL	15.03
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	16.75
		97.5% Chebyshev(Mean, Sd) UCL	18.04
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	20.58
95% Approximate Gamma UCL	14.84		

95% Adjusted Gamma UCL	14.86		
Potential UCL to Use		Use 95% Approximate Gamma UCL	14.84

Result or 1/2 SDL (zinc)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	81
Raw Statistics		Log-transformed Statistics	
Minimum	12.3	Minimum of Log Data	2.51
Maximum	4770	Maximum of Log Data	8.47
Mean	601.2	Mean of log Data	5.837
Median	455	SD of log Data	1.203
SD	672.8		
Coefficient of Variation	1.119		
Skewness	3.386		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.191	Lilliefors Test Statistic	0.146
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	724.1	95% H-UCL	976.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1204
95% Adjusted-CLT UCL	752	97.5% Chebyshev (MVUE) UCL	1423
95% Modified-t UCL	728.6	99% Chebyshev (MVUE) UCL	1855
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.996	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	603.9		
nu star	165.3		
Approximate Chi Square Value (.05)	136.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	722.7
Adjusted Chi Square Value	136.1	95% Jackknife UCL	724.1
		95% Standard Bootstrap UCL	717.7
Anderson-Darling Test Statistic	0.442	95% Bootstrap-t UCL	763
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL	816.5
Kolmogorov-Smirnov Test Statistic	0.0769	95% Percentile Bootstrap UCL	727.9
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	758.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	923.1
		97.5% Chebyshev(Mean, Sd) UCL	1062
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1336
95% Approximate Gamma UCL	727.7		
95% Adjusted Gamma UCL	730.2		
Potential UCL to Use		Use 95% Approximate Gamma UCL	727.7

APPENDIX A-2

SOUTH OF MARLIN SOIL

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	J:\1352 - Gulfco RI\risk\data queries oct 07\EPC tables with onehalf DL\95% detect frequency soil S of ma
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result or 1/2 SDL (1,3,5-trimethylbenzene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	58

Raw Statistics		Log-transformed Statistics	
Minimum	3.7000E-5	Minimum of Log Data	-10.2
Maximum	4.36	Maximum of Log Data	1.472
Mean	0.099	Mean of log Data	-8.82
Median	7.4500E-5	SD of log Data	1.986
SD	0.632		
Coefficient of Variation	6.391		
Skewness	6.366		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.535	Lilliefors Test Statistic	0.397
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.214	95% H-UCL	0.0022
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0024
95% Adjusted-CLT UCL	0.265	97.5% Chebyshev (MVUE) UCL	0.0030
95% Modified-t UCL	0.223	99% Chebyshev (MVUE) UCL	0.0043
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.125	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.79		
nu star	20.8		
Approximate Chi Square Value (.05)	11.44	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.213
Adjusted Chi Square Value	11.32	95% Jackknife UCL	0.214
		95% Standard Bootstrap UCL	0.212
Anderson-Darling Test Statistic	28.64	95% Bootstrap-t UCL	67.91
Anderson-Darling 5% Critical Value	0.984	95% Hall's Bootstrap UCL	42.63
Kolmogorov-Smirnov Test Statistic	0.464	95% Percentile Bootstrap UCL	0.211
Kolmogorov-Smirnov 5% Critical Value	0.112	95% BCA Bootstrap UCL	0.29
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.402
		97.5% Chebyshev(Mean, Sd) UCL	0.532
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.79
95% Approximate Gamma UCL	0.18		
95% Adjusted Gamma UCL	0.182		

Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.532

Result or 1/2 SDL (2-butanone)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	81
Raw Statistics		**Log-transformed Statistics**	
Minimum	7.1500E-5	Minimum of Log Data	-9.546
Maximum	0.06	Maximum of Log Data	-2.813
Mean	0.0041	Mean of log Data	-6.321
Median	0.0019	SD of log Data	1.38
SD	0.0074		
Coefficient of Variation	1.818		
Skewness	5.537		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.294	Lilliefors Test Statistic	0.133
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0054	95% H-UCL	0.0069
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0085
95% Adjusted-CLT UCL	0.006	97.5% Chebyshev (MVUE) UCL	0.0103
95% Modified-t UCL	0.0055	99% Chebyshev (MVUE) UCL	0.0137
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.708	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0058		
nu star	117.5		
Approximate Chi Square Value (.05)	93.51	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0054
Adjusted Chi Square Value	93.13	95% Jackknife UCL	0.0054
		95% Standard Bootstrap UCL	0.0054
Anderson-Darling Test Statistic	1.855	95% Bootstrap-t UCL	0.0068
Anderson-Darling 5% Critical Value	0.796	95% Hall's Bootstrap UCL	0.0111
Kolmogorov-Smirnov Test Statistic	0.134	95% Percentile Bootstrap UCL	0.0055
Kolmogorov-Smirnov 5% Critical Value	0.102	95% BCA Bootstrap UCL	0.0064
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0077
		97.5% Chebyshev(Mean, Sd) UCL	0.0092
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0123
95% Approximate Gamma UCL	0.0051		
95% Adjusted Gamma UCL	0.0052		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0092

Result or 1/2 SDL (2-hexanone)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	79
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.8900E-4	Minimum of Log Data	-8.574
Maximum	0.159	Maximum of Log Data	-1.842
Mean	0.0040	Mean of log Data	-7.35
Median	3.7750E-4	SD of log Data	1.34
SD	0.018		
Coefficient of Variation	4.426		
Skewness	7.989		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.415	Lilliefors Test Statistic	0.399
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0073	95% H-UCL	0.0023
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0028
95% Adjusted-CLT UCL	0.0091	97.5% Chebyshev (MVUE) UCL	0.0034
95% Modified-t UCL	0.0076	99% Chebyshev (MVUE) UCL	0.0045
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.358	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0113		
nu star	59.38		
Approximate Chi Square Value (.05)	42.66	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0073
Adjusted Chi Square Value	42.41	95% Jackknife UCL	0.0073
		95% Standard Bootstrap UCL	0.0072
Anderson-Darling Test Statistic	20.58	95% Bootstrap-t UCL	0.0146
Anderson-Darling 5% Critical Value	0.851	95% Hall's Bootstrap UCL	0.0179
Kolmogorov-Smirnov Test Statistic	0.455	95% Percentile Bootstrap UCL	0.0078
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0102
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0127
		97.5% Chebyshev(Mean, Sd) UCL	0.0164
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0237
95% Approximate Gamma UCL	0.0056		
95% Adjusted Gamma UCL	0.0056		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0164

Result or 1/2 SDL (2-methylnaphthalene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	84
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0047	Minimum of Log Data	-5.354

Maximum	7.21	Maximum of Log Data	1.975
Mean	0.0694	Mean of log Data	-4.533
Median	0.0056	SD of log Data	1.209
SD	0.561		
Coefficient of Variation	8.087		
Skewness	12.66		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.454	Lilliefors Test Statistic	0.354
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.141	95% H-UCL	0.0278
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0338
95% Adjusted-CLT UCL	0.187	97.5% Chebyshev (MVUE) UCL	0.0389
95% Modified-t UCL	0.149	99% Chebyshev (MVUE) UCL	0.0488
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.357	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.194		
nu star	118.4		
Approximate Chi Square Value (.05)	94.29	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.141
Adjusted Chi Square Value	94.11	95% Jackknife UCL	0.141
		95% Standard Bootstrap UCL	0.146
Anderson-Darling Test Statistic	6.024E+28	95% Bootstrap-t UCL	0.686
Anderson-Darling 5% Critical Value	0.854	95% Hall's Bootstrap UCL	0.403
Kolmogorov-Smirnov Test Statistic	0.361	95% Percentile Bootstrap UCL	0.155
Kolmogorov-Smirnov 5% Critical Value	0.078	95% BCA Bootstrap UCL	0.205
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.259
		97.5% Chebyshev(Mean, Sd) UCL	0.341
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.503
95% Approximate Gamma UCL	0.0871		
95% Adjusted Gamma UCL	0.0873		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.341

Result or 1/2 SDL (4,4'-ddd)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	100

Raw Statistics		Log-transformed Statistics	
Minimum	1.1750E-4	Minimum of Log Data	-9.049
Maximum	1.12	Maximum of Log Data	0.113
Mean	0.0076	Mean of log Data	-8.292
Median	1.3950E-4	SD of log Data	1.373
SD	0.0869		
Coefficient of Variation	11.34		

Skewness	12.86		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.473	Lilliefors Test Statistic	0.396
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0188	95% H-UCL	8.4016E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0010
95% Adjusted-CLT UCL	0.026	97.5% Chebyshev (MVUE) UCL	0.0012
95% Modified-t UCL	0.0199	99% Chebyshev (MVUE) UCL	0.0015
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.213	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0359		
nu star	70.78		
Approximate Chi Square Value (.05)	52.41	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0188
Adjusted Chi Square Value	52.28	95% Jackknife UCL	0.0188
		95% Standard Bootstrap UCL	0.0185
Anderson-Darling Test Statistic	48.45	95% Bootstrap-t UCL	0.31
Anderson-Darling 5% Critical Value	0.908	95% Hall's Bootstrap UCL	0.188
Kolmogorov-Smirnov Test Statistic	0.432	95% Percentile Bootstrap UCL	0.0211
Kolmogorov-Smirnov 5% Critical Value	0.08	95% BCA Bootstrap UCL	0.0345
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0371
		97.5% Chebyshev(Mean, Sd) UCL	0.0498
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0748
95% Approximate Gamma UCL	0.0104		
95% Adjusted Gamma UCL	0.0104		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0498

Result or 1/2 SDL (4,4'-dde)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	113
Raw Statistics		Log-transformed Statistics	
Minimum	1.6300E-4	Minimum of Log Data	-8.722
Maximum	0.0693	Maximum of Log Data	-2.669
Mean	0.0017	Mean of log Data	-7.973
Median	1.9425E-4	SD of log Data	1.22
SD	0.0076		
Coefficient of Variation	4.484		
Skewness	7.741		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.42	Lilliefors Test Statistic	0.379

Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0026	95% H-UCL	9.0739E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0011
95% Adjusted-CLT UCL	0.0030	97.5% Chebyshev (MVUE) UCL	0.0012
95% Modified-t UCL	0.0027	99% Chebyshev (MVUE) UCL	0.0016
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.407	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0041		
nu star	135.2		
Approximate Chi Square Value (.05)	109.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0026
Adjusted Chi Square Value	109.1	95% Jackknife UCL	0.0026
		95% Standard Bootstrap UCL	0.0026
Anderson-Darling Test Statistic	36.49	95% Bootstrap-t UCL	0.0043
Anderson-Darling 5% Critical Value	0.842	95% Hall's Bootstrap UCL	0.0063
Kolmogorov-Smirnov Test Statistic	0.408	95% Percentile Bootstrap UCL	0.0027
Kolmogorov-Smirnov 5% Critical Value	0.0775	95% BCA Bootstrap UCL	0.0032
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0042
		97.5% Chebyshev(Mean, Sd) UCL	0.0054
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0075
95% Approximate Gamma UCL	0.0021		
95% Adjusted Gamma UCL	0.0021		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0054

Result or 1/2 SDL (4,4'-ddt)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	114
Raw Statistics		Log-transformed Statistics	
Minimum	6.2500E-5	Minimum of Log Data	-9.68
Maximum	0.113	Maximum of Log Data	-2.18
Mean	0.0037	Mean of log Data	-7.782
Median	1.1075E-4	SD of log Data	2.033
SD	0.0114		
Coefficient of Variation	3.045		
Skewness	6.653		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.373	Lilliefors Test Statistic	0.27
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0051	95% H-UCL	0.0054

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0067
95% Adjusted-CLT UCL	0.0056	97.5% Chebyshev (MVUE) UCL	0.0083
95% Modified-t UCL	0.0052	99% Chebyshev (MVUE) UCL	0.0114
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.311	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.012		
nu star	103.2		
Approximate Chi Square Value (.05)	80.8	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0051
Adjusted Chi Square Value	80.63	95% Jackknife UCL	0.0051
		95% Standard Bootstrap UCL	0.0051
Anderson-Darling Test Statistic	16.11	95% Bootstrap-t UCL	0.0064
Anderson-Darling 5% Critical Value	0.866	95% Hall's Bootstrap UCL	0.0114
Kolmogorov-Smirnov Test Statistic	0.256	95% Percentile Bootstrap UCL	0.0052
Kolmogorov-Smirnov 5% Critical Value	0.0785	95% BCA Bootstrap UCL	0.0058
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0075
		97.5% Chebyshev(Mean, Sd) UCL	0.0092
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0125
95% Approximate Gamma UCL	0.0047		
95% Adjusted Gamma UCL	0.0047		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0125

Result or 1/2 SDL (acenaphthene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	108
Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.438
Maximum	1.69	Maximum of Log Data	0.525
Mean	0.0419	Mean of log Data	-4.516
Median	0.0052	SD of log Data	1.296
SD	0.15		
Coefficient of Variation	3.573		
Skewness	8.834		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.401	Lilliefors Test Statistic	0.359
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0611	95% H-UCL	0.0324
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0397
95% Adjusted-CLT UCL	0.0696	97.5% Chebyshev (MVUE) UCL	0.046
95% Modified-t UCL	0.0625	99% Chebyshev (MVUE) UCL	0.0584
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.472	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0889		
nu star	156.6		
Approximate Chi Square Value (.05)	128.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.061
Adjusted Chi Square Value	128.4	95% Jackknife UCL	0.0611
		95% Standard Bootstrap UCL	0.0611
Anderson-Darling Test Statistic	27.1	95% Bootstrap-t UCL	0.0864
Anderson-Darling 5% Critical Value	0.826	95% Hall's Bootstrap UCL	0.133
Kolmogorov-Smirnov Test Statistic	0.369	95% Percentile Bootstrap UCL	0.0627
Kolmogorov-Smirnov 5% Critical Value	0.0768	95% BCA Bootstrap UCL	0.0746
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0926
		97.5% Chebyshev(Mean, Sd) UCL	0.115
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.158
95% Approximate Gamma UCL	0.051		
95% Adjusted Gamma UCL	0.0511		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.115

Result or 1/2 SDL (acenaphthylene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	79
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.312
Maximum	1.2	Maximum of Log Data	0.182
Mean	0.042	Mean of log Data	-4.467
Median	0.0058	SD of log Data	1.213
SD	0.149		
Coefficient of Variation	3.543		
Skewness	6.646		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.402	Lilliefors Test Statistic	0.365
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0612	95% H-UCL	0.0299
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0364
95% Adjusted-CLT UCL	0.0674	97.5% Chebyshev (MVUE) UCL	0.0418
95% Modified-t UCL	0.0621	99% Chebyshev (MVUE) UCL	0.0526
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.486	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0865		
nu star	161.3		
Approximate Chi Square Value (.05)	133	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.061

Adjusted Chi Square Value	132.7	95% Jackknife UCL	0.0612
		95% Standard Bootstrap UCL	0.0608
Anderson-Darling Test Statistic	28.55	95% Bootstrap-t UCL	0.0779
Anderson-Darling 5% Critical Value	0.822	95% Hall's Bootstrap UCL	0.0621
Kolmogorov-Smirnov Test Statistic	0.375	95% Percentile Bootstrap UCL	0.0624
Kolmogorov-Smirnov 5% Critical Value	0.0767	95% BCA Bootstrap UCL	0.0687
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0924
		97.5% Chebyshev(Mean, Sd) UCL	0.114
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.157
95% Approximate Gamma UCL	0.051		
95% Adjusted Gamma UCL	0.0511		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.114

Result or 1/2 SDL (acetone)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	77
Raw Statistics		Log-transformed Statistics	
Minimum	8.5500E-5	Minimum of Log Data	-9.367
Maximum	0.16	Maximum of Log Data	-1.833
Mean	0.0145	Mean of log Data	-6.403
Median	0.0021	SD of log Data	2.342
SD	0.0317		
Coefficient of Variation	2.181		
Skewness	3.374		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.328	Lilliefors Test Statistic	0.26
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0203	95% H-UCL	0.0684
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0654
95% Adjusted-CLT UCL	0.0216	97.5% Chebyshev (MVUE) UCL	0.0838
95% Modified-t UCL	0.0205	99% Chebyshev (MVUE) UCL	0.12
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.312	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0466		
nu star	51.74		
Approximate Chi Square Value (.05)	36.22	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0202
Adjusted Chi Square Value	35.99	95% Jackknife UCL	0.0203
		95% Standard Bootstrap UCL	0.0204
Anderson-Darling Test Statistic	5.243	95% Bootstrap-t UCL	0.0229
Anderson-Darling 5% Critical Value	0.862	95% Hall's Bootstrap UCL	0.0216
Kolmogorov-Smirnov Test Statistic	0.246	95% Percentile Bootstrap UCL	0.0206

Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0217
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0297
		97.5% Chebyshev(Mean, Sd) UCL	0.0362
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0491
95% Approximate Gamma UCL	0.0207		
95% Adjusted Gamma UCL	0.0209		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0491

Result or 1/2 SDL (aluminum)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	149
Raw Statistics		Log-transformed Statistics	
Minimum	414	Minimum of Log Data	6.026
Maximum	15700	Maximum of Log Data	9.661
Mean	6452	Mean of log Data	8.565
Median	6175	SD of log Data	0.718
SD	3601		
Coefficient of Variation	0.558		
Skewness	0.362		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0643	Lilliefors Test Statistic	0.106
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
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	6914	95% H-UCL	7566
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8609
95% Adjusted-CLT UCL	6920	97.5% Chebyshev (MVUE) UCL	9402
95% Modified-t UCL	6916	99% Chebyshev (MVUE) UCL	10961
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.531	Data appear Normal at 5% Significance Level	
Theta Star	2550		
nu star	840.1		
Approximate Chi Square Value (.05)	773.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	6912
Adjusted Chi Square Value	773.3	95% Jackknife UCL	6914
		95% Standard Bootstrap UCL	6909
Anderson-Darling Test Statistic	1.49	95% Bootstrap-t UCL	6915
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	6904
Kolmogorov-Smirnov Test Statistic	0.0875	95% Percentile Bootstrap UCL	6905
Kolmogorov-Smirnov 5% Critical Value	0.0731	95% BCA Bootstrap UCL	6915
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7670
		97.5% Chebyshev(Mean, Sd) UCL	8197
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9233
95% Approximate Gamma UCL	7004		

95% Adjusted Gamma UCL	7009		
Potential UCL to Use		Use 95% Student's-t UCL	6914

Result or 1/2 SDL (anthracene)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	103
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0049	Minimum of Log Data	-5.316
Maximum	2.46	Maximum of Log Data	0.9
Mean	0.0874	Mean of log Data	-4.023
Median	0.0060	SD of log Data	1.563
SD	0.254		
Coefficient of Variation	2.9		
Skewness	6.356		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.372	Lilliefors Test Statistic	0.273
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.12	95% H-UCL	0.0843
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.105
95% Adjusted-CLT UCL	0.13	97.5% Chebyshev (MVUE) UCL	0.125
95% Modified-t UCL	0.122	99% Chebyshev (MVUE) UCL	0.164
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.409	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.214		
nu star	135.9		
Approximate Chi Square Value (.05)	110	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.12
Adjusted Chi Square Value	109.8	95% Jackknife UCL	0.12
		95% Standard Bootstrap UCL	0.12
Anderson-Darling Test Statistic	20.06	95% Bootstrap-t UCL	0.142
Anderson-Darling 5% Critical Value	0.841	95% Hall's Bootstrap UCL	0.173
Kolmogorov-Smirnov Test Statistic	0.274	95% Percentile Bootstrap UCL	0.122
Kolmogorov-Smirnov 5% Critical Value	0.0775	95% BCA Bootstrap UCL	0.136
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.173
		97.5% Chebyshev(Mean, Sd) UCL	0.21
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.283
95% Approximate Gamma UCL	0.108		
95% Adjusted Gamma UCL	0.108		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.21

Result or 1/2 SDL (antimony)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	83

Raw Statistics		Log-transformed Statistics	
Minimum	0.095	Minimum of Log Data	-2.354
Maximum	5.51	Maximum of Log Data	1.707
Mean	1.023	Mean of log Data	-0.654
Median	0.24	SD of log Data	1.192
SD	1.14		
Coefficient of Variation	1.114		
Skewness	1.329		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.291	Lilliefors Test Statistic	0.262
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.17	95% H-UCL	1.313
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.594
95% Adjusted-CLT UCL	1.179	97.5% Chebyshev (MVUE) UCL	1.829
95% Modified-t UCL	1.171	99% Chebyshev (MVUE) UCL	2.291
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.856	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.196		
nu star	284.1		
Approximate Chi Square Value (.05)	246	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	1.169
Adjusted Chi Square Value	245.7	95% Jackknife UCL	1.17
		95% Standard Bootstrap UCL	1.169
Anderson-Darling Test Statistic	12.23	95% Bootstrap-t UCL	1.179
Anderson-Darling 5% Critical Value	0.79	95% Hall's Bootstrap UCL	1.185
Kolmogorov-Smirnov Test Statistic	0.286	95% Percentile Bootstrap UCL	1.179
Kolmogorov-Smirnov 5% Critical Value	0.0749	95% BCA Bootstrap UCL	1.169
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.409
		97.5% Chebyshev(Mean, Sd) UCL	1.576
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.904
95% Approximate Gamma UCL	1.182		
95% Adjusted Gamma UCL	1.183		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	1.576

Result or 1/2 SDL (aroclor-1254)

General Statistics			
Number of Valid Samples	174	Number of Unique Samples	115

Raw Statistics		Log-transformed Statistics	
Minimum	0.0016	Minimum of Log Data	-6.422
Maximum	11.5	Maximum of Log Data	2.442
Mean	0.205	Mean of log Data	-5.38
Median	0.0019	SD of log Data	1.955
SD	1.131		
Coefficient of Variation	5.523		
Skewness	8.01		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.443	Lilliefors Test Statistic	0.402
Lilliefors Critical Value	0.0672	Lilliefors Critical Value	0.0672
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.347	95% H-UCL	0.0496
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0618
95% Adjusted-CLT UCL	0.401	97.5% Chebyshev (MVUE) UCL	0.0754
95% Modified-t UCL	0.355	99% Chebyshev (MVUE) UCL	0.102
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.195	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.049		
nu star	67.95		
Approximate Chi Square Value (.05)	49.98	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.346
Adjusted Chi Square Value	49.85	95% Jackknife UCL	0.347
		95% Standard Bootstrap UCL	0.344
Anderson-Darling Test Statistic	46.09	95% Bootstrap-t UCL	0.573
Anderson-Darling 5% Critical Value	0.922	95% Hall's Bootstrap UCL	0.86
Kolmogorov-Smirnov Test Statistic	0.437	95% Percentile Bootstrap UCL	0.36
Kolmogorov-Smirnov 5% Critical Value	0.0782	95% BCA Bootstrap UCL	0.439
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.578
		97.5% Chebyshev(Mean, Sd) UCL	0.74
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.058
95% Approximate Gamma UCL	0.278		
95% Adjusted Gamma UCL	0.279		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.74

Result or 1/2 SDL (arsenic)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	146

Raw Statistics		Log-transformed Statistics	
Minimum	0.085	Minimum of Log Data	-2.465
Maximum	24.3	Maximum of Log Data	3.19
Mean	3.331	Mean of log Data	0.67
Median	2.68	SD of log Data	1.225

SD	3.269		
Coefficient of Variation	0.981		
Skewness	2.631		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.16	Lilliefors Test Statistic	0.155
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.751	95% H-UCL	5.182
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.311
95% Adjusted-CLT UCL	3.804	97.5% Chebyshev (MVUE) UCL	7.266
95% Modified-t UCL	3.76	99% Chebyshev (MVUE) UCL	9.141
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.057	Data do not follow a Discernable Distribution (0.05)	
Theta Star	3.15		
nu star	351.1		
Approximate Chi Square Value (.05)	308.6	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	3.749
Adjusted Chi Square Value	308.3	95% Jackknife UCL	3.751
		95% Standard Bootstrap UCL	3.736
Anderson-Darling Test Statistic	1.15	95% Bootstrap-t UCL	3.826
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL	3.838
Kolmogorov-Smirnov Test Statistic	0.0872	95% Percentile Bootstrap UCL	3.765
Kolmogorov-Smirnov 5% Critical Value	0.0744	95% BCA Bootstrap UCL	3.782
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.437
		97.5% Chebyshev(Mean, Sd) UCL	4.916
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	5.856
95% Approximate Gamma UCL	3.789		
95% Adjusted Gamma UCL	3.793		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	4.916

Result or 1/2 SDL (barium)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	135

Raw Statistics		Log-transformed Statistics	
Minimum	18.6	Minimum of Log Data	2.923
Maximum	2180	Maximum of Log Data	7.687
Mean	237.4	Mean of log Data	5.104
Median	139.5	SD of log Data	0.789
SD	274.8		
Coefficient of Variation	1.158		
Skewness	3.69		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.276	Lilliefors Test Statistic	0.126
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	272.7	95% H-UCL	254.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	292.4
95% Adjusted-CLT UCL	279	97.5% Chebyshev (MVUE) UCL	321.9
95% Modified-t UCL	273.7	99% Chebyshev (MVUE) UCL	379.8
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.489	Data do not follow a Discernable Distribution (0.05)	
Theta Star	159.4		
nu star	494.5		
Approximate Chi Square Value (.05)	443.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	272.5
Adjusted Chi Square Value	443.5	95% Jackknife UCL	272.7
		95% Standard Bootstrap UCL	271.5
Anderson-Darling Test Statistic	7.901	95% Bootstrap-t UCL	282.1
Anderson-Darling 5% Critical Value	0.771	95% Hall's Bootstrap UCL	283.4
Kolmogorov-Smirnov Test Statistic	0.186	95% Percentile Bootstrap UCL	274.8
Kolmogorov-Smirnov 5% Critical Value	0.0738	95% BCA Bootstrap UCL	279.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	330.4
		97.5% Chebyshev(Mean, Sd) UCL	370.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	449.6
95% Approximate Gamma UCL	264.4		
95% Adjusted Gamma UCL	264.7		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	330.4

Result or 1/2 SDL (benzene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	78
Raw Statistics		Log-transformed Statistics	
Minimum	4.7500E-5	Minimum of Log Data	-9.955
Maximum	0.0221	Maximum of Log Data	-3.812
Mean	0.0040	Mean of log Data	-5.975
Median	0.0032	SD of log Data	1.26
SD	0.0036		
Coefficient of Variation	0.883		
Skewness	2.64		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.135	Lilliefors Test Statistic	0.182
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0047	95% H-UCL	0.0079
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0098
95% Adjusted-CLT UCL	0.0048	97.5% Chebyshev (MVUE) UCL	0.0117
95% Modified-t UCL	0.0047	99% Chebyshev (MVUE) UCL	0.0153
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.16	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0035		
nu star	192.5		
Approximate Chi Square Value (.05)	161.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0047
Adjusted Chi Square Value	160.9	95% Jackknife UCL	0.0047
		95% Standard Bootstrap UCL	0.0047
Anderson-Darling Test Statistic	1.58	95% Bootstrap-t UCL	0.0049
Anderson-Darling 5% Critical Value	0.778	95% Hall's Bootstrap UCL	0.0050
Kolmogorov-Smirnov Test Statistic	0.114	95% Percentile Bootstrap UCL	0.0047
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.0049
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0058
		97.5% Chebyshev(Mean, Sd) UCL	0.0065
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0080
95% Approximate Gamma UCL	0.0048		
95% Adjusted Gamma UCL	0.0048		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0065

Result or 1/2 SDL (benzo(a)anthracene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	110
Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.415
Maximum	5.02	Maximum of Log Data	1.613
Mean	0.268	Mean of log Data	-3.885
Median	0.0054	SD of log Data	2.05
SD	0.765		
Coefficient of Variation	2.854		
Skewness	4.224		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.395	Lilliefors Test Statistic	0.315
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.366	95% H-UCL	0.281
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.347
95% Adjusted-CLT UCL	0.386	97.5% Chebyshev (MVUE) UCL	0.427
95% Modified-t UCL	0.369	99% Chebyshev (MVUE) UCL	0.584

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.272	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.986		
nu star	90.22		
Approximate Chi Square Value (.05)	69.32	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.366
Adjusted Chi Square Value	69.16	95% Jackknife UCL	0.366
		95% Standard Bootstrap UCL	0.362
Anderson-Darling Test Statistic	26.03	95% Bootstrap-t UCL	0.399
Anderson-Darling 5% Critical Value	0.881	95% Hall's Bootstrap UCL	0.394
Kolmogorov-Smirnov Test Statistic	0.324	95% Percentile Bootstrap UCL	0.37
Kolmogorov-Smirnov 5% Critical Value	0.0791	95% BCA Bootstrap UCL	0.385
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.527
		97.5% Chebyshev(Mean, Sd) UCL	0.639
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.859
95% Approximate Gamma UCL	0.349		
95% Adjusted Gamma UCL	0.35		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.859

Result or 1/2 SDL (benzo(a)pyrene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	137
Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.419
Maximum	4.88	Maximum of Log Data	1.585
Mean	0.347	Mean of log Data	-3.193
Median	0.0253	SD of log Data	2.033
SD	0.856		
Coefficient of Variation	2.468		
Skewness	3.524		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.348	Lilliefors Test Statistic	0.137
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.457	95% H-UCL	0.54
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.666
95% Adjusted-CLT UCL	0.475	97.5% Chebyshev (MVUE) UCL	0.819
95% Modified-t UCL	0.46	99% Chebyshev (MVUE) UCL	1.12
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.318	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.09		
nu star	105.6		

Approximate Chi Square Value (.05)	82.89	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.456
Adjusted Chi Square Value	82.71	95% Jackknife UCL	0.457
		95% Standard Bootstrap UCL	0.456
Anderson-Darling Test Statistic	13.58	95% Bootstrap-t UCL	0.481
Anderson-Darling 5% Critical Value	0.864	95% Hall's Bootstrap UCL	0.476
Kolmogorov-Smirnov Test Statistic	0.217	95% Percentile Bootstrap UCL	0.46
Kolmogorov-Smirnov 5% Critical Value	0.0784	95% BCA Bootstrap UCL	0.482
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.636
		97.5% Chebyshev(Mean, Sd) UCL	0.762
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.008
95% Approximate Gamma UCL	0.442		
95% Adjusted Gamma UCL	0.443		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.008

Result or 1/2 SDL (benzo(b)fluoranthene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	145
Raw Statistics		Log-transformed Statistics	
Minimum	0.0033	Minimum of Log Data	-5.688
Maximum	5.97	Maximum of Log Data	1.787
Mean	0.466	Mean of log Data	-2.669
Median	0.0825	SD of log Data	2.179
SD	1.023		
Coefficient of Variation	2.192		
Skewness	3.432		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.325	Lilliefors Test Statistic	0.16
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.598	95% H-UCL	1.322
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.605
95% Adjusted-CLT UCL	0.62	97.5% Chebyshev (MVUE) UCL	1.992
95% Modified-t UCL	0.601	99% Chebyshev (MVUE) UCL	2.752
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.35	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.332		
nu star	116.2		
Approximate Chi Square Value (.05)	92.33	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.597
Adjusted Chi Square Value	92.15	95% Jackknife UCL	0.598
		95% Standard Bootstrap UCL	0.6
Anderson-Darling Test Statistic	6.109	95% Bootstrap-t UCL	0.629

Anderson-Darling 5% Critical Value	0.856	95% Hall's Bootstrap UCL	0.624
Kolmogorov-Smirnov Test Statistic	0.144	95% Percentile Bootstrap UCL	0.604
Kolmogorov-Smirnov 5% Critical Value	0.0781	95% BCA Bootstrap UCL	0.609
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.812
		97.5% Chebyshev(Mean, Sd) UCL	0.962
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.256
95% Approximate Gamma UCL	0.587		
95% Adjusted Gamma UCL	0.588		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.256

Result or 1/2 SDL (benzo(g,h,i)perylene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	125
Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.418
Maximum	4.24	Maximum of Log Data	1.445
Mean	0.251	Mean of log Data	-3.365
Median	0.026	SD of log Data	1.982
SD	0.606		
Coefficient of Variation	2.415		
Skewness	3.815		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.342	Lilliefors Test Statistic	0.221
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.329	95% H-UCL	0.401
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.497
95% Adjusted-CLT UCL	0.343	97.5% Chebyshev (MVUE) UCL	0.609
95% Modified-t UCL	0.331	99% Chebyshev (MVUE) UCL	0.83
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.338	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.742		
nu star	112.4		
Approximate Chi Square Value (.05)	88.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.328
Adjusted Chi Square Value	88.72	95% Jackknife UCL	0.329
		95% Standard Bootstrap UCL	0.331
Anderson-Darling Test Statistic	13.2	95% Bootstrap-t UCL	0.352
Anderson-Darling 5% Critical Value	0.859	95% Hall's Bootstrap UCL	0.347
Kolmogorov-Smirnov Test Statistic	0.196	95% Percentile Bootstrap UCL	0.329
Kolmogorov-Smirnov 5% Critical Value	0.0782	95% BCA Bootstrap UCL	0.342
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.456
		97.5% Chebyshev(Mean, Sd) UCL	0.545

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.719
95% Approximate Gamma UCL	0.317		
95% Adjusted Gamma UCL	0.318		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.545

Result or 1/2 SDL (benzo(k)fluoranthene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	92
Raw Statistics		Log-transformed Statistics	
Minimum	0.0068	Minimum of Log Data	-4.984
Maximum	4.25	Maximum of Log Data	1.447
Mean	0.157	Mean of log Data	-3.763
Median	0.0082	SD of log Data	1.667
SD	0.457		
Coefficient of Variation	2.917		
Skewness	5.523		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.372	Lilliefors Test Statistic	0.335
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.215	95% H-UCL	0.134
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.168
95% Adjusted-CLT UCL	0.231	97.5% Chebyshev (MVUE) UCL	0.201
95% Modified-t UCL	0.218	99% Chebyshev (MVUE) UCL	0.266
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.35	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.448		
nu star	116.1		
Approximate Chi Square Value (.05)	92.22	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.215
Adjusted Chi Square Value	92.03	95% Jackknife UCL	0.215
		95% Standard Bootstrap UCL	0.212
Anderson-Darling Test Statistic	26.6	95% Bootstrap-t UCL	0.241
Anderson-Darling 5% Critical Value	0.856	95% Hall's Bootstrap UCL	0.263
Kolmogorov-Smirnov Test Statistic	0.344	95% Percentile Bootstrap UCL	0.219
Kolmogorov-Smirnov 5% Critical Value	0.0781	95% BCA Bootstrap UCL	0.234
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.311
		97.5% Chebyshev(Mean, Sd) UCL	0.378
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.509
95% Approximate Gamma UCL	0.197		
95% Adjusted Gamma UCL	0.197		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.378

Result or 1/2 SDL (beryllium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	86

Raw Statistics		Log-transformed Statistics	
Minimum	0.0015	Minimum of Log Data	-6.47
Maximum	4.6	Maximum of Log Data	1.526
Mean	0.465	Mean of log Data	-1.111
Median	0.415	SD of log Data	1.003
SD	0.42		
Coefficient of Variation	0.903		
Skewness	5.93		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.153	Lilliefors Test Statistic	0.151
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.519	95% H-UCL	0.644
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.764
95% Adjusted-CLT UCL	0.534	97.5% Chebyshev (MVUE) UCL	0.86
95% Modified-t UCL	0.521	99% Chebyshev (MVUE) UCL	1.049
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.57	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.296		
nu star	521.2		
Approximate Chi Square Value (.05)	469.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.518
Adjusted Chi Square Value	468.9	95% Jackknife UCL	0.519
		95% Standard Bootstrap UCL	0.518
Anderson-Darling Test Statistic	2.638	95% Bootstrap-t UCL	0.544
Anderson-Darling 5% Critical Value	0.77	95% Hall's Bootstrap UCL	0.772
Kolmogorov-Smirnov Test Statistic	0.0955	95% Percentile Bootstrap UCL	0.52
Kolmogorov-Smirnov 5% Critical Value	0.0737	95% BCA Bootstrap UCL	0.535
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.607
		97.5% Chebyshev(Mean, Sd) UCL	0.668
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.789
95% Approximate Gamma UCL	0.516		
95% Adjusted Gamma UCL	0.517		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.668

Result or 1/2 SDL (biphenyl)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	69
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.318
Maximum	1.02	Maximum of Log Data	0.0198
Mean	0.0219	Mean of log Data	-4.728
Median	0.0057	SD of log Data	0.949
SD	0.085		
Coefficient of Variation	3.873		
Skewness	10.41		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.421	Lilliefors Test Statistic	0.405
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0328	95% H-UCL	0.0162
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0191
95% Adjusted-CLT UCL	0.0385	97.5% Chebyshev (MVUE) UCL	0.0214
95% Modified-t UCL	0.0337	99% Chebyshev (MVUE) UCL	0.0259
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.662	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0332		
nu star	219.7		
Approximate Chi Square Value (.05)	186.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0328
Adjusted Chi Square Value	186.1	95% Jackknife UCL	0.0328
		95% Standard Bootstrap UCL	0.0328
Anderson-Darling Test Statistic	33.77	95% Bootstrap-t UCL	0.0641
Anderson-Darling 5% Critical Value	0.804	95% Hall's Bootstrap UCL	0.0786
Kolmogorov-Smirnov Test Statistic	0.43	95% Percentile Bootstrap UCL	0.0344
Kolmogorov-Smirnov 5% Critical Value	0.0757	95% BCA Bootstrap UCL	0.0415
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0507
		97.5% Chebyshev(Mean, Sd) UCL	0.0631
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0875
95% Approximate Gamma UCL	0.0259		
95% Adjusted Gamma UCL	0.0259		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0507

Result or 1/2 SDL (boron)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	114
Raw Statistics		Log-transformed Statistics	
Minimum	0.475	Minimum of Log Data	-0.744
Maximum	54.4	Maximum of Log Data	3.996

Mean	4.811	Mean of log Data	0.742
Median	1.475	SD of log Data	1.361
SD	6.242		
Coefficient of Variation	1.298		
Skewness	3.515		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.244	Lilliefors Test Statistic	0.253
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5.612	95% H-UCL	6.904
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.515
95% Adjusted-CLT UCL	5.749	97.5% Chebyshev (MVUE) UCL	9.929
95% Modified-t UCL	5.634	99% Chebyshev (MVUE) UCL	12.71
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.716	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.716		
nu star	237.8		
Approximate Chi Square Value (.05)	203.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	5.608
Adjusted Chi Square Value	202.9	95% Jackknife UCL	5.612
		95% Standard Bootstrap UCL	5.63
Anderson-Darling Test Statistic	11.51	95% Bootstrap-t UCL	5.814
Anderson-Darling 5% Critical Value	0.798	95% Hall's Bootstrap UCL	5.949
Kolmogorov-Smirnov Test Statistic	0.252	95% Percentile Bootstrap UCL	5.594
Kolmogorov-Smirnov 5% Critical Value	0.0754	95% BCA Bootstrap UCL	5.756
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.923
		97.5% Chebyshev(Mean, Sd) UCL	7.837
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.632
95% Approximate Gamma UCL	5.633		
95% Adjusted Gamma UCL	5.64		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	7.837

Result or 1/2 SDL (butyl benzyl phthalate)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	69

Raw Statistics		Log-transformed Statistics	
Minimum	0.0054	Minimum of Log Data	-5.212
Maximum	0.617	Maximum of Log Data	-0.483
Mean	0.0203	Mean of log Data	-4.633
Median	0.0064	SD of log Data	0.906
SD	0.0558		
Coefficient of Variation	2.752		
Skewness	8.42		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.395	Lilliefors Test Statistic	0.392
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0274	95% H-UCL	0.017
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0199
95% Adjusted-CLT UCL	0.0304	97.5% Chebyshev (MVUE) UCL	0.0222
95% Modified-t UCL	0.0279	99% Chebyshev (MVUE) UCL	0.0266
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.797	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0255		
nu star	264.5		
Approximate Chi Square Value (.05)	227.8	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0274
Adjusted Chi Square Value	227.5	95% Jackknife UCL	0.0274
		95% Standard Bootstrap UCL	0.0273
Anderson-Darling Test Statistic	32.49	95% Bootstrap-t UCL	0.0361
Anderson-Darling 5% Critical Value	0.793	95% Hall's Bootstrap UCL	0.058
Kolmogorov-Smirnov Test Statistic	0.418	95% Percentile Bootstrap UCL	0.0288
Kolmogorov-Smirnov 5% Critical Value	0.0751	95% BCA Bootstrap UCL	0.0313
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0392
		97.5% Chebyshev(Mean, Sd) UCL	0.0473
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0634
95% Approximate Gamma UCL	0.0235		
95% Adjusted Gamma UCL	0.0236		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0392

Result or 1/2 SDL (cadmium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	76
Raw Statistics		Log-transformed Statistics	
Minimum	0.0085	Minimum of Log Data	-4.768
Maximum	9.71	Maximum of Log Data	2.273
Mean	0.335	Mean of log Data	-2.576
Median	0.11	SD of log Data	1.888
SD	0.859		
Coefficient of Variation	2.561		
Skewness	8.46		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.352	Lilliefors Test Statistic	0.227
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.446	95% H-UCL	0.709
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.884
95% Adjusted-CLT UCL	0.492	97.5% Chebyshev (MVUE) UCL	1.077
95% Modified-t UCL	0.453	99% Chebyshev (MVUE) UCL	1.454
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.433	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.773		
nu star	143.9		
Approximate Chi Square Value (.05)	117.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.445
Adjusted Chi Square Value	117	95% Jackknife UCL	0.446
		95% Standard Bootstrap UCL	0.446
Anderson-Darling Test Statistic	8.005	95% Bootstrap-t UCL	0.55
Anderson-Darling 5% Critical Value	0.835	95% Hall's Bootstrap UCL	0.893
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL	0.452
Kolmogorov-Smirnov 5% Critical Value	0.0772	95% BCA Bootstrap UCL	0.511
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.626
		97.5% Chebyshev(Mean, Sd) UCL	0.751
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.998
95% Approximate Gamma UCL	0.412		
95% Adjusted Gamma UCL	0.412		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.751

Result or 1/2 SDL (carbazole)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	112
Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.444
Maximum	1.54	Maximum of Log Data	0.432
Mean	0.0459	Mean of log Data	-4.438
Median	0.0052	SD of log Data	1.335
SD	0.148		
Coefficient of Variation	3.227		
Skewness	7.508		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.389	Lilliefors Test Statistic	0.328
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0649	95% H-UCL	0.0372
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0458

95% Adjusted-CLT UCL	0.0719	97.5% Chebyshev (MVUE) UCL	0.0533
95% Modified-t UCL	0.066	99% Chebyshev (MVUE) UCL	0.068
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.468	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0981		
nu star	155.3		
Approximate Chi Square Value (.05)	127.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0648
Adjusted Chi Square Value	127.3	95% Jackknife UCL	0.0649
		95% Standard Bootstrap UCL	0.0653
Anderson-Darling Test Statistic	24.68	95% Bootstrap-t UCL	0.0833
Anderson-Darling 5% Critical Value	0.827	95% Hall's Bootstrap UCL	0.137
Kolmogorov-Smirnov Test Statistic	0.334	95% Percentile Bootstrap UCL	0.0656
Kolmogorov-Smirnov 5% Critical Value	0.0769	95% BCA Bootstrap UCL	0.0769
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.096
		97.5% Chebyshev(Mean, Sd) UCL	0.118
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.16
95% Approximate Gamma UCL	0.0559		
95% Adjusted Gamma UCL	0.056		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.118

Result or 1/2 SDL (carbon disulfide)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	52
Raw Statistics		Log-transformed Statistics	
Minimum	2.5000E-5	Minimum of Log Data	-10.6
Maximum	0.028	Maximum of Log Data	-3.576
Mean	0.0012	Mean of log Data	-8.944
Median	5.1000E-5	SD of log Data	1.844
SD	0.0039		
Coefficient of Variation	3.144		
Skewness	5.355		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.387	Lilliefors Test Statistic	0.389
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0019	95% H-UCL	0.0013
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0015
95% Adjusted-CLT UCL	0.0022	97.5% Chebyshev (MVUE) UCL	0.0019
95% Modified-t UCL	0.0020	99% Chebyshev (MVUE) UCL	0.0027
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.3	Data do not follow a Discernable Distribution (0.05)	

Theta Star	0.0042		
nu star	49.81		
Approximate Chi Square Value (.05)	34.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0019
Adjusted Chi Square Value	34.38	95% Jackknife UCL	0.0019
		95% Standard Bootstrap UCL	0.0019
Anderson-Darling Test Statistic	16.26	95% Bootstrap-t UCL	0.0031
Anderson-Darling 5% Critical Value	0.865	95% Hall's Bootstrap UCL	0.0053
Kolmogorov-Smirnov Test Statistic	0.427	95% Percentile Bootstrap UCL	0.0020
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0023
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0031
		97.5% Chebyshev(Mean, Sd) UCL	0.004
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0056
95% Approximate Gamma UCL	0.0018		
95% Adjusted Gamma UCL	0.0018		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.004

Result or 1/2 SDL (chromium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	144
Raw Statistics		Log-transformed Statistics	
Minimum	2.03	Minimum of Log Data	0.708
Maximum	136	Maximum of Log Data	4.913
Mean	13.53	Mean of log Data	2.41
Median	10.55	SD of log Data	0.582
SD	12.49		
Coefficient of Variation	0.923		
Skewness	6.346		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.215	Lilliefors Test Statistic	0.0792
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	15.13	95% H-UCL	14.34
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15.96
95% Adjusted-CLT UCL	15.63	97.5% Chebyshev (MVUE) UCL	17.17
95% Modified-t UCL	15.21	99% Chebyshev (MVUE) UCL	19.54
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.677	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.053		
nu star	888.9		
Approximate Chi Square Value (.05)	820.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	15.12
Adjusted Chi Square Value	820.1	95% Jackknife UCL	15.13

		95% Standard Bootstrap UCL	15.12
Anderson-Darling Test Statistic	3.733	95% Bootstrap-t UCL	16.06
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	22.32
Kolmogorov-Smirnov Test Statistic	0.112	95% Percentile Bootstrap UCL	15.26
Kolmogorov-Smirnov 5% Critical Value	0.073	95% BCA Bootstrap UCL	15.89
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	17.75
		97.5% Chebyshev(Mean, Sd) UCL	19.58
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	23.17
95% Approximate Gamma UCL	14.65		
95% Adjusted Gamma UCL	14.66		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	17.75

Result or 1/2 SDL (chrysene)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	151

Raw Statistics		Log-transformed Statistics	
Minimum	0.0042	Minimum of Log Data	-5.47
Maximum	4.87	Maximum of Log Data	1.583
Mean	0.327	Mean of log Data	-3.244
Median	0.0291	SD of log Data	2.065
SD	0.79		
Coefficient of Variation	2.415		
Skewness	3.488		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.347	Lilliefors Test Statistic	0.14
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.429	95% H-UCL	0.555
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.683
95% Adjusted-CLT UCL	0.446	97.5% Chebyshev (MVUE) UCL	0.841
95% Modified-t UCL	0.432	99% Chebyshev (MVUE) UCL	1.153
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.319	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.027		
nu star	105.9		
Approximate Chi Square Value (.05)	83.11	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.428
Adjusted Chi Square Value	82.93	95% Jackknife UCL	0.429
		95% Standard Bootstrap UCL	0.43
Anderson-Darling Test Statistic	12.67	95% Bootstrap-t UCL	0.449
Anderson-Darling 5% Critical Value	0.864	95% Hall's Bootstrap UCL	0.452
Kolmogorov-Smirnov Test Statistic	0.207	95% Percentile Bootstrap UCL	0.438
Kolmogorov-Smirnov 5% Critical Value	0.0784	95% BCA Bootstrap UCL	0.453

Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.595
		97.5% Chebyshev(Mean, Sd) UCL	0.711
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.938
95% Approximate Gamma UCL	0.417		
95% Adjusted Gamma UCL	0.418		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.938

Result or 1/2 SDL (cobalt)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	146
Raw Statistics		Log-transformed Statistics	
Minimum	0.0125	Minimum of Log Data	-4.382
Maximum	16	Maximum of Log Data	2.773
Mean	4.144	Mean of log Data	1.255
Median	3.965	SD of log Data	0.754
SD	2.047		
Coefficient of Variation	0.494		
Skewness	1.346		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0667	Lilliefors Test Statistic	0.143
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
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	4.407	95% H-UCL	5.234
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.989
95% Adjusted-CLT UCL	4.423	97.5% Chebyshev (MVUE) UCL	6.567
95% Modified-t UCL	4.41	99% Chebyshev (MVUE) UCL	7.703
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.105	Data appear Normal at 5% Significance Level	
Theta Star	1.335		
nu star	1031		
Approximate Chi Square Value (.05)	957.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	4.406
Adjusted Chi Square Value	956.8	95% Jackknife UCL	4.407
		95% Standard Bootstrap UCL	4.41
Anderson-Darling Test Statistic	2.317	95% Bootstrap-t UCL	4.422
Anderson-Darling 5% Critical Value	0.759	95% Hall's Bootstrap UCL	4.447
Kolmogorov-Smirnov Test Statistic	0.0839	95% Percentile Bootstrap UCL	4.392
Kolmogorov-Smirnov 5% Critical Value	0.0729	95% BCA Bootstrap UCL	4.432
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.837
		97.5% Chebyshev(Mean, Sd) UCL	5.137
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	5.725
95% Approximate Gamma UCL	4.462		
95% Adjusted Gamma UCL	4.465		

Potential UCL to Use		Use 95% Student's-t UCL	4.407

Result or 1/2 SDL (copper)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	147
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.033	Minimum of Log Data	-3.411
Maximum	487	Maximum of Log Data	6.188
Mean	24.26	Mean of log Data	2.524
Median	11.85	SD of log Data	1.207
SD	46.76		
Coefficient of Variation	1.928		
Skewness	6.907		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.302	Lilliefors Test Statistic	0.17
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	30.26	95% H-UCL	32.22
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	39.17
95% Adjusted-CLT UCL	32.31	97.5% Chebyshev (MVUE) UCL	45.02
95% Modified-t UCL	30.58	99% Chebyshev (MVUE) UCL	56.5
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.87	Data do not follow a Discernable Distribution (0.05)	
Theta Star	27.89		
nu star	288.8		
Approximate Chi Square Value (.05)	250.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	30.23
Adjusted Chi Square Value	250.1	95% Jackknife UCL	30.26
		95% Standard Bootstrap UCL	30.08
Anderson-Darling Test Statistic	7.347	95% Bootstrap-t UCL	34.38
Anderson-Darling 5% Critical Value	0.789	95% Hall's Bootstrap UCL	54.38
Kolmogorov-Smirnov Test Statistic	0.163	95% Percentile Bootstrap UCL	30.56
Kolmogorov-Smirnov 5% Critical Value	0.0749	95% BCA Bootstrap UCL	33.9
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	40.08
		97.5% Chebyshev(Mean, Sd) UCL	46.92
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	60.37
95% Approximate Gamma UCL	27.97		
95% Adjusted Gamma UCL	28.01		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	46.92

Result or 1/2 SDL (cyclohexane)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	74

Raw Statistics		Log-transformed Statistics	
Minimum	4.4350E-4	Minimum of Log Data	-7.721
Maximum	21.7	Maximum of Log Data	3.077
Mean	0.266	Mean of log Data	-6.38
Median	0.0014	SD of log Data	1.598
SD	2.381		
Coefficient of Variation	8.952		
Skewness	9.11		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.517	Lilliefors Test Statistic	0.265
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.701	95% H-UCL	0.0101
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0122
95% Adjusted-CLT UCL	0.975	97.5% Chebyshev (MVUE) UCL	0.0149
95% Modified-t UCL	0.744	99% Chebyshev (MVUE) UCL	0.0203
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.154	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.724		
nu star	25.61		
Approximate Chi Square Value (.05)	15.08	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.696
Adjusted Chi Square Value	14.94	95% Jackknife UCL	0.701
		95% Standard Bootstrap UCL	0.692
Anderson-Darling Test Statistic	25.11	95% Bootstrap-t UCL	98.46
Anderson-Darling 5% Critical Value	0.956	95% Hall's Bootstrap UCL	48.51
Kolmogorov-Smirnov Test Statistic	0.433	95% Percentile Bootstrap UCL	0.789
Kolmogorov-Smirnov 5% Critical Value	0.11	95% BCA Bootstrap UCL	1.052
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.405
		97.5% Chebyshev(Mean, Sd) UCL	1.898
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.867
95% Approximate Gamma UCL	0.452		
95% Adjusted Gamma UCL	0.456		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	1.898

Result or 1/2 SDL (dibenz(a,h)anthracene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	130

Raw Statistics		Log-transformed Statistics	

Minimum	0.0042	Minimum of Log Data	-5.466
Maximum	1.64	Maximum of Log Data	0.495
Mean	0.113	Mean of log Data	-3.906
Median	0.0052	SD of log Data	1.817
SD	0.252		
Coefficient of Variation	2.229		
Skewness	3.609		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.333	Lilliefors Test Statistic	0.325
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.146	95% H-UCL	0.159
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.199
95% Adjusted-CLT UCL	0.151	97.5% Chebyshev (MVUE) UCL	0.242
95% Modified-t UCL	0.147	99% Chebyshev (MVUE) UCL	0.324
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.38	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.298		
nu star	126.3		
Approximate Chi Square Value (.05)	101.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.145
Adjusted Chi Square Value	101.2	95% Jackknife UCL	0.146
		95% Standard Bootstrap UCL	0.146
Anderson-Darling Test Statistic	18.02	95% Bootstrap-t UCL	0.153
Anderson-Darling 5% Critical Value	0.848	95% Hall's Bootstrap UCL	0.151
Kolmogorov-Smirnov Test Statistic	0.329	95% Percentile Bootstrap UCL	0.148
Kolmogorov-Smirnov 5% Critical Value	0.0778	95% BCA Bootstrap UCL	0.15
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.199
		97.5% Chebyshev(Mean, Sd) UCL	0.236
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.308
95% Approximate Gamma UCL	0.141		
95% Adjusted Gamma UCL	0.141		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.236

Result or 1/2 SDL (dibenzofuran)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	77

Raw Statistics		Log-transformed Statistics	
Minimum	0.0062	Minimum of Log Data	-5.083
Maximum	0.821	Maximum of Log Data	-0.197
Mean	0.0309	Mean of log Data	-4.369
Median	0.0073	SD of log Data	1.051
SD	0.0826		

Coefficient of Variation	2.671		
Skewness	7.081		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.382	Lilliefors Test Statistic	0.383
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0415	95% H-UCL	0.0263
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0314
95% Adjusted-CLT UCL	0.0452	97.5% Chebyshev (MVUE) UCL	0.0356
95% Modified-t UCL	0.0421	99% Chebyshev (MVUE) UCL	0.0437
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.672	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.046		
nu star	223.1		
Approximate Chi Square Value (.05)	189.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0414
Adjusted Chi Square Value	189.2	95% Jackknife UCL	0.0415
		95% Standard Bootstrap UCL	0.0416
Anderson-Darling Test Statistic	29.15	95% Bootstrap-t UCL	0.0517
Anderson-Darling 5% Critical Value	0.803	95% Hall's Bootstrap UCL	0.0884
Kolmogorov-Smirnov Test Statistic	0.402	95% Percentile Bootstrap UCL	0.0425
Kolmogorov-Smirnov 5% Critical Value	0.0757	95% BCA Bootstrap UCL	0.0466
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0588
		97.5% Chebyshev(Mean, Sd) UCL	0.0709
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0947
95% Approximate Gamma UCL	0.0364		
95% Adjusted Gamma UCL	0.0364		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0709

Result or 1/2 SDL (dieldrin)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	96

Raw Statistics		Log-transformed Statistics	
Minimum	7.0000E-5	Minimum of Log Data	-9.567
Maximum	0.0205	Maximum of Log Data	-3.887
Mean	9.0075E-4	Mean of log Data	-8.536
Median	8.5500E-5	SD of log Data	1.433
SD	0.0025		
Coefficient of Variation	2.865		
Skewness	5.111		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	

Lilliefors Test Statistic	0.374	Lilliefors Test Statistic	0.346
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0012	95% H-UCL	7.2952E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9.0453E-4
95% Adjusted-CLT UCL	0.0013	97.5% Chebyshev (MVUE) UCL	0.0010
95% Modified-t UCL	0.0012	99% Chebyshev (MVUE) UCL	0.0013
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.424	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0021		
nu star	140.6		
Approximate Chi Square Value (.05)	114.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0012
Adjusted Chi Square Value	114	95% Jackknife UCL	0.0012
		95% Standard Bootstrap UCL	0.0012
Anderson-Darling Test Statistic	27.17	95% Bootstrap-t UCL	0.0014
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	0.0013
Kolmogorov-Smirnov Test Statistic	0.361	95% Percentile Bootstrap UCL	0.0012
Kolmogorov-Smirnov 5% Critical Value	0.0773	95% BCA Bootstrap UCL	0.0013
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0017
		97.5% Chebyshev(Mean, Sd) UCL	0.0021
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0028
95% Approximate Gamma UCL	0.0011		
95% Adjusted Gamma UCL	0.0011		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0021

Result or 1/2 SDL (di-n-butyl phthalate)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	89
Raw Statistics		Log-transformed Statistics	
Minimum	0.0126	Minimum of Log Data	-4.378
Maximum	0.753	Maximum of Log Data	-0.284
Mean	0.0391	Mean of log Data	-3.85
Median	0.0146	SD of log Data	0.856
SD	0.0785		
Coefficient of Variation	2.007		
Skewness	5.86		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.405	Lilliefors Test Statistic	0.398
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

95% Student's-t UCL	0.0492	95% H-UCL	0.0352
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0409
95% Adjusted-CLT UCL	0.0521	97.5% Chebyshev (MVUE) UCL	0.0453
95% Modified-t UCL	0.0497	99% Chebyshev (MVUE) UCL	0.054
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.941	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0416		
nu star	312.3		
Approximate Chi Square Value (.05)	272.4	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0491
Adjusted Chi Square Value	272.1	95% Jackknife UCL	0.0492
		95% Standard Bootstrap UCL	0.0492
Anderson-Darling Test Statistic	34.67	95% Bootstrap-t UCL	0.0549
Anderson-Darling 5% Critical Value	0.786	95% Hall's Bootstrap UCL	0.0617
Kolmogorov-Smirnov Test Statistic	0.428	95% Percentile Bootstrap UCL	0.0497
Kolmogorov-Smirnov 5% Critical Value	0.0747	95% BCA Bootstrap UCL	0.0524
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0657
		97.5% Chebyshev(Mean, Sd) UCL	0.0772
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0998
95% Approximate Gamma UCL	0.0448		
95% Adjusted Gamma UCL	0.0449		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0657

Result or 1/2 SDL (endosulfan sulfate)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	105
Raw Statistics		Log-transformed Statistics	
Minimum	1.3250E-4	Minimum of Log Data	-8.929
Maximum	0.0713	Maximum of Log Data	-2.641
Mean	0.0013	Mean of log Data	-8.164
Median	1.5825E-4	SD of log Data	1.216
SD	0.0061		
Coefficient of Variation	4.659		
Skewness	9.667		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.423	Lilliefors Test Statistic	0.372
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0021	95% H-UCL	7.4558E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9.0731E-4
95% Adjusted-CLT UCL	0.0024	97.5% Chebyshev (MVUE) UCL	0.0010
95% Modified-t UCL	0.0021	99% Chebyshev (MVUE) UCL	0.0013

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.422	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0031		
nu star	140		
Approximate Chi Square Value (.05)	113.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0021
Adjusted Chi Square Value	113.5	95% Jackknife UCL	0.0021
		95% Standard Bootstrap UCL	0.0021
Anderson-Darling Test Statistic	34.91	95% Bootstrap-t UCL	0.0036
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	0.0048
Kolmogorov-Smirnov Test Statistic	0.398	95% Percentile Bootstrap UCL	0.0021
Kolmogorov-Smirnov 5% Critical Value	0.0774	95% BCA Bootstrap UCL	0.0026
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0033
		97.5% Chebyshev(Mean, Sd) UCL	0.0042
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0060
95% Approximate Gamma UCL	0.0016		
95% Adjusted Gamma UCL	0.0016		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0042

Result or 1/2 SDL (endrin aldehyde)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	117

Raw Statistics		Log-transformed Statistics	
Minimum	1.6800E-4	Minimum of Log Data	-8.692
Maximum	0.0738	Maximum of Log Data	-2.606
Mean	0.0019	Mean of log Data	-7.839
Median	2.0050E-4	SD of log Data	1.344
SD	0.0073		
Coefficient of Variation	3.692		
Skewness	7.123		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.402	Lilliefors Test Statistic	0.383
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0029	95% H-UCL	0.0012
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0015
95% Adjusted-CLT UCL	0.0032	97.5% Chebyshev (MVUE) UCL	0.0018
95% Modified-t UCL	0.0029	99% Chebyshev (MVUE) UCL	0.0023

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.402	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.0049	
nu star	133.4	
Approximate Chi Square Value (.05)	107.7	Nonparametric Statistics

Adjusted Level of Significance	0.0486	95% CLT UCL	0.0029
Adjusted Chi Square Value	107.5	95% Jackknife UCL	0.0029
		95% Standard Bootstrap UCL	0.0029
Anderson-Darling Test Statistic	33.76	95% Bootstrap-t UCL	0.0036
Anderson-Darling 5% Critical Value	0.843	95% Hall's Bootstrap UCL	0.0062
Kolmogorov-Smirnov Test Statistic	0.409	95% Percentile Bootstrap UCL	0.003
Kolmogorov-Smirnov 5% Critical Value	0.0776	95% BCA Bootstrap UCL	0.0032
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0044
		97.5% Chebyshev(Mean, Sd) UCL	0.0055
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0076
95% Approximate Gamma UCL	0.0024		
95% Adjusted Gamma UCL	0.0024		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0055

Result or 1/2 SDL (endrin ketone)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	121
Raw Statistics		Log-transformed Statistics	
Minimum	2.1300E-4	Minimum of Log Data	-8.454
Maximum	0.0241	Maximum of Log Data	-3.726
Mean	0.0013	Mean of log Data	-7.664
Median	2.5250E-4	SD of log Data	1.185
SD	0.0032		
Coefficient of Variation	2.337		
Skewness	4.403		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.362	Lilliefors Test Statistic	0.376
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0017	95% H-UCL	0.0011
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0014
95% Adjusted-CLT UCL	0.0018	97.5% Chebyshev (MVUE) UCL	0.0016
95% Modified-t UCL	0.0018	99% Chebyshev (MVUE) UCL	0.0020
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.571	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0024		
nu star	189.7		
Approximate Chi Square Value (.05)	158.8	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0017
Adjusted Chi Square Value	158.6	95% Jackknife UCL	0.0017
		95% Standard Bootstrap UCL	0.0017
Anderson-Darling Test Statistic	30.37	95% Bootstrap-t UCL	0.0019
Anderson-Darling 5% Critical Value	0.813	95% Hall's Bootstrap UCL	0.0019

Kolmogorov-Smirnov Test Statistic	0.398	95% Percentile Bootstrap UCL	0.0017
Kolmogorov-Smirnov 5% Critical Value	0.0762	95% BCA Bootstrap UCL	0.0018
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0024
		97.5% Chebyshev(Mean, Sd) UCL	0.0029
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0038
95% Approximate Gamma UCL	0.0016		
95% Adjusted Gamma UCL	0.0016		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0029

Result or 1/2 SDL (ethylbenzene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	74
Raw Statistics		Log-transformed Statistics	
Minimum	7.7000E-5	Minimum of Log Data	-9.472
Maximum	0.105	Maximum of Log Data	-2.254
Mean	0.0038	Mean of log Data	-7.113
Median	0.0016	SD of log Data	1.759
SD	0.0129		
Coefficient of Variation	3.35		
Skewness	6.622		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.392	Lilliefors Test Statistic	0.2
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0062	95% H-UCL	0.0069
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0081
95% Adjusted-CLT UCL	0.0072	97.5% Chebyshev (MVUE) UCL	0.0101
95% Modified-t UCL	0.0063	99% Chebyshev (MVUE) UCL	0.014
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.413	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0093		
nu star	68.55		
Approximate Chi Square Value (.05)	50.49	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0061
Adjusted Chi Square Value	50.22	95% Jackknife UCL	0.0062
		95% Standard Bootstrap UCL	0.0061
Anderson-Darling Test Statistic	5.613	95% Bootstrap-t UCL	0.0094
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	0.0082
Kolmogorov-Smirnov Test Statistic	0.196	95% Percentile Bootstrap UCL	0.0064
Kolmogorov-Smirnov 5% Critical Value	0.105	95% BCA Bootstrap UCL	0.0074
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.01
		97.5% Chebyshev(Mean, Sd) UCL	0.0127
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0179

95% Approximate Gamma UCL	0.0052		
95% Adjusted Gamma UCL	0.0052		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0127

Result or 1/2 SDL (fluoranthene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	131
Raw Statistics		Log-transformed Statistics	
Minimum	0.0053	Minimum of Log Data	-5.231
Maximum	14.2	Maximum of Log Data	2.653
Mean	0.594	Mean of log Data	-2.889
Median	0.0409	SD of log Data	2.179
SD	1.674		
Coefficient of Variation	2.82		
Skewness	5.022		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.363	Lilliefors Test Statistic	0.148
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.809	95% H-UCL	1.062
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.289
95% Adjusted-CLT UCL	0.861	97.5% Chebyshev (MVUE) UCL	1.6
95% Modified-t UCL	0.817	99% Chebyshev (MVUE) UCL	2.21
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.291	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.039		
nu star	96.67		
Approximate Chi Square Value (.05)	74.99	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.807
Adjusted Chi Square Value	74.82	95% Jackknife UCL	0.809
		95% Standard Bootstrap UCL	0.811
Anderson-Darling Test Statistic	13.04	95% Bootstrap-t UCL	0.906
Anderson-Darling 5% Critical Value	0.872	95% Hall's Bootstrap UCL	0.935
Kolmogorov-Smirnov Test Statistic	0.211	95% Percentile Bootstrap UCL	0.823
Kolmogorov-Smirnov 5% Critical Value	0.0788	95% BCA Bootstrap UCL	0.89
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.16
		97.5% Chebyshev(Mean, Sd) UCL	1.405
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.886
95% Approximate Gamma UCL	0.765		
95% Adjusted Gamma UCL	0.767		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.886

Result or 1/2 SDL (fluorene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	120

Raw Statistics		Log-transformed Statistics	
Minimum	0.0043	Minimum of Log Data	-5.449
Maximum	1.11	Maximum of Log Data	0.104
Mean	0.0442	Mean of log Data	-4.461
Median	0.0051	SD of log Data	1.337
SD	0.129		
Coefficient of Variation	2.919		
Skewness	5.759		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.379	Lilliefors Test Statistic	0.34
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0607	95% H-UCL	0.0365
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0449
95% Adjusted-CLT UCL	0.0654	97.5% Chebyshev (MVUE) UCL	0.0523
95% Modified-t UCL	0.0615	99% Chebyshev (MVUE) UCL	0.0667
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.472	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0935		
nu star	156.9		
Approximate Chi Square Value (.05)	128.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0606
Adjusted Chi Square Value	128.7	95% Jackknife UCL	0.0607
		95% Standard Bootstrap UCL	0.0605
Anderson-Darling Test Statistic	25.32	95% Bootstrap-t UCL	0.069
Anderson-Darling 5% Critical Value	0.826	95% Hall's Bootstrap UCL	0.0687
Kolmogorov-Smirnov Test Statistic	0.349	95% Percentile Bootstrap UCL	0.0617
Kolmogorov-Smirnov 5% Critical Value	0.0768	95% BCA Bootstrap UCL	0.065
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0878
		97.5% Chebyshev(Mean, Sd) UCL	0.107
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.144
95% Approximate Gamma UCL	0.0538		
95% Adjusted Gamma UCL	0.0539		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.107

Result or 1/2 SDL (gamma-chlordane)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	95

Raw Statistics		Log-transformed Statistics	
Minimum	1.1000E-4	Minimum of Log Data	-9.115
Maximum	0.0156	Maximum of Log Data	-4.16
Mean	6.9043E-4	Mean of log Data	-8.462
Median	1.3050E-4	SD of log Data	1.117
SD	0.0020		
Coefficient of Variation	3.004		
Skewness	5.46		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.403	Lilliefors Test Statistic	0.401
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	9.5669E-4	95% H-UCL	4.8009E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.7780E-4
95% Adjusted-CLT UCL	0.0010	97.5% Chebyshev (MVUE) UCL	6.5819E-4
95% Modified-t UCL	9.6806E-4	99% Chebyshev (MVUE) UCL	8.1611E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.526	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0013		
nu star	174.6		
Approximate Chi Square Value (.05)	145	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	9.5520E-4
Adjusted Chi Square Value	144.8	95% Jackknife UCL	9.5669E-4
		95% Standard Bootstrap UCL	9.5122E-4
Anderson-Darling Test Statistic	37.97	95% Bootstrap-t UCL	0.0011
Anderson-Darling 5% Critical Value	0.817	95% Hall's Bootstrap UCL	0.0010
Kolmogorov-Smirnov Test Statistic	0.436	95% Percentile Bootstrap UCL	9.6795E-4
Kolmogorov-Smirnov 5% Critical Value	0.0764	95% BCA Bootstrap UCL	0.0010
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0013
		97.5% Chebyshev(Mean, Sd) UCL	0.0017
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0022
95% Approximate Gamma UCL	8.3116E-4		
95% Adjusted Gamma UCL	8.3251E-4		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0017

Result or 1/2 SDL (heptachlorobiphenyl (170))

General Statistics

Number of Valid Samples	27	Number of Unique Samples	18

Raw Statistics		Log-transformed Statistics	
Minimum	5.4000E-5	Minimum of Log Data	-9.827
Maximum	0.0112	Maximum of Log Data	-4.492
Mean	5.0765E-4	Mean of log Data	-9.29

Median	6.0500E-5	SD of log Data	1.109
SD	0.0021		
Coefficient of Variation	4.214		
Skewness	5.179		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.22	Shapiro Wilk Test Statistic	0.497
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0012	95% H-UCL	3.0157E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.4359E-4
95% Adjusted-CLT UCL	0.0016	97.5% Chebyshev (MVUE) UCL	4.2093E-4
95% Modified-t UCL	0.0012	99% Chebyshev (MVUE) UCL	5.7284E-4

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.37	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0013		
nu star	19.96		
Approximate Chi Square Value (.05)	10.82	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0011
Adjusted Chi Square Value	10.39	95% Jackknife UCL	0.0012
		95% Standard Bootstrap UCL	0.0011
Anderson-Darling Test Statistic	7.791	95% Bootstrap-t UCL	0.0215
Anderson-Darling 5% Critical Value	0.833	95% Hall's Bootstrap UCL	0.0127
Kolmogorov-Smirnov Test Statistic	0.427	95% Percentile Bootstrap UCL	0.0013
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0021
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0023
		97.5% Chebyshev(Mean, Sd) UCL	0.0030
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0046
95% Approximate Gamma UCL	9.3640E-4		
95% Adjusted Gamma UCL	9.7515E-4		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0046

Result or 1/2 SDL (heptachlorobiphenyl (180))

General Statistics

Number of Valid Samples	27	Number of Unique Samples	21

Raw Statistics		Log-transformed Statistics	
Minimum	5.7500E-5	Minimum of Log Data	-9.764
Maximum	0.0183	Maximum of Log Data	-4.001
Mean	8.0478E-4	Mean of log Data	-9.025
Median	6.6000E-5	SD of log Data	1.215
SD	0.0035		
Coefficient of Variation	4.347		
Skewness	5.186		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.219	Shapiro Wilk Test Statistic	0.6
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0019	95% H-UCL	4.8616E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.3266E-4
95% Adjusted-CLT UCL	0.0026	97.5% Chebyshev (MVUE) UCL	6.5892E-4
95% Modified-t UCL	0.0020	99% Chebyshev (MVUE) UCL	9.0693E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.339	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0023		
nu star	18.3		
Approximate Chi Square Value (.05)	9.605	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0019
Adjusted Chi Square Value	9.203	95% Jackknife UCL	0.0019
		95% Standard Bootstrap UCL	0.0018
Anderson-Darling Test Statistic	6.864	95% Bootstrap-t UCL	0.0297
Anderson-Darling 5% Critical Value	0.841	95% Hall's Bootstrap UCL	0.0148
Kolmogorov-Smirnov Test Statistic	0.394	95% Percentile Bootstrap UCL	0.0021
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0028
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0037
		97.5% Chebyshev(Mean, Sd) UCL	0.0050
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0075
95% Approximate Gamma UCL	0.0015		
95% Adjusted Gamma UCL	0.0016		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0075

Result or 1/2 SDL (heptachlorobiphenyl (183))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	6.6000E-5	Minimum of Log Data	-9.626
Maximum	0.0058	Maximum of Log Data	-5.148
Mean	3.0648E-4	Mean of log Data	-9.286
Median	7.3500E-5	SD of log Data	0.928
SD	0.0011		
Coefficient of Variation	3.607		
Skewness	5.118		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.228	Shapiro Wilk Test Statistic	0.339
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6.6932E-4	95% H-UCL	2.2061E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.6206E-4
95% Adjusted-CLT UCL	8.8028E-4	97.5% Chebyshev (MVUE) UCL	3.1504E-4
95% Modified-t UCL	7.0424E-4	99% Chebyshev (MVUE) UCL	4.1912E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.493	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.2145E-4		
nu star	26.63		
Approximate Chi Square Value (.05)	15.87	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	6.5639E-4
Adjusted Chi Square Value	15.33	95% Jackknife UCL	6.6932E-4
		95% Standard Bootstrap UCL	6.4808E-4
Anderson-Darling Test Statistic	9.122	95% Bootstrap-t UCL	0.0818
Anderson-Darling 5% Critical Value	0.805	95% Hall's Bootstrap UCL	0.0174
Kolmogorov-Smirnov Test Statistic	0.544	95% Percentile Bootstrap UCL	7.3128E-4
Kolmogorov-Smirnov 5% Critical Value	0.178	95% BCA Bootstrap UCL	9.6457E-4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0012
		97.5% Chebyshev(Mean, Sd) UCL	0.0016
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0024
95% Approximate Gamma UCL	5.1442E-4		
95% Adjusted Gamma UCL	5.3225E-4		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0012

Result or 1/2 SDL (heptachlorobiphenyl (187))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	5.1000E-5	Minimum of Log Data	-9.884
Maximum	0.0134	Maximum of Log Data	-4.313
Mean	5.9919E-4	Mean of log Data	-9.225
Median	5.8000E-5	SD of log Data	1.173
SD	0.0025		
Coefficient of Variation	4.273		
Skewness	5.183		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.221	Shapiro Wilk Test Statistic	0.574
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0014	95% H-UCL	3.6512E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.0685E-4
95% Adjusted-CLT UCL	0.0019	97.5% Chebyshev (MVUE) UCL	5.0141E-4

95% Modified-t UCL	0.0015	99% Chebyshev (MVUE) UCL	6.8716E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.353	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0017		
nu star	19.06		
Approximate Chi Square Value (.05)	10.16	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0014
Adjusted Chi Square Value	9.748	95% Jackknife UCL	0.0014
		95% Standard Bootstrap UCL	0.0013
Anderson-Darling Test Statistic	7.089	95% Bootstrap-t UCL	0.0208
Anderson-Darling 5% Critical Value	0.837	95% Hall's Bootstrap UCL	0.0119
Kolmogorov-Smirnov Test Statistic	0.368	95% Percentile Bootstrap UCL	0.0015
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0021
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0027
		97.5% Chebyshev(Mean, Sd) UCL	0.0036
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0055
95% Approximate Gamma UCL	0.0011		
95% Adjusted Gamma UCL	0.0011		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0055

Result or 1/2 SDL (hexachlorobiphenyl (128))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	21
Raw Statistics		Log-transformed Statistics	
Minimum	8.5500E-5	Minimum of Log Data	-9.367
Maximum	0.0083	Maximum of Log Data	-4.784
Mean	4.5378E-4	Mean of log Data	-8.867
Median	9.6000E-5	SD of log Data	0.978
SD	0.0015		
Coefficient of Variation	3.498		
Skewness	5.123		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.243	Shapiro Wilk Test Statistic	0.519
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	9.7482E-4	95% H-UCL	3.6365E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.2833E-4
95% Adjusted-CLT UCL	0.0012	97.5% Chebyshev (MVUE) UCL	5.1775E-4
95% Modified-t UCL	0.0010	99% Chebyshev (MVUE) UCL	6.9340E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.502	Data do not follow a Discernable Distribution (0.05)	
Theta Star	9.0347E-4		

nu star	27.12		
Approximate Chi Square Value (.05)	16.25	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	9.5626E-4
Adjusted Chi Square Value	15.71	95% Jackknife UCL	9.7482E-4
		95% Standard Bootstrap UCL	9.3325E-4
Anderson-Darling Test Statistic	7.104	95% Bootstrap-t UCL	0.0092
Anderson-Darling 5% Critical Value	0.804	95% Hall's Bootstrap UCL	0.0059
Kolmogorov-Smirnov Test Statistic	0.424	95% Percentile Bootstrap UCL	0.0010
Kolmogorov-Smirnov 5% Critical Value	0.177	95% BCA Bootstrap UCL	0.0014
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0017
		97.5% Chebyshev(Mean, Sd) UCL	0.0023
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0034
95% Approximate Gamma UCL	7.5756E-4		
95% Adjusted Gamma UCL	7.8353E-4		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0017

Result or 1/2 SDL (hexachlorobiphenyl (138))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	25
Raw Statistics		Log-transformed Statistics	
Minimum	1.2950E-4	Minimum of Log Data	-8.952
Maximum	0.0432	Maximum of Log Data	-3.142
Mean	0.0019	Mean of log Data	-8.156
Median	1.4700E-4	SD of log Data	1.28
SD	0.0082		
Coefficient of Variation	4.258		
Skewness	5.179		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.226	Shapiro Wilk Test Statistic	0.632
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0046	95% H-UCL	0.0013
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0014
95% Adjusted-CLT UCL	0.0062	97.5% Chebyshev (MVUE) UCL	0.0017
95% Modified-t UCL	0.0049	99% Chebyshev (MVUE) UCL	0.0024
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.337	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0057		
nu star	18.22		
Approximate Chi Square Value (.05)	9.547	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0045
Adjusted Chi Square Value	9.146	95% Jackknife UCL	0.0046
		95% Standard Bootstrap UCL	0.0044

Anderson-Darling Test Statistic	6.365	95% Bootstrap-t UCL	0.0502
Anderson-Darling 5% Critical Value	0.841	95% Hall's Bootstrap UCL	0.0307
Kolmogorov-Smirnov Test Statistic	0.346	95% Percentile Bootstrap UCL	0.0051
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0067
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0088
		97.5% Chebyshev(Mean, Sd) UCL	0.0119
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0177
95% Approximate Gamma UCL	0.0037		
95% Adjusted Gamma UCL	0.0038		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0177

Result or 1/2 SDL (hexachlorobiphenyl (153))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	20
Raw Statistics		Log-transformed Statistics	
Minimum	6.2500E-5	Minimum of Log Data	-9.68
Maximum	0.0501	Maximum of Log Data	-2.994
Mean	0.0026	Mean of log Data	-8.616
Median	7.0500E-5	SD of log Data	1.726
SD	0.0099		
Coefficient of Variation	3.801		
Skewness	4.646		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.287	Shapiro Wilk Test Statistic	0.653
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0058	95% H-UCL	0.0026
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0020
95% Adjusted-CLT UCL	0.0075	97.5% Chebyshev (MVUE) UCL	0.0026
95% Modified-t UCL	0.0061	99% Chebyshev (MVUE) UCL	0.0037
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.259	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.01		
nu star	14.01		
Approximate Chi Square Value (.05)	6.579	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0057
Adjusted Chi Square Value	6.254	95% Jackknife UCL	0.0058
		95% Standard Bootstrap UCL	0.0056
Anderson-Darling Test Statistic	6.082	95% Bootstrap-t UCL	0.0897
Anderson-Darling 5% Critical Value	0.868	95% Hall's Bootstrap UCL	0.0577
Kolmogorov-Smirnov Test Statistic	0.36	95% Percentile Bootstrap UCL	0.0063
Kolmogorov-Smirnov 5% Critical Value	0.184	95% BCA Bootstrap UCL	0.0093
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0109

		97.5% Chebyshev(Mean, Sd) UCL	0.0145
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0216
95% Approximate Gamma UCL	0.0055		
95% Adjusted Gamma UCL	0.0058		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0216

Result or 1/2 SDL (hexachlorobiphenyl (156))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	6.6000E-5	Minimum of Log Data	-9.626
Maximum	0.0061	Maximum of Log Data	-5.095
Mean	3.2159E-4	Mean of log Data	-9.254
Median	7.3500E-5	SD of log Data	0.942
SD	0.0011		
Coefficient of Variation	3.626		
Skewness	5.125		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.23	Shapiro Wilk Test Statistic	0.382
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	7.0436E-4	95% H-UCL	2.3267E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.7581E-4
95% Adjusted-CLT UCL	9.2722E-4	97.5% Chebyshev (MVUE) UCL	3.3207E-4
95% Modified-t UCL	7.4124E-4	99% Chebyshev (MVUE) UCL	4.4259E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.488	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.5941E-4		
nu star	26.34		
Approximate Chi Square Value (.05)	15.64	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	6.9072E-4
Adjusted Chi Square Value	15.11	95% Jackknife UCL	7.0436E-4
		95% Standard Bootstrap UCL	6.9254E-4
Anderson-Darling Test Statistic	8.678	95% Bootstrap-t UCL	0.0174
Anderson-Darling 5% Critical Value	0.805	95% Hall's Bootstrap UCL	0.0164
Kolmogorov-Smirnov Test Statistic	0.512	95% Percentile Bootstrap UCL	7.5100E-4
Kolmogorov-Smirnov 5% Critical Value	0.178	95% BCA Bootstrap UCL	9.9581E-4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0013
		97.5% Chebyshev(Mean, Sd) UCL	0.0017
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0025
95% Approximate Gamma UCL	5.4159E-4		
95% Adjusted Gamma UCL	5.6048E-4		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0013

Result or 1/2 SDL (indeno(1,2,3-cd)pyrene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	136
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0071	Minimum of Log Data	-4.948
Maximum	6.49	Maximum of Log Data	1.87
Mean	0.368	Mean of log Data	-2.635
Median	0.0845	SD of log Data	1.884
SD	0.812		
Coefficient of Variation	2.21		
Skewness	4.251		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.335	Lilliefors Test Statistic	0.202
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.472	95% H-UCL	0.661
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.824
95% Adjusted-CLT UCL	0.494	97.5% Chebyshev (MVUE) UCL	1.003
95% Modified-t UCL	0.475	99% Chebyshev (MVUE) UCL	1.355
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.399	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.921		
nu star	132.4		
Approximate Chi Square Value (.05)	106.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.471
Adjusted Chi Square Value	106.7	95% Jackknife UCL	0.472
		95% Standard Bootstrap UCL	0.474
Anderson-Darling Test Statistic	9.141	95% Bootstrap-t UCL	0.514
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	0.526
Kolmogorov-Smirnov Test Statistic	0.183	95% Percentile Bootstrap UCL	0.476
Kolmogorov-Smirnov 5% Critical Value	0.0776	95% BCA Bootstrap UCL	0.493
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.642
		97.5% Chebyshev(Mean, Sd) UCL	0.761
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.995
95% Approximate Gamma UCL	0.456		
95% Adjusted Gamma UCL	0.456		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.761

Result or 1/2 SDL (iron)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	125
Raw Statistics		**Log-transformed Statistics**	
Minimum	2410	Minimum of Log Data	7.787
Maximum	77100	Maximum of Log Data	11.25
Mean	14277	Mean of log Data	9.418
Median	12400	SD of log Data	0.533
SD	9389		
Coefficient of Variation	0.658		
Skewness	3.268		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.205	Lilliefors Test Statistic	0.0905
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15482	95% H-UCL	15314
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16907
95% Adjusted-CLT UCL	15673	97.5% Chebyshev (MVUE) UCL	18087
95% Modified-t UCL	15513	99% Chebyshev (MVUE) UCL	20403
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.478	Data do not follow a Discernable Distribution (0.05)	
Theta Star	4105		
nu star	1155		
Approximate Chi Square Value (.05)	1077	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	15475
Adjusted Chi Square Value	1076	95% Jackknife UCL	15482
		95% Standard Bootstrap UCL	15452
Anderson-Darling Test Statistic	3.183	95% Bootstrap-t UCL	15756
Anderson-Darling 5% Critical Value	0.758	95% Hall's Bootstrap UCL	15776
Kolmogorov-Smirnov Test Statistic	0.127	95% Percentile Bootstrap UCL	15528
Kolmogorov-Smirnov 5% Critical Value	0.0728	95% BCA Bootstrap UCL	15729
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	17453
		97.5% Chebyshev(Mean, Sd) UCL	18828
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	21528
95% Approximate Gamma UCL	15309		
95% Adjusted Gamma UCL	15319		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	17453

Result or 1/2 SDL (isopropylbenzene (cumene))

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	64
Raw Statistics		**Log-transformed Statistics**	
Minimum	3.5000E-5	Minimum of Log Data	-10.26

Maximum	64.9	Maximum of Log Data	4.173
Mean	0.831	Mean of log Data	-8.404
Median	7.2000E-5	SD of log Data	2.525
SD	7.13		
Coefficient of Variation	8.582		
Skewness	9.065		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.514	Lilliefors Test Statistic	0.367
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	2.133	95% H-UCL	0.0167
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0143
95% Adjusted-CLT UCL	2.95	97.5% Chebyshev (MVUE) UCL	0.0185
95% Modified-t UCL	2.263	99% Chebyshev (MVUE) UCL	0.0267
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.103	Data do not follow a Discernable Distribution (0.05)	
Theta Star	8.035		
nu star	17.17		
Approximate Chi Square Value (.05)	8.79	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	2.118
Adjusted Chi Square Value	8.684	95% Jackknife UCL	2.133
		95% Standard Bootstrap UCL	2.092
Anderson-Darling Test Statistic	26.04	95% Bootstrap-t UCL	375
Anderson-Darling 5% Critical Value	1.026	95% Hall's Bootstrap UCL	363.5
Kolmogorov-Smirnov Test Statistic	0.415	95% Percentile Bootstrap UCL	2.393
Kolmogorov-Smirnov 5% Critical Value	0.113	95% BCA Bootstrap UCL	3.957
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.242
		97.5% Chebyshev(Mean, Sd) UCL	5.719
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.618
95% Approximate Gamma UCL	1.622		
95% Adjusted Gamma UCL	1.642		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	8.618

Result or 1/2 SDL (lead)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	145

Raw Statistics		Log-transformed Statistics	
Minimum	2.48	Minimum of Log Data	0.908
Maximum	702	Maximum of Log Data	6.554
Mean	53.52	Mean of log Data	3.186
Median	17.1	SD of log Data	1.12
SD	104.2		
Coefficient of Variation	1.947		

Skewness	4.276		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.312	Lilliefors Test Statistic	0.138
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	66.9	95% H-UCL	55.13
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	66.37
95% Adjusted-CLT UCL	69.69	97.5% Chebyshev (MVUE) UCL	75.62
95% Modified-t UCL	67.35	99% Chebyshev (MVUE) UCL	93.79
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.744	Data do not follow a Discernable Distribution (0.05)	
Theta Star	71.97		
nu star	246.9		
Approximate Chi Square Value (.05)	211.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	66.82
Adjusted Chi Square Value	211.2	95% Jackknife UCL	66.9
		95% Standard Bootstrap UCL	66.45
Anderson-Darling Test Statistic	10.55	95% Bootstrap-t UCL	72.98
Anderson-Darling 5% Critical Value	0.796	95% Hall's Bootstrap UCL	69.81
Kolmogorov-Smirnov Test Statistic	0.191	95% Percentile Bootstrap UCL	67.23
Kolmogorov-Smirnov 5% Critical Value	0.0753	95% BCA Bootstrap UCL	70.24
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	88.78
		97.5% Chebyshev(Mean, Sd) UCL	104
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	134
95% Approximate Gamma UCL	62.47		
95% Adjusted Gamma UCL	62.56		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	104

Result or 1/2 SDL (lithium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	145
Raw Statistics		Log-transformed Statistics	
Minimum	0.65	Minimum of Log Data	-0.431
Maximum	28.6	Maximum of Log Data	3.353
Mean	10.03	Mean of log Data	2.054
Median	9.02	SD of log Data	0.791
SD	6.299		
Coefficient of Variation	0.628		
Skewness	0.63		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.101	Lilliefors Test Statistic	0.092

Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	10.84	95% H-UCL	12.06
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13.87
95% Adjusted-CLT UCL	10.86	97.5% Chebyshev (MVUE) UCL	15.27
95% Modified-t UCL	10.85	99% Chebyshev (MVUE) UCL	18.02
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.103	Data do not follow a Discernable Distribution (0.05)	
Theta Star	4.77		
nu star	698.3		
Approximate Chi Square Value (.05)	638	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	10.84
Adjusted Chi Square Value	637.5	95% Jackknife UCL	10.84
		95% Standard Bootstrap UCL	10.82
Anderson-Darling Test Statistic	1.059	95% Bootstrap-t UCL	10.91
Anderson-Darling 5% Critical Value	0.765	95% Hall's Bootstrap UCL	10.87
Kolmogorov-Smirnov Test Statistic	0.0795	95% Percentile Bootstrap UCL	10.86
Kolmogorov-Smirnov 5% Critical Value	0.0733	95% BCA Bootstrap UCL	10.85
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	12.17
		97.5% Chebyshev(Mean, Sd) UCL	13.09
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	14.9
95% Approximate Gamma UCL	10.98		
95% Adjusted Gamma UCL	10.99		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	12.17

Result or 1/2 SDL (m,p-xylene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	81
Raw Statistics		Log-transformed Statistics	
Minimum	9.1000E-5	Minimum of Log Data	-9.305
Maximum	2.56	Maximum of Log Data	0.94
Mean	0.0347	Mean of log Data	-6.851
Median	0.0011	SD of log Data	1.646
SD	0.281		
Coefficient of Variation	8.104		
Skewness	9.073		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.485	Lilliefors Test Statistic	0.175
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.086	95% H-UCL	0.0069

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0083
95% Adjusted-CLT UCL	0.118	97.5% Chebyshev (MVUE) UCL	0.0103
95% Modified-t UCL	0.0911	99% Chebyshev (MVUE) UCL	0.0141
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.21	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.165		
nu star	34.84		
Approximate Chi Square Value (.05)	22.34	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0854
Adjusted Chi Square Value	22.16	95% Jackknife UCL	0.086
		95% Standard Bootstrap UCL	0.0857
Anderson-Darling Test Statistic	18.54	95% Bootstrap-t UCL	2.137
Anderson-Darling 5% Critical Value	0.906	95% Hall's Bootstrap UCL	1.249
Kolmogorov-Smirnov Test Statistic	0.41	95% Percentile Bootstrap UCL	0.0961
Kolmogorov-Smirnov 5% Critical Value	0.108	95% BCA Bootstrap UCL	0.156
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.169
		97.5% Chebyshev(Mean, Sd) UCL	0.227
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.342
95% Approximate Gamma UCL	0.0541		
95% Adjusted Gamma UCL	0.0545		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.227

Result or 1/2 SDL (manganese)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	133
Raw Statistics		Log-transformed Statistics	
Minimum	59.3	Minimum of Log Data	4.083
Maximum	892	Maximum of Log Data	6.793
Mean	261.2	Mean of log Data	5.47
Median	224.5	SD of log Data	0.429
SD	127.4		
Coefficient of Variation	0.488		
Skewness	2.072		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.146	Lilliefors Test Statistic	0.0718
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	277.5	95% H-UCL	276.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	299.4
95% Adjusted-CLT UCL	279.2	97.5% Chebyshev (MVUE) UCL	316.4
95% Modified-t UCL	277.8	99% Chebyshev (MVUE) UCL	349.9
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	5.314	Data do not follow a Discernable Distribution (0.05)	
Theta Star	49.15		
nu star	1764		
Approximate Chi Square Value (.05)	1668	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	277.5
Adjusted Chi Square Value	1667	95% Jackknife UCL	277.5
		95% Standard Bootstrap UCL	277.3
Anderson-Darling Test Statistic	2.43	95% Bootstrap-t UCL	279
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	280.1
Kolmogorov-Smirnov Test Statistic	0.0858	95% Percentile Bootstrap UCL	278.6
Kolmogorov-Smirnov 5% Critical Value	0.0725	95% BCA Bootstrap UCL	278.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	304.3
		97.5% Chebyshev(Mean, Sd) UCL	323
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	359.6
95% Approximate Gamma UCL	276.3		
95% Adjusted Gamma UCL	276.4		
Potential UCL to Use		Use 95% Student's-t UCL	277.5
		or 95% Modified-t UCL	277.8

Result or 1/2 SDL (mercury)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	94
Raw Statistics		Log-transformed Statistics	
Minimum	0.001	Minimum of Log Data	-6.908
Maximum	0.85	Maximum of Log Data	-0.163
Mean	0.0262	Mean of log Data	-4.969
Median	0.0068	SD of log Data	1.332
SD	0.0941		
Coefficient of Variation	3.59		
Skewness	6.891		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.394	Lilliefors Test Statistic	0.0972
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0383	95% H-UCL	0.0218
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0268
95% Adjusted-CLT UCL	0.0424	97.5% Chebyshev (MVUE) UCL	0.0312
95% Modified-t UCL	0.0389	99% Chebyshev (MVUE) UCL	0.0398
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.477	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.055		
nu star	158.3		
Approximate Chi Square Value (.05)	130.2	Nonparametric Statistics	

Adjusted Level of Significance	0.0486	95% CLT UCL	0.0382
Adjusted Chi Square Value	130	95% Jackknife UCL	0.0383
		95% Standard Bootstrap UCL	0.0378
Anderson-Darling Test Statistic	14.93	95% Bootstrap-t UCL	0.0543
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	0.0842
Kolmogorov-Smirnov Test Statistic	0.234	95% Percentile Bootstrap UCL	0.0396
Kolmogorov-Smirnov 5% Critical Value	0.0768	95% BCA Bootstrap UCL	0.0435
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.058
		97.5% Chebyshev(Mean, Sd) UCL	0.0718
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0988
95% Approximate Gamma UCL	0.0319		
95% Adjusted Gamma UCL	0.0319		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0718

Result or 1/2 SDL (methylcyclohexane)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	77

Raw Statistics		Log-transformed Statistics	
Minimum	1.3750E-4	Minimum of Log Data	-8.892
Maximum	2.73	Maximum of Log Data	1.004
Mean	0.0369	Mean of log Data	-6.534
Median	0.0019	SD of log Data	1.611
SD	0.299		
Coefficient of Variation	8.123		
Skewness	9.089		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.494	Lilliefors Test Statistic	0.199
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0915	95% H-UCL	0.0088
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0108
95% Adjusted-CLT UCL	0.126	97.5% Chebyshev (MVUE) UCL	0.0132
95% Modified-t UCL	0.097	99% Chebyshev (MVUE) UCL	0.0179
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.224	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.165		
nu star	37.11		
Approximate Chi Square Value (.05)	24.17	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0909
Adjusted Chi Square Value	23.98	95% Jackknife UCL	0.0915
		95% Standard Bootstrap UCL	0.0909
Anderson-Darling Test Statistic	18.27	95% Bootstrap-t UCL	1.459
Anderson-Darling 5% Critical Value	0.9	95% Hall's Bootstrap UCL	1.338

Kolmogorov-Smirnov Test Statistic	0.431	95% Percentile Bootstrap UCL	0.102
Kolmogorov-Smirnov 5% Critical Value	0.108	95% BCA Bootstrap UCL	0.168
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.18
		97.5% Chebyshev(Mean, Sd) UCL	0.242
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.364
95% Approximate Gamma UCL	0.0566		
95% Adjusted Gamma UCL	0.057		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.242

Result or 1/2 SDL (molybdenum)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	102
Raw Statistics		Log-transformed Statistics	
Minimum	0.034	Minimum of Log Data	-3.381
Maximum	10.4	Maximum of Log Data	2.342
Mean	0.89	Mean of log Data	-1.228
Median	0.305	SD of log Data	1.597
SD	1.488		
Coefficient of Variation	1.671		
Skewness	3.38		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.282	Lilliefors Test Statistic	0.164
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.081	95% H-UCL	1.474
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.842
95% Adjusted-CLT UCL	1.113	97.5% Chebyshev (MVUE) UCL	2.192
95% Modified-t UCL	1.086	99% Chebyshev (MVUE) UCL	2.881
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.555	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.604		
nu star	184.3		
Approximate Chi Square Value (.05)	153.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	1.08
Adjusted Chi Square Value	153.7	95% Jackknife UCL	1.081
		95% Standard Bootstrap UCL	1.082
Anderson-Darling Test Statistic	4.333	95% Bootstrap-t UCL	1.129
Anderson-Darling 5% Critical Value	0.814	95% Hall's Bootstrap UCL	1.133
Kolmogorov-Smirnov Test Statistic	0.131	95% Percentile Bootstrap UCL	1.094
Kolmogorov-Smirnov 5% Critical Value	0.0763	95% BCA Bootstrap UCL	1.13
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.394
		97.5% Chebyshev(Mean, Sd) UCL	1.611
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.039

95% Approximate Gamma UCL	1.066		
95% Adjusted Gamma UCL	1.068		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	1.611

Result or 1/2 SDL (naphthalene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	79
Raw Statistics		Log-transformed Statistics	
Minimum	1.3600E-4	Minimum of Log Data	-8.903
Maximum	19.2	Maximum of Log Data	2.955
Mean	0.323	Mean of log Data	-6.969
Median	0.0013	SD of log Data	2.216
SD	2.245		
Coefficient of Variation	6.94		
Skewness	7.803		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.511	Lilliefors Test Statistic	0.208
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.733	95% H-UCL	0.0266
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0271
95% Adjusted-CLT UCL	0.954	97.5% Chebyshev (MVUE) UCL	0.0345
95% Modified-t UCL	0.768	99% Chebyshev (MVUE) UCL	0.049
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.137	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.362		
nu star	22.74		
Approximate Chi Square Value (.05)	12.89	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.729
Adjusted Chi Square Value	12.76	95% Jackknife UCL	0.733
		95% Standard Bootstrap UCL	0.735
Anderson-Darling Test Statistic	21.77	95% Bootstrap-t UCL	52.02
Anderson-Darling 5% Critical Value	0.973	95% Hall's Bootstrap UCL	53.32
Kolmogorov-Smirnov Test Statistic	0.411	95% Percentile Bootstrap UCL	0.785
Kolmogorov-Smirnov 5% Critical Value	0.111	95% BCA Bootstrap UCL	1.047
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.397
		97.5% Chebyshev(Mean, Sd) UCL	1.862
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.775
95% Approximate Gamma UCL	0.57		
95% Adjusted Gamma UCL	0.576		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	2.775

Result or 1/2 SDL (nickel)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	120

Raw Statistics		Log-transformed Statistics	
Minimum	2.7	Minimum of Log Data	0.993
Maximum	36.7	Maximum of Log Data	3.603
Mean	11.74	Mean of log Data	2.374
Median	11.65	SD of log Data	0.441
SD	4.874		
Coefficient of Variation	0.415		
Skewness	1.176		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0957	Lilliefors Test Statistic	0.107
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	12.37	95% H-UCL	12.58
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13.68
95% Adjusted-CLT UCL	12.4	97.5% Chebyshev (MVUE) UCL	14.47
95% Modified-t UCL	12.37	99% Chebyshev (MVUE) UCL	16.04
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.687	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.064		
nu star	1888		
Approximate Chi Square Value (.05)	1788	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	12.36
Adjusted Chi Square Value	1787	95% Jackknife UCL	12.37
		95% Standard Bootstrap UCL	12.37
Anderson-Darling Test Statistic	1.205	95% Bootstrap-t UCL	12.42
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	12.45
Kolmogorov-Smirnov Test Statistic	0.0793	95% Percentile Bootstrap UCL	12.38
Kolmogorov-Smirnov 5% Critical Value	0.0725	95% BCA Bootstrap UCL	12.42
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	13.39
		97.5% Chebyshev(Mean, Sd) UCL	14.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15.5
95% Approximate Gamma UCL	12.4		
95% Adjusted Gamma UCL	12.4		
Potential UCL to Use		Use 95% Student's-t UCL	12.37
		or 95% Modified-t UCL	12.37

Result or 1/2 SDL (nonachlorobiphenyl (206))

General Statistics

Number of Valid Samples	27	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	5.6500E-5	Minimum of Log Data	-9.781
Maximum	0.0048	Maximum of Log Data	-5.335
Mean	3.0406E-4	Mean of log Data	-9.327
Median	6.3000E-5	SD of log Data	1.068
SD	9.3907E-4		
Coefficient of Variation	3.088		
Skewness	4.659		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.294	Shapiro Wilk Test Statistic	0.423
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6.1230E-4	95% H-UCL	2.6973E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.1099E-4
95% Adjusted-CLT UCL	7.7447E-4	97.5% Chebyshev (MVUE) UCL	3.7949E-4
95% Modified-t UCL	6.3931E-4	99% Chebyshev (MVUE) UCL	5.1405E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.482	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.3045E-4		
nu star	26.04		
Approximate Chi Square Value (.05)	15.41	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	6.0132E-4
Adjusted Chi Square Value	14.89	95% Jackknife UCL	6.1230E-4
		95% Standard Bootstrap UCL	5.9026E-4
Anderson-Darling Test Statistic	8.142	95% Bootstrap-t UCL	0.0025
Anderson-Darling 5% Critical Value	0.806	95% Hall's Bootstrap UCL	0.0027
Kolmogorov-Smirnov Test Statistic	0.527	95% Percentile Bootstrap UCL	6.4078E-4
Kolmogorov-Smirnov 5% Critical Value	0.178	95% BCA Bootstrap UCL	9.0915E-4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0010
		97.5% Chebyshev(Mean, Sd) UCL	0.0014
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0021
95% Approximate Gamma UCL	5.1377E-4		
95% Adjusted Gamma UCL	5.3182E-4		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0021

Result or 1/2 SDL (n-propylbenzene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	57
Raw Statistics		Log-transformed Statistics	
Minimum	3.2000E-5	Minimum of Log Data	-10.35
Maximum	1.8	Maximum of Log Data	0.588

Mean	0.0237	Mean of log Data	-8.883
Median	6.6000E-5	SD of log Data	1.815
SD	0.198		
Coefficient of Variation	8.331		
Skewness	9.058		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.503	Lilliefors Test Statistic	0.353
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0598	95% H-UCL	0.0013
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0015
95% Adjusted-CLT UCL	0.0825	97.5% Chebyshev (MVUE) UCL	0.0019
95% Modified-t UCL	0.0634	99% Chebyshev (MVUE) UCL	0.0027
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.152	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.156		
nu star	25.26		
Approximate Chi Square Value (.05)	14.81	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0594
Adjusted Chi Square Value	14.67	95% Jackknife UCL	0.0598
		95% Standard Bootstrap UCL	0.0596
Anderson-Darling Test Statistic	25.64	95% Bootstrap-t UCL	1.155
Anderson-Darling 5% Critical Value	0.958	95% Hall's Bootstrap UCL	1.125
Kolmogorov-Smirnov Test Statistic	0.434	95% Percentile Bootstrap UCL	0.0671
Kolmogorov-Smirnov 5% Critical Value	0.111	95% BCA Bootstrap UCL	0.11
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.118
		97.5% Chebyshev(Mean, Sd) UCL	0.159
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.24
95% Approximate Gamma UCL	0.0405		
95% Adjusted Gamma UCL	0.0409		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.159

Result or 1/2 SDL (o-xylene)

General Statistics

Number of Valid Samples	83	Number of Unique Samples	71

Raw Statistics		Log-transformed Statistics	
Minimum	4.0000E-5	Minimum of Log Data	-10.13
Maximum	0.84	Maximum of Log Data	-0.174
Mean	0.0132	Mean of log Data	-8.136
Median	9.5000E-5	SD of log Data	1.904
SD	0.0931		
Coefficient of Variation	7.053		
Skewness	8.784		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.476	Lilliefors Test Statistic	0.243
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0302	95% H-UCL	0.0035
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0040
95% Adjusted-CLT UCL	0.0405	97.5% Chebyshev (MVUE) UCL	0.0050
95% Modified-t UCL	0.0318	99% Chebyshev (MVUE) UCL	0.0070
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.195	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0676		
nu star	32.4		
Approximate Chi Square Value (.05)	20.39	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.03
Adjusted Chi Square Value	20.22	95% Jackknife UCL	0.0302
		95% Standard Bootstrap UCL	0.03
Anderson-Darling Test Statistic	18.03	95% Bootstrap-t UCL	0.241
Anderson-Darling 5% Critical Value	0.916	95% Hall's Bootstrap UCL	0.239
Kolmogorov-Smirnov Test Statistic	0.354	95% Percentile Bootstrap UCL	0.0331
Kolmogorov-Smirnov 5% Critical Value	0.109	95% BCA Bootstrap UCL	0.0461
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0577
		97.5% Chebyshev(Mean, Sd) UCL	0.077
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.115
95% Approximate Gamma UCL	0.021		
95% Adjusted Gamma UCL	0.0211		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.077

Result or 1/2 SDL (pentachlorobiphenyl (101))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	22
Raw Statistics		Log-transformed Statistics	
Minimum	9.8500E-5	Minimum of Log Data	-9.225
Maximum	0.0445	Maximum of Log Data	-3.112
Mean	0.0024	Mean of log Data	-8.262
Median	1.0650E-4	SD of log Data	1.554
SD	0.0088		
Coefficient of Variation	3.661		
Skewness	4.618		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.292	Shapiro Wilk Test Statistic	0.664
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0052	95% H-UCL	0.0023
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0020
95% Adjusted-CLT UCL	0.0068	97.5% Chebyshev (MVUE) UCL	0.0026
95% Modified-t UCL	0.0055	99% Chebyshev (MVUE) UCL	0.0037
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.298	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0080		
nu star	16.11		
Approximate Chi Square Value (.05)	8.038	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0051
Adjusted Chi Square Value	7.674	95% Jackknife UCL	0.0052
		95% Standard Bootstrap UCL	0.0051
Anderson-Darling Test Statistic	5.88	95% Bootstrap-t UCL	0.0709
Anderson-Darling 5% Critical Value	0.851	95% Hall's Bootstrap UCL	0.0384
Kolmogorov-Smirnov Test Statistic	0.348	95% Percentile Bootstrap UCL	0.0054
Kolmogorov-Smirnov 5% Critical Value	0.183	95% BCA Bootstrap UCL	0.0078
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0097
		97.5% Chebyshev(Mean, Sd) UCL	0.013
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0193
95% Approximate Gamma UCL	0.0048		
95% Adjusted Gamma UCL	0.0050		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0193

Result or 1/2 SDL (pentachlorobiphenyl (105))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	20
Raw Statistics		Log-transformed Statistics	
Minimum	8.5500E-5	Minimum of Log Data	-9.367
Maximum	0.0149	Maximum of Log Data	-4.206
Mean	6.7935E-4	Mean of log Data	-8.953
Median	9.5000E-5	SD of log Data	1.063
SD	0.0028		
Coefficient of Variation	4.189		
Skewness	5.174		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.217	Shapiro Wilk Test Statistic	0.386
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0016	95% H-UCL	3.8825E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.4827E-4

95% Adjusted-CLT UCL	0.0021	97.5% Chebyshev (MVUE) UCL	5.4673E-4
95% Modified-t UCL	0.0017	99% Chebyshev (MVUE) UCL	7.4014E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.378	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0018		
nu star	20.4		
Approximate Chi Square Value (.05)	11.15	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0015
Adjusted Chi Square Value	10.71	95% Jackknife UCL	0.0016
		95% Standard Bootstrap UCL	0.0015
Anderson-Darling Test Statistic	8.853	95% Bootstrap-t UCL	0.0351
Anderson-Darling 5% Critical Value	0.831	95% Hall's Bootstrap UCL	0.0349
Kolmogorov-Smirnov Test Statistic	0.522	95% Percentile Bootstrap UCL	0.0017
Kolmogorov-Smirnov 5% Critical Value	0.18	95% BCA Bootstrap UCL	0.0028
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0030
		97.5% Chebyshev(Mean, Sd) UCL	0.0041
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0061
95% Approximate Gamma UCL	0.0012		
95% Adjusted Gamma UCL	0.0012		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0061

Result or 1/2 SDL (pentachlorobiphenyl (118))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	24
Raw Statistics		Log-transformed Statistics	
Minimum	1.4100E-4	Minimum of Log Data	-8.867
Maximum	0.0363	Maximum of Log Data	-3.316
Mean	0.0016	Mean of log Data	-8.275
Median	1.5900E-4	SD of log Data	1.154
SD	0.0069		
Coefficient of Variation	4.326		
Skewness	5.184		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.218	Shapiro Wilk Test Statistic	0.526
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0038	95% H-UCL	9.1008E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0010
95% Adjusted-CLT UCL	0.0052	97.5% Chebyshev (MVUE) UCL	0.0012
95% Modified-t UCL	0.0041	99% Chebyshev (MVUE) UCL	0.0017
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.348	Data do not follow a Discernable Distribution (0.05)	

Theta Star	0.0046		
nu star	18.77		
Approximate Chi Square Value (.05)	9.953	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0038
Adjusted Chi Square Value	9.542	95% Jackknife UCL	0.0038
		95% Standard Bootstrap UCL	0.0037
Anderson-Darling Test Statistic	7.604	95% Bootstrap-t UCL	0.0662
Anderson-Darling 5% Critical Value	0.839	95% Hall's Bootstrap UCL	0.0422
Kolmogorov-Smirnov Test Statistic	0.401	95% Percentile Bootstrap UCL	0.0042
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0068
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0074
		97.5% Chebyshev(Mean, Sd) UCL	0.0099
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0149
95% Approximate Gamma UCL	0.0030		
95% Adjusted Gamma UCL	0.0031		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0149

Result or 1/2 SDL (pentachlorobiphenyl (87))

General Statistics			
Number of Valid Samples	27	Number of Unique Samples	23
Raw Statistics		Log-transformed Statistics	
Minimum	1.1750E-4	Minimum of Log Data	-9.049
Maximum	0.0257	Maximum of Log Data	-3.661
Mean	0.0014	Mean of log Data	-8.363
Median	1.3200E-4	SD of log Data	1.31
SD	0.0050		
Coefficient of Variation	3.554		
Skewness	4.689		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.287	Shapiro Wilk Test Statistic	0.547
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0030	95% H-UCL	0.0011
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0012
95% Adjusted-CLT UCL	0.0039	97.5% Chebyshev (MVUE) UCL	0.0015
95% Modified-t UCL	0.0032	99% Chebyshev (MVUE) UCL	0.0021
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.353	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0040		
nu star	19.06		
Approximate Chi Square Value (.05)	10.16	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0030
Adjusted Chi Square Value	9.747	95% Jackknife UCL	0.0030

		95% Standard Bootstrap UCL	0.0030
Anderson-Darling Test Statistic	7.038	95% Bootstrap-t UCL	0.0322
Anderson-Darling 5% Critical Value	0.837	95% Hall's Bootstrap UCL	0.0278
Kolmogorov-Smirnov Test Statistic	0.408	95% Percentile Bootstrap UCL	0.0032
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL	0.0042
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0056
		97.5% Chebyshev(Mean, Sd) UCL	0.0074
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0111
95% Approximate Gamma UCL	0.0026		
95% Adjusted Gamma UCL	0.0027		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0111

Result or 1/2 SDL (phenanthrene)

General Statistics

Number of Valid Samples	166	Number of Unique Samples	128
Raw Statistics		Log-transformed Statistics	
Minimum	0.0057	Minimum of Log Data	-5.159
Maximum	12.6	Maximum of Log Data	2.534
Mean	0.401	Mean of log Data	-3.001
Median	0.0421	SD of log Data	2.017
SD	1.228		
Coefficient of Variation	3.064		
Skewness	6.986		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.374	Lilliefors Test Statistic	0.185
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.559	95% H-UCL	0.628
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.776
95% Adjusted-CLT UCL	0.613	97.5% Chebyshev (MVUE) UCL	0.954
95% Modified-t UCL	0.567	99% Chebyshev (MVUE) UCL	1.302
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.324	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.237		
nu star	107.6		
Approximate Chi Square Value (.05)	84.65	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.558
Adjusted Chi Square Value	84.47	95% Jackknife UCL	0.559
		95% Standard Bootstrap UCL	0.56
Anderson-Darling Test Statistic	12.32	95% Bootstrap-t UCL	0.677
Anderson-Darling 5% Critical Value	0.862	95% Hall's Bootstrap UCL	1.18
Kolmogorov-Smirnov Test Statistic	0.194	95% Percentile Bootstrap UCL	0.578
Kolmogorov-Smirnov 5% Critical Value	0.0784	95% BCA Bootstrap UCL	0.651

Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.816
		97.5% Chebyshev(Mean, Sd) UCL	0.996
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.349
95% Approximate Gamma UCL	0.51		
95% Adjusted Gamma UCL	0.511		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.349

Result or 1/2 SDL (pyrene)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	134
Raw Statistics		Log-transformed Statistics	
Minimum	0.0055	Minimum of Log Data	-5.194
Maximum	8.47	Maximum of Log Data	2.137
Mean	0.432	Mean of log Data	-2.891
Median	0.0414	SD of log Data	2.024
SD	1.11		
Coefficient of Variation	2.57		
Skewness	4.384		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.35	Lilliefors Test Statistic	0.128
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.575	95% H-UCL	0.714
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.882
95% Adjusted-CLT UCL	0.605	97.5% Chebyshev (MVUE) UCL	1.084
95% Modified-t UCL	0.58	99% Chebyshev (MVUE) UCL	1.481
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.329	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.314		
nu star	109.2		
Approximate Chi Square Value (.05)	86.04	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.574
Adjusted Chi Square Value	85.87	95% Jackknife UCL	0.575
		95% Standard Bootstrap UCL	0.576
Anderson-Darling Test Statistic	11.49	95% Bootstrap-t UCL	0.618
Anderson-Darling 5% Critical Value	0.861	95% Hall's Bootstrap UCL	0.616
Kolmogorov-Smirnov Test Statistic	0.186	95% Percentile Bootstrap UCL	0.575
Kolmogorov-Smirnov 5% Critical Value	0.0783	95% BCA Bootstrap UCL	0.613
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.808
		97.5% Chebyshev(Mean, Sd) UCL	0.97
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.29
95% Approximate Gamma UCL	0.548		
95% Adjusted Gamma UCL	0.549		

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.29

Result or 1/2 SDL (selenium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	32
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.21	Minimum of Log Data	-1.561
Maximum	1.13	Maximum of Log Data	0.122
Mean	0.28	Mean of log Data	-1.319
Median	0.25	SD of log Data	0.267
SD	0.119		
Coefficient of Variation	0.426		
Skewness	4.859		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.378	Lilliefors Test Statistic	0.329
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.296	95% H-UCL	0.287
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.302
95% Adjusted-CLT UCL	0.299	97.5% Chebyshev (MVUE) UCL	0.313
95% Modified-t UCL	0.296	99% Chebyshev (MVUE) UCL	0.335
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	10.6	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.0265		
nu star	3518		
Approximate Chi Square Value (.05)	3381	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.296
Adjusted Chi Square Value	3380	95% Jackknife UCL	0.296
		95% Standard Bootstrap UCL	0.296
Anderson-Darling Test Statistic	26.48	95% Bootstrap-t UCL	0.302
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL	0.304
Kolmogorov-Smirnov Test Statistic	0.351	95% Percentile Bootstrap UCL	0.297
Kolmogorov-Smirnov 5% Critical Value	0.0723	95% BCA Bootstrap UCL	0.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.321
		97.5% Chebyshev(Mean, Sd) UCL	0.338
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.372
95% Approximate Gamma UCL	0.292		
95% Adjusted Gamma UCL	0.292		
Potential UCL to Use		Use 95% Student's-t UCL	0.296
		or 95% Modified-t UCL	0.296

Result or 1/2 SDL (silver)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	40

Raw Statistics		Log-transformed Statistics	
Minimum	0.0235	Minimum of Log Data	-3.751
Maximum	1.64	Maximum of Log Data	0.495
Mean	0.063	Mean of log Data	-3.356
Median	0.028	SD of log Data	0.716
SD	0.165		
Coefficient of Variation	2.624		
Skewness	7.044		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.441	Lilliefors Test Statistic	0.376
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0843	95% H-UCL	0.0502
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0571
95% Adjusted-CLT UCL	0.0916	97.5% Chebyshev (MVUE) UCL	0.0623
95% Modified-t UCL	0.0854	99% Chebyshev (MVUE) UCL	0.0726
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.964	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0654		
nu star	320.2		
Approximate Chi Square Value (.05)	279.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.0841
Adjusted Chi Square Value	279.4	95% Jackknife UCL	0.0843
		95% Standard Bootstrap UCL	0.0843
Anderson-Darling Test Statistic	42.85	95% Bootstrap-t UCL	0.104
Anderson-Darling 5% Critical Value	0.785	95% Hall's Bootstrap UCL	0.11
Kolmogorov-Smirnov Test Statistic	0.424	95% Percentile Bootstrap UCL	0.0863
Kolmogorov-Smirnov 5% Critical Value	0.0746	95% BCA Bootstrap UCL	0.0949
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.119
		97.5% Chebyshev(Mean, Sd) UCL	0.143
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.191
95% Approximate Gamma UCL	0.0721		
95% Adjusted Gamma UCL	0.0722		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.119

Result or 1/2 SDL (strontium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	151

Raw Statistics		Log-transformed Statistics	
Minimum	16.5	Minimum of Log Data	2.803
Maximum	591	Maximum of Log Data	6.382
Mean	75.61	Mean of log Data	4.107
Median	58.1	SD of log Data	0.59
SD	73.75		
Coefficient of Variation	0.975		
Skewness	4.41		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.27	Lilliefors Test Statistic	0.138
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	85.08	95% H-UCL	78.78
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	87.8
95% Adjusted-CLT UCL	87.12	97.5% Chebyshev (MVUE) UCL	94.53
95% Modified-t UCL	85.41	99% Chebyshev (MVUE) UCL	107.7
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.405	Data do not follow a Discernable Distribution (0.05)	
Theta Star	31.44		
nu star	798.4		
Approximate Chi Square Value (.05)	733.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	85.03
Adjusted Chi Square Value	733.3	95% Jackknife UCL	85.08
		95% Standard Bootstrap UCL	84.96
Anderson-Darling Test Statistic	7.98	95% Bootstrap-t UCL	88.74
Anderson-Darling 5% Critical Value	0.763	95% Hall's Bootstrap UCL	88.35
Kolmogorov-Smirnov Test Statistic	0.195	95% Percentile Bootstrap UCL	85.62
Kolmogorov-Smirnov 5% Critical Value	0.0732	95% BCA Bootstrap UCL	87.31
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	100.6
		97.5% Chebyshev(Mean, Sd) UCL	111.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	132.6
95% Approximate Gamma UCL	82.27		
95% Adjusted Gamma UCL	82.33		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	100.6

Result or 1/2 SDL (tetrachlorobiphenyl (44))

General Statistics

Number of Valid Samples	27	Number of Unique Samples	20

Raw Statistics		Log-transformed Statistics	
Minimum	6.3000E-5	Minimum of Log Data	-9.672
Maximum	0.0198	Maximum of Log Data	-3.922
Mean	9.3370E-4	Mean of log Data	-8.97
Median	7.0500E-5	SD of log Data	1.344

SD	0.0037		
Coefficient of Variation	4.064		
Skewness	5.095		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.245	Shapiro Wilk Test Statistic	0.554
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0021	95% H-UCL	6.8092E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.0103E-4
95% Adjusted-CLT UCL	0.0029	97.5% Chebyshev (MVUE) UCL	8.7638E-4
95% Modified-t UCL	0.0023	99% Chebyshev (MVUE) UCL	0.0012
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.326	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0028		
nu star	17.61		
Approximate Chi Square Value (.05)	9.108	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0021
Adjusted Chi Square Value	8.718	95% Jackknife UCL	0.0021
		95% Standard Bootstrap UCL	0.0021
Anderson-Darling Test Statistic	7.003	95% Bootstrap-t UCL	0.0254
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	0.0165
Kolmogorov-Smirnov Test Statistic	0.445	95% Percentile Bootstrap UCL	0.0023
Kolmogorov-Smirnov 5% Critical Value	0.182	95% BCA Bootstrap UCL	0.0031
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0041
		97.5% Chebyshev(Mean, Sd) UCL	0.0054
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0082
95% Approximate Gamma UCL	0.0018		
95% Adjusted Gamma UCL	0.0018		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0082

Result or 1/2 SDL (tetrachlorobiphenyl (52))

General Statistics

Number of Valid Samples	27	Number of Unique Samples	24
Raw Statistics		Log-transformed Statistics	
Minimum	9.9500E-5	Minimum of Log Data	-9.215
Maximum	0.0336	Maximum of Log Data	-3.393
Mean	0.0017	Mean of log Data	-8.357
Median	1.1300E-4	SD of log Data	1.409
SD	0.0065		
Coefficient of Variation	3.771		
Skewness	4.868		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.274	Shapiro Wilk Test Statistic	0.632
Shapiro Wilk Critical Value	0.923	Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0038	95% H-UCL	0.0014
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0014
95% Adjusted-CLT UCL	0.0050	97.5% Chebyshev (MVUE) UCL	0.0018
95% Modified-t UCL	0.0040	99% Chebyshev (MVUE) UCL	0.0025
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.326	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0053		
nu star	17.59		
Approximate Chi Square Value (.05)	9.095	Nonparametric Statistics	
Adjusted Level of Significance	0.0401	95% CLT UCL	0.0037
Adjusted Chi Square Value	8.705	95% Jackknife UCL	0.0038
		95% Standard Bootstrap UCL	0.0037
Anderson-Darling Test Statistic	6.223	95% Bootstrap-t UCL	0.049
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	0.0272
Kolmogorov-Smirnov Test Statistic	0.351	95% Percentile Bootstrap UCL	0.0041
Kolmogorov-Smirnov 5% Critical Value	0.182	95% BCA Bootstrap UCL	0.0059
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0072
		97.5% Chebyshev(Mean, Sd) UCL	0.0095
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0142
95% Approximate Gamma UCL	0.0033		
95% Adjusted Gamma UCL	0.0034		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0142

Result or 1/2 SDL (tin)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	57
Raw Statistics		Log-transformed Statistics	
Minimum	0.23	Minimum of Log Data	-1.47
Maximum	6.48	Maximum of Log Data	1.869
Mean	0.616	Mean of log Data	-0.912
Median	0.27	SD of log Data	0.764
SD	0.868		
Coefficient of Variation	1.409		
Skewness	3.697		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.33	Lilliefors Test Statistic	0.34
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.727	95% H-UCL	0.605
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.693
95% Adjusted-CLT UCL	0.748	97.5% Chebyshev (MVUE) UCL	0.761
95% Modified-t UCL	0.731	99% Chebyshev (MVUE) UCL	0.894
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.292	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.477		
nu star	428.9		
Approximate Chi Square Value (.05)	381.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	0.727
Adjusted Chi Square Value	381.5	95% Jackknife UCL	0.727
		95% Standard Bootstrap UCL	0.727
Anderson-Darling Test Statistic	26.15	95% Bootstrap-t UCL	0.759
Anderson-Darling 5% Critical Value	0.776	95% Hall's Bootstrap UCL	0.758
Kolmogorov-Smirnov Test Statistic	0.352	95% Percentile Bootstrap UCL	0.73
Kolmogorov-Smirnov 5% Critical Value	0.0741	95% BCA Bootstrap UCL	0.751
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.91
		97.5% Chebyshev(Mean, Sd) UCL	1.037
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.286
95% Approximate Gamma UCL	0.692		
95% Adjusted Gamma UCL	0.693		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.91

Result or 1/2 SDL (titanium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	114
Raw Statistics		Log-transformed Statistics	
Minimum	4.02	Minimum of Log Data	1.391
Maximum	645	Maximum of Log Data	6.469
Mean	25.77	Mean of log Data	3.014
Median	19	SD of log Data	0.484
SD	50.15		
Coefficient of Variation	1.946		
Skewness	11.61		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.375	Lilliefors Test Statistic	0.177
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	32.21	95% H-UCL	24.52
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	26.84
95% Adjusted-CLT UCL	35.92	97.5% Chebyshev (MVUE) UCL	28.55
95% Modified-t UCL	32.8	99% Chebyshev (MVUE) UCL	31.91

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.243	Data do not follow a Discernable Distribution (0.05)	
Theta Star	11.49		
nu star	744.8		
Approximate Chi Square Value (.05)	682.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	32.17
Adjusted Chi Square Value	681.9	95% Jackknife UCL	32.21
		95% Standard Bootstrap UCL	32.2
Anderson-Darling Test Statistic	6.024E+28	95% Bootstrap-t UCL	48.92
Anderson-Darling 5% Critical Value	0.764	95% Hall's Bootstrap UCL	55.9
Kolmogorov-Smirnov Test Statistic	0.272	95% Percentile Bootstrap UCL	33.3
Kolmogorov-Smirnov 5% Critical Value	0.0732	95% BCA Bootstrap UCL	37.62
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	42.74
		97.5% Chebyshev(Mean, Sd) UCL	50.08
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	64.5
95% Approximate Gamma UCL	28.13		
95% Adjusted Gamma UCL	28.15		
Potential UCL to Use		Use 95% Student's-t UCL	32.21
		or 95% Modified-t UCL	32.8

Result or 1/2 SDL (toluene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	80
Raw Statistics		Log-transformed Statistics	
Minimum	2.6100E-4	Minimum of Log Data	-8.251
Maximum	0.106	Maximum of Log Data	-2.249
Mean	0.0057	Mean of log Data	-5.738
Median	0.0036	SD of log Data	1.082
SD	0.0117		
Coefficient of Variation	2.033		
Skewness	7.835		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.351	Lilliefors Test Statistic	0.143
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0078	95% H-UCL	0.0076
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0093
95% Adjusted-CLT UCL	0.0090	97.5% Chebyshev (MVUE) UCL	0.0109
95% Modified-t UCL	0.0080	99% Chebyshev (MVUE) UCL	0.014
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.972	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0059		

nu star	161.4		
Approximate Chi Square Value (.05)	133	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0078
Adjusted Chi Square Value	132.5	95% Jackknife UCL	0.0078
		95% Standard Bootstrap UCL	0.0079
Anderson-Darling Test Statistic	2.348	95% Bootstrap-t UCL	0.0117
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL	0.0159
Kolmogorov-Smirnov Test Statistic	0.184	95% Percentile Bootstrap UCL	0.0080
Kolmogorov-Smirnov 5% Critical Value	0.101	95% BCA Bootstrap UCL	0.0096
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0113
		97.5% Chebyshev(Mean, Sd) UCL	0.0137
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0185
95% Approximate Gamma UCL	0.0069		
95% Adjusted Gamma UCL	0.0069		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0137

Result or 1/2 SDL (total moisture)

General Statistics			
Number of Valid Samples	4	Number of Unique Samples	4
Raw Statistics		Log-transformed Statistics	
Minimum	4.47	Minimum of Log Data	1.497
Maximum	7.34	Maximum of Log Data	1.993
Mean	5.813	Mean of log Data	1.742
Median	5.72	SD of log Data	0.22
SD	1.274		
Coefficient of Variation	0.219		
Skewness	0.304		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.97	Shapiro Wilk Test Statistic	0.974
Shapiro Wilk Critical Value	0.748	Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	7.312	95% H-UCL	8.384
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.589
95% Adjusted-CLT UCL	6.964	97.5% Chebyshev (MVUE) UCL	9.791
95% Modified-t UCL	7.328	99% Chebyshev (MVUE) UCL	12.15
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	7.11	Data appear Normal at 5% Significance Level	
Theta Star	0.817		
nu star	56.88		
Approximate Chi Square Value (.05)	40.55	Nonparametric Statistics	
Adjusted Level of Significance	N/A	95% CLT UCL	6.861
Adjusted Chi Square Value	N/A	95% Jackknife UCL	7.312
		95% Standard Bootstrap UCL	6.714

Anderson-Darling Test Statistic	0.239	95% Bootstrap-t UCL	9.165
Anderson-Darling 5% Critical Value	0.657	95% Hall's Bootstrap UCL	8.868
Kolmogorov-Smirnov Test Statistic	0.223	95% Percentile Bootstrap UCL	6.785
Kolmogorov-Smirnov 5% Critical Value	0.394	95% BCA Bootstrap UCL	6.575
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.59
		97.5% Chebyshev(Mean, Sd) UCL	9.792
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	12.15
95% Approximate Gamma UCL	8.154		
95% Adjusted Gamma UCL	N/A		
Potential UCL to Use		Use 95% Student's-t UCL	7.312

Result or 1/2 SDL (trichloroethene)

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	58

Raw Statistics		Log-transformed Statistics	
Minimum	4.0500E-5	Minimum of Log Data	-10.11
Maximum	0.034	Maximum of Log Data	-3.381
Mean	9.2984E-4	Mean of log Data	-8.979
Median	8.0500E-5	SD of log Data	1.34
SD	0.0039		
Coefficient of Variation	4.295		
Skewness	7.315		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.47	Lilliefors Test Statistic	0.421
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0016	95% H-UCL	4.5311E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.5915E-4
95% Adjusted-CLT UCL	0.0020	97.5% Chebyshev (MVUE) UCL	6.6982E-4
95% Modified-t UCL	0.0017	99% Chebyshev (MVUE) UCL	8.8721E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.334	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0027		
nu star	55.48		
Approximate Chi Square Value (.05)	39.36	Nonparametric Statistics	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.0016
Adjusted Chi Square Value	39.12	95% Jackknife UCL	0.0016
		95% Standard Bootstrap UCL	0.0016
Anderson-Darling Test Statistic	23.85	95% Bootstrap-t UCL	0.0031
Anderson-Darling 5% Critical Value	0.857	95% Hall's Bootstrap UCL	0.0041
Kolmogorov-Smirnov Test Statistic	0.492	95% Percentile Bootstrap UCL	0.0017
Kolmogorov-Smirnov 5% Critical Value	0.106	95% BCA Bootstrap UCL	0.0021
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0028

		97.5% Chebyshev(Mean, Sd) UCL	0.0036
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0052
95% Approximate Gamma UCL	0.0013		
95% Adjusted Gamma UCL	0.0013		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.0036

Result or 1/2 SDL (vanadium)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	117
Raw Statistics		Log-transformed Statistics	
Minimum	4.73	Minimum of Log Data	1.554
Maximum	45.6	Maximum of Log Data	3.82
Mean	14.4	Mean of log Data	2.588
Median	13.75	SD of log Data	0.406
SD	5.905		
Coefficient of Variation	0.41		
Skewness	1.359		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0803	Lilliefors Test Statistic	0.0508
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	15.16	95% H-UCL	15.27
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.5
95% Adjusted-CLT UCL	15.21	97.5% Chebyshev (MVUE) UCL	17.39
95% Modified-t UCL	15.17	99% Chebyshev (MVUE) UCL	19.14
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	6.31	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.283		
nu star	2095		
Approximate Chi Square Value (.05)	1989	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	15.16
Adjusted Chi Square Value	1989	95% Jackknife UCL	15.16
		95% Standard Bootstrap UCL	15.16
Anderson-Darling Test Statistic	0.304	95% Bootstrap-t UCL	15.19
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	15.26
Kolmogorov-Smirnov Test Statistic	0.0346	95% Percentile Bootstrap UCL	15.16
Kolmogorov-Smirnov 5% Critical Value	0.0725	95% BCA Bootstrap UCL	15.19
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	16.4
		97.5% Chebyshev(Mean, Sd) UCL	17.27
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	18.96
95% Approximate Gamma UCL	15.17		
95% Adjusted Gamma UCL	15.17		

Potential UCL to Use		Use 95% Approximate Gamma UCL	15.17

Result or 1/2 SDL (xylene (total))

General Statistics			
Number of Valid Samples	83	Number of Unique Samples	77
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.3050E-4	Minimum of Log Data	-8.944
Maximum	3.4	Maximum of Log Data	1.224
Mean	0.0479	Mean of log Data	-6.555
Median	0.0014	SD of log Data	1.685
SD	0.374		
Coefficient of Variation	7.807		
Skewness	9.027		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.472	Lilliefors Test Statistic	0.197
Lilliefors Critical Value	0.0973	Lilliefors Critical Value	0.0973
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.116	95% H-UCL	0.0102
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0122
95% Adjusted-CLT UCL	0.159	97.5% Chebyshev (MVUE) UCL	0.0151
95% Modified-t UCL	0.123	99% Chebyshev (MVUE) UCL	0.0207
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.209	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.229		
nu star	34.62		
Approximate Chi Square Value (.05)	22.16	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0471	95% CLT UCL	0.115
Adjusted Chi Square Value	21.99	95% Jackknife UCL	0.116
		95% Standard Bootstrap UCL	0.115
Anderson-Darling Test Statistic	18.38	95% Bootstrap-t UCL	1.896
Anderson-Darling 5% Critical Value	0.907	95% Hall's Bootstrap UCL	1.317
Kolmogorov-Smirnov Test Statistic	0.399	95% Percentile Bootstrap UCL	0.129
Kolmogorov-Smirnov 5% Critical Value	0.108	95% BCA Bootstrap UCL	0.179
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.227
		97.5% Chebyshev(Mean, Sd) UCL	0.304
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.456
95% Approximate Gamma UCL	0.0748		
95% Adjusted Gamma UCL	0.0754		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	0.304

Result or 1/2 SDL (zinc)

General Statistics			
Number of Valid Samples	166	Number of Unique Samples	159
Raw Statistics		Log-transformed Statistics	
Minimum	6.17	Minimum of Log Data	1.82
Maximum	7650	Maximum of Log Data	8.942
Mean	433.8	Mean of log Data	5.141
Median	192.5	SD of log Data	1.438
SD	786.8		
Coefficient of Variation	1.814		
Skewness	5.977		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.293	Lilliefors Test Statistic	0.0981
Lilliefors Critical Value	0.0688	Lilliefors Critical Value	0.0688
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	534.8	95% H-UCL	640.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	793.9
95% Adjusted-CLT UCL	564.5	97.5% Chebyshev (MVUE) UCL	932.2
95% Modified-t UCL	539.6	99% Chebyshev (MVUE) UCL	1204
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.647	Data do not follow a Discernable Distribution (0.05)	
Theta Star	670.5		
nu star	214.8		
Approximate Chi Square Value (.05)	181.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0486	95% CLT UCL	534.3
Adjusted Chi Square Value	181.6	95% Jackknife UCL	534.8
		95% Standard Bootstrap UCL	533.1
Anderson-Darling Test Statistic	3.192	95% Bootstrap-t UCL	586.2
Anderson-Darling 5% Critical Value	0.805	95% Hall's Bootstrap UCL	949.7
Kolmogorov-Smirnov Test Statistic	0.111	95% Percentile Bootstrap UCL	544.3
Kolmogorov-Smirnov 5% Critical Value	0.0758	95% BCA Bootstrap UCL	573.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	700
		97.5% Chebyshev(Mean, Sd) UCL	815.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1041
95% Approximate Gamma UCL	512.3		
95% Adjusted Gamma UCL	513.1		
Potential UCL to Use		Use 97.5% Chebyshev (Mean, Sd) UCL	815.2

APPENDIX A-3

NORTH OF MARLIN SURFACE SOIL

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	J:\1352 - Gulfco RI\risk\eco\Tables for Revisited SLERA\surface soil N or Marlin aug 2008.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result or 1/2 DL (2-methylnaphthalene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	15

Raw Statistics		Log-transformed Statistics	
Minimum	0.005	Minimum of Log Data	-5.298
Maximum	0.053	Maximum of Log Data	-2.937
Mean	0.0123	Mean of log Data	-4.795
Median	0.0059	SD of log Data	0.772
SD	0.0148		
Coefficient of Variation	1.21		
Skewness	2.182		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.528	Shapiro Wilk Test Statistic	0.605
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0184	95% H-UCL	0.0173
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0202
95% Adjusted-CLT UCL	0.02	97.5% Chebyshev (MVUE) UCL	0.0242
95% Modified-t UCL	0.0187	99% Chebyshev (MVUE) UCL	0.0321
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.211	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0101		
nu star	43.61		
Approximate Chi Square Value (.05)	29.47	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.018
Adjusted Chi Square Value	28.35	95% Jackknife UCL	0.0184
		95% Standard Bootstrap UCL	0.0178
Anderson-Darling Test Statistic	3.817	95% Bootstrap-t UCL	0.0243
Anderson-Darling 5% Critical Value	0.758	95% Hall's Bootstrap UCL	0.0176
Kolmogorov-Smirnov Test Statistic	0.442	95% Percentile Bootstrap UCL	0.0186
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	0.0202
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0275
		97.5% Chebyshev(Mean, Sd) UCL	0.0341
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0471
95% Approximate Gamma UCL	0.0182		
95% Adjusted Gamma UCL	0.0189		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0275

Result or 1/2 DL (4,4'-dde)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.9150E-4	Minimum of Log Data	-8.561
Maximum	0.0149	Maximum of Log Data	-4.206
Mean	0.0011	Mean of log Data	-8.002
Median	2.1175E-4	SD of log Data	1.162
SD	0.0034		
Coefficient of Variation	2.898		
Skewness	4.099		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.324	Shapiro Wilk Test Statistic	0.529
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0026	95% H-UCL	0.0014
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0014
95% Adjusted-CLT UCL	0.0033	97.5% Chebyshev (MVUE) UCL	0.0018
95% Modified-t UCL	0.0027	99% Chebyshev (MVUE) UCL	0.0025
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.454	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0026		
nu star	16.33		
Approximate Chi Square Value (.05)	8.194	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0025
Adjusted Chi Square Value	7.645	95% Jackknife UCL	0.0026
		95% Standard Bootstrap UCL	0.0024
Anderson-Darling Test Statistic	4.607	95% Bootstrap-t UCL	0.0141
Anderson-Darling 5% Critical Value	0.8	95% Hall's Bootstrap UCL	0.0144
Kolmogorov-Smirnov Test Statistic	0.483	95% Percentile Bootstrap UCL	0.0027
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.0037
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0047
		97.5% Chebyshev(Mean, Sd) UCL	0.0062
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0093
95% Approximate Gamma UCL	0.0023		
95% Adjusted Gamma UCL	0.0025		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0093

Result or 1/2 DL (4,4'-ddt)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	7.4000E-5	Minimum of Log Data	-9.511
Maximum	0.0108	Maximum of Log Data	-4.528
Mean	0.0012	Mean of log Data	-7.956
Median	2.7225E-4	SD of log Data	1.604
SD	0.0026		
Coefficient of Variation	2.045		
Skewness	3.311		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.51	Shapiro Wilk Test Statistic	0.856
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0023	95% H-UCL	0.0052
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0032
95% Adjusted-CLT UCL	0.0027	97.5% Chebyshev (MVUE) UCL	0.0042
95% Modified-t UCL	0.0024	99% Chebyshev (MVUE) UCL	0.0060
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.448	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0028		
nu star	16.14		
Approximate Chi Square Value (.05)	8.064	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0022
Adjusted Chi Square Value	7.52	95% Jackknife UCL	0.0023
		95% Standard Bootstrap UCL	0.0022
Anderson-Darling Test Statistic	1.361	95% Bootstrap-t UCL	0.0055
Anderson-Darling 5% Critical Value	0.801	95% Hall's Bootstrap UCL	0.0066
Kolmogorov-Smirnov Test Statistic	0.238	95% Percentile Bootstrap UCL	0.0023
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.0029
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0039
		97.5% Chebyshev(Mean, Sd) UCL	0.0051
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0073
95% Approximate Gamma UCL	0.0025		
95% Adjusted Gamma UCL	0.0027		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0073

Result or 1/2 DL (acenaphthene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	13
Raw Statistics		Log-transformed Statistics	
Minimum	0.005	Minimum of Log Data	-5.298

Maximum	0.157	Maximum of Log Data	-1.852
Mean	0.0161	Mean of log Data	-4.856
Median	0.0055	SD of log Data	0.897
SD	0.0358		
Coefficient of Variation	2.227		
Skewness	4.027		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.344	Shapiro Wilk Test Statistic	0.518
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0307	95% H-UCL	0.0201
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0227
95% Adjusted-CLT UCL	0.0385	97.5% Chebyshev (MVUE) UCL	0.0276
95% Modified-t UCL	0.0321	99% Chebyshev (MVUE) UCL	0.0373
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.717	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0224		
nu star	25.83		
Approximate Chi Square Value (.05)	15.25	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0299
Adjusted Chi Square Value	14.47	95% Jackknife UCL	0.0307
		95% Standard Bootstrap UCL	0.0291
Anderson-Darling Test Statistic	4.505	95% Bootstrap-t UCL	0.111
Anderson-Darling 5% Critical Value	0.775	95% Hall's Bootstrap UCL	0.114
Kolmogorov-Smirnov Test Statistic	0.479	95% Percentile Bootstrap UCL	0.032
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	0.0427
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0528
		97.5% Chebyshev(Mean, Sd) UCL	0.0687
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0999
95% Approximate Gamma UCL	0.0272		
95% Adjusted Gamma UCL	0.0287		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0528

Result or 1/2 DL (acenaphthylene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	15

Raw Statistics		Log-transformed Statistics	
Minimum	0.0038	Minimum of Log Data	-5.562
Maximum	0.0555	Maximum of Log Data	-2.891
Mean	0.0099	Mean of log Data	-4.972
Median	0.0060	SD of log Data	0.693
SD	0.0131		
Coefficient of Variation	1.324		

Skewness	3.101		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.443	Shapiro Wilk Test Statistic	0.613
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0153	95% H-UCL	0.0128
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0152
95% Adjusted-CLT UCL	0.0174	97.5% Chebyshev (MVUE) UCL	0.0181
95% Modified-t UCL	0.0157	99% Chebyshev (MVUE) UCL	0.0236
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.325	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0074		
nu star	47.68		
Approximate Chi Square Value (.05)	32.83	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.015
Adjusted Chi Square Value	31.65	95% Jackknife UCL	0.0153
		95% Standard Bootstrap UCL	0.0146
Anderson-Darling Test Statistic	3.815	95% Bootstrap-t UCL	0.0698
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL	0.0705
Kolmogorov-Smirnov Test Statistic	0.469	95% Percentile Bootstrap UCL	0.0155
Kolmogorov-Smirnov 5% Critical Value	0.207	95% BCA Bootstrap UCL	0.0171
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0234
		97.5% Chebyshev(Mean, Sd) UCL	0.0292
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0407
95% Approximate Gamma UCL	0.0144		
95% Adjusted Gamma UCL	0.0149		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0234

Result or 1/2 DL (aluminum)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	17

Raw Statistics		Log-transformed Statistics	
Minimum	1810	Minimum of Log Data	7.501
Maximum	16800	Maximum of Log Data	9.729
Mean	10673	Mean of log Data	9.189
Median	10300	SD of log Data	0.496
SD	3687		
Coefficient of Variation	0.345		
Skewness	-0.368		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.767

Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
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	12185	95% H-UCL	14135
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16791
95% Adjusted-CLT UCL	12022	97.5% Chebyshev (MVUE) UCL	19299
95% Modified-t UCL	12172	99% Chebyshev (MVUE) UCL	24226
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.015	Data appear Normal at 5% Significance Level	
Theta Star	2128		
nu star	180.5		
Approximate Chi Square Value (.05)	150.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	12103
Adjusted Chi Square Value	147.8	95% Jackknife UCL	12185
		95% Standard Bootstrap UCL	12068
Anderson-Darling Test Statistic	0.664	95% Bootstrap-t UCL	12127
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	12096
Kolmogorov-Smirnov Test Statistic	0.162	95% Percentile Bootstrap UCL	12042
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	11983
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14461
		97.5% Chebyshev(Mean, Sd) UCL	16100
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	19319
95% Approximate Gamma UCL	12807		
95% Adjusted Gamma UCL	13035		
Potential UCL to Use		Use 95% Student's-t UCL	12185

Result or 1/2 DL (anthracene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0037	Minimum of Log Data	-5.594
Maximum	0.264	Maximum of Log Data	-1.332
Mean	0.0257	Mean of log Data	-4.612
Median	0.0061	SD of log Data	1.094
SD	0.0609		
Coefficient of Variation	2.366		
Skewness	3.946		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.38	Shapiro Wilk Test Statistic	0.67
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0507	95% H-UCL	0.0379

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0389
95% Adjusted-CLT UCL	0.0636	97.5% Chebyshev (MVUE) UCL	0.0484
95% Modified-t UCL	0.0529	99% Chebyshev (MVUE) UCL	0.0668
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.573	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0449		
nu star	20.61		
Approximate Chi Square Value (.05)	11.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0493
Adjusted Chi Square Value	10.64	95% Jackknife UCL	0.0507
		95% Standard Bootstrap UCL	0.0491
Anderson-Darling Test Statistic	3.451	95% Bootstrap-t UCL	0.147
Anderson-Darling 5% Critical Value	0.787	95% Hall's Bootstrap UCL	0.129
Kolmogorov-Smirnov Test Statistic	0.402	95% Percentile Bootstrap UCL	0.0529
Kolmogorov-Smirnov 5% Critical Value	0.213	95% BCA Bootstrap UCL	0.07
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0882
		97.5% Chebyshev(Mean, Sd) UCL	0.115
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.168
95% Approximate Gamma UCL	0.0469		
95% Adjusted Gamma UCL	0.0498		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.168

Result or 1/2 DL (antimony)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	14
Raw Statistics		Log-transformed Statistics	
Minimum	0.095	Minimum of Log Data	-2.354
Maximum	8.09	Maximum of Log Data	2.091
Mean	1.744	Mean of log Data	-0.535
Median	0.893	SD of log Data	1.721
SD	2.146		
Coefficient of Variation	1.231		
Skewness	1.659		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.768	Shapiro Wilk Test Statistic	0.775
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	2.624	95% H-UCL	12.83
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.755
95% Adjusted-CLT UCL	2.787	97.5% Chebyshev (MVUE) UCL	8.738
95% Modified-t UCL	2.657	99% Chebyshev (MVUE) UCL	12.63
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.512	Data do not follow a Discernable Distribution (0.05)	
Theta Star	3.403		
nu star	18.45		
Approximate Chi Square Value (.05)	9.713	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	2.576
Adjusted Chi Square Value	9.109	95% Jackknife UCL	2.624
		95% Standard Bootstrap UCL	2.581
Anderson-Darling Test Statistic	1.671	95% Bootstrap-t UCL	3.048
Anderson-Darling 5% Critical Value	0.794	95% Hall's Bootstrap UCL	3.327
Kolmogorov-Smirnov Test Statistic	0.321	95% Percentile Bootstrap UCL	2.6
Kolmogorov-Smirnov 5% Critical Value	0.214	95% BCA Bootstrap UCL	2.801
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.949
		97.5% Chebyshev(Mean, Sd) UCL	4.903
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.777
95% Approximate Gamma UCL	3.311		
95% Adjusted Gamma UCL	3.531		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	6.777

Result or 1/2 DL (aroclor-1254)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0019	Minimum of Log Data	-6.258
Maximum	0.0155	Maximum of Log Data	-4.167
Mean	0.0037	Mean of log Data	-5.839
Median	0.0021	SD of log Data	0.633
SD	0.0038		
Coefficient of Variation	1.01		
Skewness	2.557		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.541	Shapiro Wilk Test Statistic	0.674
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0053	95% H-UCL	0.0049
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0059
95% Adjusted-CLT UCL	0.0058	97.5% Chebyshev (MVUE) UCL	0.0069
95% Modified-t UCL	0.0054	99% Chebyshev (MVUE) UCL	0.0089
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.76	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0021		
nu star	63.37		
Approximate Chi Square Value (.05)	46.06	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0052

Adjusted Chi Square Value	44.64	95% Jackknife UCL	0.0053
		95% Standard Bootstrap UCL	0.0052
Anderson-Darling Test Statistic	2.954	95% Bootstrap-t UCL	0.0098
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	0.0115
Kolmogorov-Smirnov Test Statistic	0.342	95% Percentile Bootstrap UCL	0.0053
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL	0.0058
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0077
		97.5% Chebyshev(Mean, Sd) UCL	0.0094
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0127
95% Approximate Gamma UCL	0.0052		
95% Adjusted Gamma UCL	0.0053		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0077

Result or 1/2 DL (arsenic)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.34	Minimum of Log Data	-1.079
Maximum	5.69	Maximum of Log Data	1.739
Mean	2.522	Mean of log Data	0.778
Median	2.525	SD of log Data	0.654
SD	1.164		
Coefficient of Variation	0.461		
Skewness	0.663		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.904	Shapiro Wilk Test Statistic	0.773
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
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	2.999	95% H-UCL	3.82
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.546
95% Adjusted-CLT UCL	3.019	97.5% Chebyshev (MVUE) UCL	5.362
95% Modified-t UCL	3.006	99% Chebyshev (MVUE) UCL	6.966
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3	Data appear Normal at 5% Significance Level	
Theta Star	0.841		
nu star	108		
Approximate Chi Square Value (.05)	85.02	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	2.973
Adjusted Chi Square Value	83.06	95% Jackknife UCL	2.999
		95% Standard Bootstrap UCL	2.965
Anderson-Darling Test Statistic	1.238	95% Bootstrap-t UCL	3.063
Anderson-Darling 5% Critical Value	0.744	95% Hall's Bootstrap UCL	3.234
Kolmogorov-Smirnov Test Statistic	0.215	95% Percentile Bootstrap UCL	2.938

Kolmogorov-Smirnov 5% Critical Value	0.205	95% BCA Bootstrap UCL	2.979
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.718
		97.5% Chebyshev(Mean, Sd) UCL	4.235
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	5.251
95% Approximate Gamma UCL	3.204		
95% Adjusted Gamma UCL	3.28		
Potential UCL to Use		Use 95% Student's-t UCL	2.999

Result or 1/2 DL (barium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	46.1	Minimum of Log Data	3.831
Maximum	476	Maximum of Log Data	6.165
Mean	145.2	Mean of log Data	4.783
Median	114	SD of log Data	0.59
SD	115.8		
Coefficient of Variation	0.798		
Skewness	2.357		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.641	Shapiro Wilk Test Statistic	0.885
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	192.6	95% H-UCL	192.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	229.8
95% Adjusted-CLT UCL	206.3	97.5% Chebyshev (MVUE) UCL	268.4
95% Modified-t UCL	195.2	99% Chebyshev (MVUE) UCL	344.2
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.308	Data do not follow a Discernable Distribution (0.05)	
Theta Star	62.88		
nu star	83.1		
Approximate Chi Square Value (.05)	63.09	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	190.1
Adjusted Chi Square Value	61.42	95% Jackknife UCL	192.6
		95% Standard Bootstrap UCL	188.9
Anderson-Darling Test Statistic	1.375	95% Bootstrap-t UCL	291.7
Anderson-Darling 5% Critical Value	0.748	95% Hall's Bootstrap UCL	491.8
Kolmogorov-Smirnov Test Statistic	0.275	95% Percentile Bootstrap UCL	192.6
Kolmogorov-Smirnov 5% Critical Value	0.205	95% BCA Bootstrap UCL	203.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	264.2
		97.5% Chebyshev(Mean, Sd) UCL	315.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	416.8
95% Approximate Gamma UCL	191.2		

95% Adjusted Gamma UCL	196.4		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	264.2

Result or 1/2 DL (benzo(a)anthracene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.0025	Minimum of Log Data	-5.985
Maximum	1.18	Maximum of Log Data	0.166
Mean	0.0715	Mean of log Data	-4.973
Median	0.0055	SD of log Data	1.392
SD	0.277		
Coefficient of Variation	3.872		
Skewness	4.239		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.264	Shapiro Wilk Test Statistic	0.534
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.185	95% H-UCL	0.0551
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0442
95% Adjusted-CLT UCL	0.248	97.5% Chebyshev (MVUE) UCL	0.0562
95% Modified-t UCL	0.196	99% Chebyshev (MVUE) UCL	0.0797
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.284	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.252		
nu star	10.21		
Approximate Chi Square Value (.05)	4.075	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.179
Adjusted Chi Square Value	3.71	95% Jackknife UCL	0.185
		95% Standard Bootstrap UCL	0.177
Anderson-Darling Test Statistic	5.324	95% Bootstrap-t UCL	14.79
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	7.368
Kolmogorov-Smirnov Test Statistic	0.52	95% Percentile Bootstrap UCL	0.201
Kolmogorov-Smirnov 5% Critical Value	0.221	95% BCA Bootstrap UCL	0.266
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.356
		97.5% Chebyshev(Mean, Sd) UCL	0.479
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.72
95% Approximate Gamma UCL	0.179		
95% Adjusted Gamma UCL	0.197		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.72

Result or 1/2 DL (benzo(a)pyrene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18

Raw Statistics		Log-transformed Statistics	
Minimum	0.0045	Minimum of Log Data	-5.403
Maximum	1.42	Maximum of Log Data	0.351
Mean	0.114	Mean of log Data	-4.036
Median	0.0057	SD of log Data	1.734
SD	0.33		
Coefficient of Variation	2.903		
Skewness	4.073		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.36	Shapiro Wilk Test Statistic	0.746
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.249	95% H-UCL	0.405
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.209
95% Adjusted-CLT UCL	0.322	97.5% Chebyshev (MVUE) UCL	0.27
95% Modified-t UCL	0.262	99% Chebyshev (MVUE) UCL	0.391
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.337	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.338		
nu star	12.12		
Approximate Chi Square Value (.05)	5.306	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.242
Adjusted Chi Square Value	4.879	95% Jackknife UCL	0.249
		95% Standard Bootstrap UCL	0.239
Anderson-Darling Test Statistic	2.633	95% Bootstrap-t UCL	0.832
Anderson-Darling 5% Critical Value	0.83	95% Hall's Bootstrap UCL	0.709
Kolmogorov-Smirnov Test Statistic	0.345	95% Percentile Bootstrap UCL	0.264
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	0.353
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.453
		97.5% Chebyshev(Mean, Sd) UCL	0.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.888
95% Approximate Gamma UCL	0.26		
95% Adjusted Gamma UCL	0.283		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.888

Result or 1/2 DL (benzo(b)fluoranthene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17

Raw Statistics		Log-transformed Statistics	
Minimum	0.0036	Minimum of Log Data	-5.625
Maximum	1.62	Maximum of Log Data	0.482
Mean	0.146	Mean of log Data	-3.661
Median	0.0228	SD of log Data	1.923
SD	0.374		
Coefficient of Variation	2.566		
Skewness	4.004		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.398	Shapiro Wilk Test Statistic	0.858
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.299	95% H-UCL	1.165
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.436
95% Adjusted-CLT UCL	0.38	97.5% Chebyshev (MVUE) UCL	0.569
95% Modified-t UCL	0.313	99% Chebyshev (MVUE) UCL	0.829
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.355	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.411		
nu star	12.79		
Approximate Chi Square Value (.05)	5.752	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.291
Adjusted Chi Square Value	5.305	95% Jackknife UCL	0.299
		95% Standard Bootstrap UCL	0.287
Anderson-Darling Test Statistic	1.361	95% Bootstrap-t UCL	0.79
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	0.816
Kolmogorov-Smirnov Test Statistic	0.215	95% Percentile Bootstrap UCL	0.32
Kolmogorov-Smirnov 5% Critical Value	0.218	95% BCA Bootstrap UCL	0.412
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.531
		97.5% Chebyshev(Mean, Sd) UCL	0.697
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.024
95% Approximate Gamma UCL	0.324		
95% Adjusted Gamma UCL	0.352		
Potential UCL to Use		Use 95% Adjusted Gamma UCL	0.352

Result or 1/2 DL (benzo(g,h,i)perylene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	0.0051	Minimum of Log Data	-5.269
Maximum	1.28	Maximum of Log Data	0.247
Mean	0.132	Mean of log Data	-3.564
Median	0.0239	SD of log Data	1.755

SD	0.303		
Coefficient of Variation	2.288		
Skewness	3.593		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.468	Shapiro Wilk Test Statistic	0.86
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.256	95% H-UCL	0.698
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.349
95% Adjusted-CLT UCL	0.314	97.5% Chebyshev (MVUE) UCL	0.452
95% Modified-t UCL	0.267	99% Chebyshev (MVUE) UCL	0.654
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.39	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.34		
nu star	14.03		
Approximate Chi Square Value (.05)	6.589	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.25
Adjusted Chi Square Value	6.105	95% Jackknife UCL	0.256
		95% Standard Bootstrap UCL	0.241
Anderson-Darling Test Statistic	1.426	95% Bootstrap-t UCL	0.568
Anderson-Darling 5% Critical Value	0.816	95% Hall's Bootstrap UCL	0.625
Kolmogorov-Smirnov Test Statistic	0.237	95% Percentile Bootstrap UCL	0.258
Kolmogorov-Smirnov 5% Critical Value	0.217	95% BCA Bootstrap UCL	0.346
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.443
		97.5% Chebyshev(Mean, Sd) UCL	0.578
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.842
95% Approximate Gamma UCL	0.282		
95% Adjusted Gamma UCL	0.304		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.842

Result or 1/2 DL (benzo(k)fluoranthene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	15

Raw Statistics		Log-transformed Statistics	
Minimum	0.0055	Minimum of Log Data	-5.203
Maximum	0.799	Maximum of Log Data	-0.224
Mean	0.0689	Mean of log Data	-4.071
Median	0.0087	SD of log Data	1.38
SD	0.186		
Coefficient of Variation	2.698		
Skewness	3.985		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.374	Shapiro Wilk Test Statistic	0.711
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.145	95% H-UCL	0.132
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.107
95% Adjusted-CLT UCL	0.185	97.5% Chebyshev (MVUE) UCL	0.136
95% Modified-t UCL	0.152	99% Chebyshev (MVUE) UCL	0.192
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.421	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.164		
nu star	15.17		
Approximate Chi Square Value (.05)	7.377	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.141
Adjusted Chi Square Value	6.86	95% Jackknife UCL	0.145
		95% Standard Bootstrap UCL	0.138
Anderson-Darling Test Statistic	3.135	95% Bootstrap-t UCL	0.537
Anderson-Darling 5% Critical Value	0.808	95% Hall's Bootstrap UCL	0.407
Kolmogorov-Smirnov Test Statistic	0.418	95% Percentile Bootstrap UCL	0.152
Kolmogorov-Smirnov 5% Critical Value	0.216	95% BCA Bootstrap UCL	0.201
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.26
		97.5% Chebyshev(Mean, Sd) UCL	0.342
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.505
95% Approximate Gamma UCL	0.142		
95% Adjusted Gamma UCL	0.152		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.505

Result or 1/2 DL (beryllium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.013	Minimum of Log Data	-4.343
Maximum	2.88	Maximum of Log Data	1.058
Mean	0.708	Mean of log Data	-0.74
Median	0.645	SD of log Data	1.172
SD	0.604		
Coefficient of Variation	0.854		
Skewness	2.849		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.673	Shapiro Wilk Test Statistic	0.749
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.956	95% H-UCL	2.17
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.115
95% Adjusted-CLT UCL	1.044	97.5% Chebyshev (MVUE) UCL	2.644
95% Modified-t UCL	0.972	99% Chebyshev (MVUE) UCL	3.682
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.213	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.584		
nu star	43.65		
Approximate Chi Square Value (.05)	29.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.942
Adjusted Chi Square Value	28.39	95% Jackknife UCL	0.956
		95% Standard Bootstrap UCL	0.937
Anderson-Darling Test Statistic	1.404	95% Bootstrap-t UCL	1.129
Anderson-Darling 5% Critical Value	0.758	95% Hall's Bootstrap UCL	2.056
Kolmogorov-Smirnov Test Statistic	0.251	95% Percentile Bootstrap UCL	0.954
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	1.031
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.329
		97.5% Chebyshev(Mean, Sd) UCL	1.597
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.125
95% Approximate Gamma UCL	1.047		
95% Adjusted Gamma UCL	1.088		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	2.125

Result or 1/2 DL (bis(2-ethylhexyl)phthalate)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	0.0122	Minimum of Log Data	-4.406
Maximum	0.239	Maximum of Log Data	-1.431
Mean	0.0462	Mean of log Data	-3.333
Median	0.0302	SD of log Data	0.638
SD	0.0502		
Coefficient of Variation	1.087		
Skewness	3.679		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.51	Shapiro Wilk Test Statistic	0.875
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0668	95% H-UCL	0.0612
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.073
95% Adjusted-CLT UCL	0.0766	97.5% Chebyshev (MVUE) UCL	0.0859
95% Modified-t UCL	0.0685	99% Chebyshev (MVUE) UCL	0.111

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.78	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0259		
nu star	64.09		
Approximate Chi Square Value (.05)	46.67	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0657
Adjusted Chi Square Value	45.25	95% Jackknife UCL	0.0668
		95% Standard Bootstrap UCL	0.0646
Anderson-Darling Test Statistic	1.396	95% Bootstrap-t UCL	0.104
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	0.139
Kolmogorov-Smirnov Test Statistic	0.211	95% Percentile Bootstrap UCL	0.0682
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL	0.0799
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0978
		97.5% Chebyshev(Mean, Sd) UCL	0.12
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.164
95% Approximate Gamma UCL	0.0634		
95% Adjusted Gamma UCL	0.0654		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0978

Result or 1/2 DL (boron)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	0.555	Minimum of Log Data	-0.589
Maximum	39.2	Maximum of Log Data	3.669
Mean	8.028	Mean of log Data	1.381
Median	5.12	SD of log Data	1.371
SD	9.477		
Coefficient of Variation	1.18		
Skewness	2.32		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.742	Shapiro Wilk Test Statistic	0.888
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	11.91	95% H-UCL	29.94
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	24.56
95% Adjusted-CLT UCL	13.01	97.5% Chebyshev (MVUE) UCL	31.16
95% Modified-t UCL	12.12	99% Chebyshev (MVUE) UCL	44.12
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.738	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	10.88		
nu star	26.55		

Approximate Chi Square Value (.05)	15.81	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	11.7
Adjusted Chi Square Value	15.01	95% Jackknife UCL	11.91
		95% Standard Bootstrap UCL	11.67
Anderson-Darling Test Statistic	0.516	95% Bootstrap-t UCL	15.02
Anderson-Darling 5% Critical Value	0.774	95% Hall's Bootstrap UCL	27.35
Kolmogorov-Smirnov Test Statistic	0.174	95% Percentile Bootstrap UCL	12.15
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	13.52
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	17.76
		97.5% Chebyshev(Mean, Sd) UCL	21.98
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	30.25
95% Approximate Gamma UCL	13.49		
95% Adjusted Gamma UCL	14.2		
Potential UCL to Use		Use 95% Approximate Gamma UCL	13.49

Result or 1/2 DL (butyl benzyl phthalate)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0045	Minimum of Log Data	-5.389
Maximum	0.151	Maximum of Log Data	-1.89
Mean	0.016	Mean of log Data	-4.8
Median	0.0067	SD of log Data	0.851
SD	0.0344		
Coefficient of Variation	2.146		
Skewness	3.972		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.344	Shapiro Wilk Test Statistic	0.543
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0302	95% H-UCL	0.0196
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0225
95% Adjusted-CLT UCL	0.0375	97.5% Chebyshev (MVUE) UCL	0.0272
95% Modified-t UCL	0.0314	99% Chebyshev (MVUE) UCL	0.0365
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.769	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0209		
nu star	27.67		
Approximate Chi Square Value (.05)	16.67	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0294
Adjusted Chi Square Value	15.85	95% Jackknife UCL	0.0302
		95% Standard Bootstrap UCL	0.0295
Anderson-Darling Test Statistic	4.475	95% Bootstrap-t UCL	0.385

Anderson-Darling 5% Critical Value	0.772	95% Hall's Bootstrap UCL	0.242
Kolmogorov-Smirnov Test Statistic	0.5	95% Percentile Bootstrap UCL	0.0308
Kolmogorov-Smirnov 5% Critical Value	0.21	95% BCA Bootstrap UCL	0.0403
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0514
		97.5% Chebyshev(Mean, Sd) UCL	0.0667
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0968
95% Approximate Gamma UCL	0.0266		
95% Adjusted Gamma UCL	0.028		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0514

Result or 1/2 DL (cadmium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	13
Raw Statistics		Log-transformed Statistics	
Minimum	0.003	Minimum of Log Data	-5.809
Maximum	0.8	Maximum of Log Data	-0.223
Mean	0.207	Mean of log Data	-3.089
Median	0.0135	SD of log Data	2.132
SD	0.252		
Coefficient of Variation	1.218		
Skewness	0.938		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.811
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.31	95% H-UCL	4.758
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.167
95% Adjusted-CLT UCL	0.319	97.5% Chebyshev (MVUE) UCL	1.534
95% Modified-t UCL	0.313	99% Chebyshev (MVUE) UCL	2.253
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.395	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.524		
nu star	14.22		
Approximate Chi Square Value (.05)	6.721	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.305
Adjusted Chi Square Value	6.231	95% Jackknife UCL	0.31
		95% Standard Bootstrap UCL	0.3
Anderson-Darling Test Statistic	1.701	95% Bootstrap-t UCL	0.33
Anderson-Darling 5% Critical Value	0.815	95% Hall's Bootstrap UCL	0.319
Kolmogorov-Smirnov Test Statistic	0.293	95% Percentile Bootstrap UCL	0.303
Kolmogorov-Smirnov 5% Critical Value	0.217	95% BCA Bootstrap UCL	0.312
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.466
		97.5% Chebyshev(Mean, Sd) UCL	0.578

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.799
95% Approximate Gamma UCL	0.438		
95% Adjusted Gamma UCL	0.473		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.799

Result or 1/2 DL (carbazole)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.0048	Minimum of Log Data	-5.334
Maximum	0.128	Maximum of Log Data	-2.056
Mean	0.0153	Mean of log Data	-4.778
Median	0.0055	SD of log Data	0.879
SD	0.0289		
Coefficient of Variation	1.885		
Skewness	3.888		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.401	Shapiro Wilk Test Statistic	0.656
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0272	95% H-UCL	0.021
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0239
95% Adjusted-CLT UCL	0.0332	97.5% Chebyshev (MVUE) UCL	0.029
95% Modified-t UCL	0.0282	99% Chebyshev (MVUE) UCL	0.0391
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.841	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0182		
nu star	30.27		
Approximate Chi Square Value (.05)	18.71	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0265
Adjusted Chi Square Value	17.84	95% Jackknife UCL	0.0272
		95% Standard Bootstrap UCL	0.0262
Anderson-Darling Test Statistic	3.213	95% Bootstrap-t UCL	0.0712
Anderson-Darling 5% Critical Value	0.768	95% Hall's Bootstrap UCL	0.0646
Kolmogorov-Smirnov Test Statistic	0.404	95% Percentile Bootstrap UCL	0.0278
Kolmogorov-Smirnov 5% Critical Value	0.21	95% BCA Bootstrap UCL	0.0357
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.045
		97.5% Chebyshev(Mean, Sd) UCL	0.0579
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0831
95% Approximate Gamma UCL	0.0248		
95% Adjusted Gamma UCL	0.026		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.045

Result or 1/2 DL (chromium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18

Raw Statistics		Log-transformed Statistics	
Minimum	7.9	Minimum of Log Data	2.067
Maximum	128	Maximum of Log Data	4.852
Mean	20.26	Mean of log Data	2.683
Median	11.6	SD of log Data	0.658
SD	27.58		
Coefficient of Variation	1.361		
Skewness	3.912		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.425	Shapiro Wilk Test Statistic	0.74
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	31.56	95% H-UCL	25.79
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	30.69
95% Adjusted-CLT UCL	37.35	97.5% Chebyshev (MVUE) UCL	36.22
95% Modified-t UCL	32.56	99% Chebyshev (MVUE) UCL	47.08
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.441	Data do not follow a Discernable Distribution (0.05)	
Theta Star	14.06		
nu star	51.88		
Approximate Chi Square Value (.05)	36.34	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	30.95
Adjusted Chi Square Value	35.09	95% Jackknife UCL	31.56
		95% Standard Bootstrap UCL	30.82
Anderson-Darling Test Statistic	2.456	95% Bootstrap-t UCL	67.02
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	67.3
Kolmogorov-Smirnov Test Statistic	0.331	95% Percentile Bootstrap UCL	32.34
Kolmogorov-Smirnov 5% Critical Value	0.207	95% BCA Bootstrap UCL	39.83
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	48.59
		97.5% Chebyshev(Mean, Sd) UCL	60.85
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	84.93
95% Approximate Gamma UCL	28.92		
95% Adjusted Gamma UCL	29.95		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	48.59

Result or 1/2 DL (chrysene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0045	Minimum of Log Data	-5.392
Maximum	1.3	Maximum of Log Data	0.262
Mean	0.102	Mean of log Data	-4.114
Median	0.0051	SD of log Data	1.687
SD	0.302		
Coefficient of Variation	2.951		
Skewness	4.085		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.354	Shapiro Wilk Test Statistic	0.77
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.226	95% H-UCL	0.319
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.177
95% Adjusted-CLT UCL	0.293	97.5% Chebyshev (MVUE) UCL	0.229
95% Modified-t UCL	0.238	99% Chebyshev (MVUE) UCL	0.33
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.34	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.301		
nu star	12.25		
Approximate Chi Square Value (.05)	5.394	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.22
Adjusted Chi Square Value	4.962	95% Jackknife UCL	0.226
		95% Standard Bootstrap UCL	0.215
Anderson-Darling Test Statistic	2.54	95% Bootstrap-t UCL	0.797
Anderson-Darling 5% Critical Value	0.829	95% Hall's Bootstrap UCL	0.622
Kolmogorov-Smirnov Test Statistic	0.295	95% Percentile Bootstrap UCL	0.242
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	0.324
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.413
		97.5% Chebyshev(Mean, Sd) UCL	0.548
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.812
95% Approximate Gamma UCL	0.233		
95% Adjusted Gamma UCL	0.253		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.812

Result or 1/2 DL (cobalt)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	2.81	Minimum of Log Data	1.033
Maximum	7.87	Maximum of Log Data	2.063

Mean	5.789	Mean of log Data	1.718
Median	5.84	SD of log Data	0.299
SD	1.506		
Coefficient of Variation	0.26		
Skewness	-0.505		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.937	Shapiro Wilk Test Statistic	0.876
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
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	6.406	95% H-UCL	6.668
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.623
95% Adjusted-CLT UCL	6.328	97.5% Chebyshev (MVUE) UCL	8.407
95% Modified-t UCL	6.399	99% Chebyshev (MVUE) UCL	9.946
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	11.08	Data appear Normal at 5% Significance Level	
Theta Star	0.522		
nu star	399		
Approximate Chi Square Value (.05)	353.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	6.373
Adjusted Chi Square Value	349.6	95% Jackknife UCL	6.406
		95% Standard Bootstrap UCL	6.355
Anderson-Darling Test Statistic	0.559	95% Bootstrap-t UCL	6.36
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL	6.317
Kolmogorov-Smirnov Test Statistic	0.143	95% Percentile Bootstrap UCL	6.351
Kolmogorov-Smirnov 5% Critical Value	0.203	95% BCA Bootstrap UCL	6.292
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.336
		97.5% Chebyshev(Mean, Sd) UCL	8.006
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.321
95% Approximate Gamma UCL	6.53		
95% Adjusted Gamma UCL	6.607		
Potential UCL to Use		Use 95% Student's-t UCL	6.406

Result or 1/2 DL (copper)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	17

Raw Statistics		Log-transformed Statistics	
Minimum	5.9	Minimum of Log Data	1.775
Maximum	200	Maximum of Log Data	5.298
Mean	24.13	Mean of log Data	2.621
Median	9.895	SD of log Data	0.865
SD	44.66		
Coefficient of Variation	1.851		
Skewness	4.008		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.401	Shapiro Wilk Test Statistic	0.799
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	42.44	95% H-UCL	33.52
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	38.28
95% Adjusted-CLT UCL	52.07	97.5% Chebyshev (MVUE) UCL	46.43
95% Modified-t UCL	44.1	99% Chebyshev (MVUE) UCL	62.43
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.889	Data do not follow a Discernable Distribution (0.05)	
Theta Star	27.13		
nu star	32.02		
Approximate Chi Square Value (.05)	20.09	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	41.44
Adjusted Chi Square Value	19.18	95% Jackknife UCL	42.44
		95% Standard Bootstrap UCL	41.19
Anderson-Darling Test Statistic	2.14	95% Bootstrap-t UCL	104.9
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	104
Kolmogorov-Smirnov Test Statistic	0.271	95% Percentile Bootstrap UCL	44.28
Kolmogorov-Smirnov 5% Critical Value	0.209	95% BCA Bootstrap UCL	55.66
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	70.01
		97.5% Chebyshev(Mean, Sd) UCL	89.86
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	128.9
95% Approximate Gamma UCL	38.46		
95% Adjusted Gamma UCL	40.28		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	70.01

Result or 1/2 DL (dibenz(a,h)anthracene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.0034	Minimum of Log Data	-5.674
Maximum	0.404	Maximum of Log Data	-0.906
Mean	0.0471	Mean of log Data	-4.462
Median	0.0054	SD of log Data	1.498
SD	0.101		
Coefficient of Variation	2.145		
Skewness	3.017		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.501	Shapiro Wilk Test Statistic	0.7
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0885	95% H-UCL	0.125
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0889
95% Adjusted-CLT UCL	0.104	97.5% Chebyshev (MVUE) UCL	0.114
95% Modified-t UCL	0.0913	99% Chebyshev (MVUE) UCL	0.162
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.419	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.112		
nu star	15.07		
Approximate Chi Square Value (.05)	7.313	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0862
Adjusted Chi Square Value	6.798	95% Jackknife UCL	0.0885
		95% Standard Bootstrap UCL	0.0843
Anderson-Darling Test Statistic	3.091	95% Bootstrap-t UCL	0.148
Anderson-Darling 5% Critical Value	0.809	95% Hall's Bootstrap UCL	0.18
Kolmogorov-Smirnov Test Statistic	0.429	95% Percentile Bootstrap UCL	0.088
Kolmogorov-Smirnov 5% Critical Value	0.216	95% BCA Bootstrap UCL	0.105
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.151
		97.5% Chebyshev(Mean, Sd) UCL	0.196
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.284
95% Approximate Gamma UCL	0.0971		
95% Adjusted Gamma UCL	0.104		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.284

Result or 1/2 DL (dibenzofuran)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.0030	Minimum of Log Data	-5.799
Maximum	0.0862	Maximum of Log Data	-2.451
Mean	0.0129	Mean of log Data	-4.835
Median	0.0075	SD of log Data	0.834
SD	0.0201		
Coefficient of Variation	1.556		
Skewness	3.331		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.449	Shapiro Wilk Test Statistic	0.726
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0212	95% H-UCL	0.0183
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0212

95% Adjusted-CLT UCL	0.0247	97.5% Chebyshev (MVUE) UCL	0.0256
95% Modified-t UCL	0.0218	99% Chebyshev (MVUE) UCL	0.0342
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.006	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0129		
nu star	36.23		
Approximate Chi Square Value (.05)	23.45	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0207
Adjusted Chi Square Value	22.47	95% Jackknife UCL	0.0212
		95% Standard Bootstrap UCL	0.0206
Anderson-Darling Test Statistic	3.039	95% Bootstrap-t UCL	0.0773
Anderson-Darling 5% Critical Value	0.763	95% Hall's Bootstrap UCL	0.0886
Kolmogorov-Smirnov Test Statistic	0.443	95% Percentile Bootstrap UCL	0.0213
Kolmogorov-Smirnov 5% Critical Value	0.209	95% BCA Bootstrap UCL	0.0258
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0336
		97.5% Chebyshev(Mean, Sd) UCL	0.0426
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0602
95% Approximate Gamma UCL	0.02		
95% Adjusted Gamma UCL	0.0209		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0336

Result or 1/2 DL (dieldrin)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	8.2500E-5	Minimum of Log Data	-9.403
Maximum	0.0054	Maximum of Log Data	-5.212
Mean	4.8661E-4	Mean of log Data	-8.757
Median	9.1250E-5	SD of log Data	1.152
SD	0.0012		
Coefficient of Variation	2.608		
Skewness	3.946		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.362	Shapiro Wilk Test Statistic	0.621
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0010	95% H-UCL	6.8487E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.7672E-4
95% Adjusted-CLT UCL	0.0012	97.5% Chebyshev (MVUE) UCL	8.4448E-4
95% Modified-t UCL	0.0010	99% Chebyshev (MVUE) UCL	0.0011
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.499	Data do not follow a Discernable Distribution (0.05)	

Theta Star	9.7586E-4		
nu star	17.95		
Approximate Chi Square Value (.05)	9.356	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	9.7856E-4
Adjusted Chi Square Value	8.764	95% Jackknife UCL	0.0010
		95% Standard Bootstrap UCL	9.7408E-4
Anderson-Darling Test Statistic	3.815	95% Bootstrap-t UCL	0.0056
Anderson-Darling 5% Critical Value	0.795	95% Hall's Bootstrap UCL	0.0043
Kolmogorov-Smirnov Test Statistic	0.405	95% Percentile Bootstrap UCL	0.0010
Kolmogorov-Smirnov 5% Critical Value	0.214	95% BCA Bootstrap UCL	0.0013
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0017
		97.5% Chebyshev(Mean, Sd) UCL	0.0023
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0034
95% Approximate Gamma UCL	9.3369E-4		
95% Adjusted Gamma UCL	9.9676E-4		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0034

Result or 1/2 DL (diethyl phthalate)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0037	Minimum of Log Data	-5.578
Maximum	0.0498	Maximum of Log Data	-3
Mean	0.0113	Mean of log Data	-4.651
Median	0.0093	SD of log Data	0.521
SD	0.0098		
Coefficient of Variation	0.874		
Skewness	3.836		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.447	Shapiro Wilk Test Statistic	0.715
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0154	95% H-UCL	0.0142
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0169
95% Adjusted-CLT UCL	0.0174	97.5% Chebyshev (MVUE) UCL	0.0195
95% Modified-t UCL	0.0157	99% Chebyshev (MVUE) UCL	0.0246
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.625	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0043		
nu star	94.5		
Approximate Chi Square Value (.05)	73.08	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0151
Adjusted Chi Square Value	71.27	95% Jackknife UCL	0.0154

		95% Standard Bootstrap UCL	0.0151
Anderson-Darling Test Statistic	2.778	95% Bootstrap-t UCL	0.0257
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	0.0367
Kolmogorov-Smirnov Test Statistic	0.352	95% Percentile Bootstrap UCL	0.0158
Kolmogorov-Smirnov 5% Critical Value	0.205	95% BCA Bootstrap UCL	0.018
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0215
		97.5% Chebyshev(Mean, Sd) UCL	0.0259
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0345
95% Approximate Gamma UCL	0.0146		
95% Adjusted Gamma UCL	0.015		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0215

Result or 1/2 DL (di-n-butyl phthalate)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0039	Minimum of Log Data	-5.525
Maximum	0.0835	Maximum of Log Data	-2.483
Mean	0.0179	Mean of log Data	-4.275
Median	0.0155	SD of log Data	0.702
SD	0.0173		
Coefficient of Variation	0.966		
Skewness	3.497		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.528	Shapiro Wilk Test Statistic	0.807
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.025	95% H-UCL	0.0261
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0309
95% Adjusted-CLT UCL	0.0282	97.5% Chebyshev (MVUE) UCL	0.0367
95% Modified-t UCL	0.0256	99% Chebyshev (MVUE) UCL	0.0481
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.805	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0099		
nu star	65		
Approximate Chi Square Value (.05)	47.45	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0246
Adjusted Chi Square Value	46.01	95% Jackknife UCL	0.025
		95% Standard Bootstrap UCL	0.0245
Anderson-Darling Test Statistic	1.882	95% Bootstrap-t UCL	0.0357
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	0.0579
Kolmogorov-Smirnov Test Statistic	0.305	95% Percentile Bootstrap UCL	0.0254
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL	0.0302

Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0357
		97.5% Chebyshev(Mean, Sd) UCL	0.0434
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0585
95% Approximate Gamma UCL	0.0246		
95% Adjusted Gamma UCL	0.0253		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0357

Result or 1/2 DL (di-n-octyl phthalate)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	0.0042	Minimum of Log Data	-5.463
Maximum	0.123	Maximum of Log Data	-2.096
Mean	0.0144	Mean of log Data	-4.844
Median	0.0047	SD of log Data	0.879
SD	0.0276		
Coefficient of Variation	1.926		
Skewness	3.985		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.391	Shapiro Wilk Test Statistic	0.708
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0257	95% H-UCL	0.0197
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0224
95% Adjusted-CLT UCL	0.0316	97.5% Chebyshev (MVUE) UCL	0.0272
95% Modified-t UCL	0.0267	99% Chebyshev (MVUE) UCL	0.0366
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.842	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0171		
nu star	30.3		
Approximate Chi Square Value (.05)	18.73	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0251
Adjusted Chi Square Value	17.86	95% Jackknife UCL	0.0257
		95% Standard Bootstrap UCL	0.0253
Anderson-Darling Test Statistic	2.764	95% Bootstrap-t UCL	0.075
Anderson-Darling 5% Critical Value	0.768	95% Hall's Bootstrap UCL	0.0654
Kolmogorov-Smirnov Test Statistic	0.319	95% Percentile Bootstrap UCL	0.0273
Kolmogorov-Smirnov 5% Critical Value	0.21	95% BCA Bootstrap UCL	0.0341
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0428
		97.5% Chebyshev(Mean, Sd) UCL	0.0551
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0792
95% Approximate Gamma UCL	0.0232		
95% Adjusted Gamma UCL	0.0244		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0428

Result or 1/2 DL (endrin)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.0000E-4	Minimum of Log Data	-9.21
Maximum	0.0014	Maximum of Log Data	-6.509
Mean	3.0408E-4	Mean of log Data	-8.649
Median	1.1075E-4	SD of log Data	0.908
SD	4.4300E-4		
Coefficient of Variation	1.457		
Skewness	2.426		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.511	Shapiro Wilk Test Statistic	0.646
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.8573E-4	95% H-UCL	4.6104E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.1891E-4
95% Adjusted-CLT UCL	5.3964E-4	97.5% Chebyshev (MVUE) UCL	6.3236E-4
95% Modified-t UCL	4.9568E-4	99% Chebyshev (MVUE) UCL	8.5520E-4
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.906	Data do not follow a Discernable Distribution (0.05)	
Theta Star	3.3553E-4		
nu star	32.63		
Approximate Chi Square Value (.05)	20.57	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	4.7583E-4
Adjusted Chi Square Value	19.65	95% Jackknife UCL	4.8573E-4
		95% Standard Bootstrap UCL	4.7115E-4
Anderson-Darling Test Statistic	3.335	95% Bootstrap-t UCL	9.7138E-4
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	0.0011
Kolmogorov-Smirnov Test Statistic	0.413	95% Percentile Bootstrap UCL	4.9036E-4
Kolmogorov-Smirnov 5% Critical Value	0.209	95% BCA Bootstrap UCL	5.6164E-4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.5922E-4
		97.5% Chebyshev(Mean, Sd) UCL	9.5616E-4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0013
95% Approximate Gamma UCL	4.8233E-4		
95% Adjusted Gamma UCL	5.0484E-4		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	7.5922E-4

Result or 1/2 DL (endrin aldehyde)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	1.9750E-4	Minimum of Log Data	-8.53
Maximum	0.0016	Maximum of Log Data	-6.413
Mean	3.3575E-4	Mean of log Data	-8.206
Median	2.1825E-4	SD of log Data	0.538
SD	3.4111E-4		
Coefficient of Variation	1.016		
Skewness	3.689		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.442	Shapiro Wilk Test Statistic	0.628
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.7561E-4	95% H-UCL	4.1301E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.9211E-4
95% Adjusted-CLT UCL	5.4269E-4	97.5% Chebyshev (MVUE) UCL	5.6981E-4
95% Modified-t UCL	4.8726E-4	99% Chebyshev (MVUE) UCL	7.2243E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.175	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.5434E-4		
nu star	78.31		
Approximate Chi Square Value (.05)	58.93	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	4.6800E-4
Adjusted Chi Square Value	57.31	95% Jackknife UCL	4.7561E-4
		95% Standard Bootstrap UCL	4.6765E-4
Anderson-Darling Test Statistic	3.127	95% Bootstrap-t UCL	9.5486E-4
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	9.2712E-4
Kolmogorov-Smirnov Test Statistic	0.361	95% Percentile Bootstrap UCL	4.8614E-4
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL	5.9244E-4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.8620E-4
		97.5% Chebyshev(Mean, Sd) UCL	8.3784E-4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0011
95% Approximate Gamma UCL	4.4622E-4		
95% Adjusted Gamma UCL	4.5878E-4		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	6.8620E-4

Result or 1/2 DL (endrin ketone)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18

Raw Statistics		Log-transformed Statistics	

Minimum	2.4750E-4	Minimum of Log Data	-8.304
Maximum	0.0096	Maximum of Log Data	-4.64
Mean	8.7406E-4	Mean of log Data	-7.889
Median	2.7375E-4	SD of log Data	0.918
SD	0.0022		
Coefficient of Variation	2.531		
Skewness	4.128		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.312	Shapiro Wilk Test Statistic	0.485
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0017	95% H-UCL	0.001
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0011
95% Adjusted-CLT UCL	0.0022	97.5% Chebyshev (MVUE) UCL	0.0013
95% Modified-t UCL	0.0018	99% Chebyshev (MVUE) UCL	0.0018
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.631	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0013		
nu star	22.7		
Approximate Chi Square Value (.05)	12.87	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0017
Adjusted Chi Square Value	12.16	95% Jackknife UCL	0.0017
		95% Standard Bootstrap UCL	0.0017
Anderson-Darling Test Statistic	4.879	95% Bootstrap-t UCL	0.0203
Anderson-Darling 5% Critical Value	0.781	95% Hall's Bootstrap UCL	0.0194
Kolmogorov-Smirnov Test Statistic	0.476	95% Percentile Bootstrap UCL	0.0018
Kolmogorov-Smirnov 5% Critical Value	0.212	95% BCA Bootstrap UCL	0.0028
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0031
		97.5% Chebyshev(Mean, Sd) UCL	0.0041
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0060
95% Approximate Gamma UCL	0.0015		
95% Adjusted Gamma UCL	0.0016		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0031

Result or 1/2 DL (fluoranthene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	0.0033	Minimum of Log Data	-5.69
Maximum	2.19	Maximum of Log Data	0.784
Mean	0.159	Mean of log Data	-3.978
Median	0.0064	SD of log Data	1.767
SD	0.511		

Coefficient of Variation	3.208		
Skewness	4.123		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.334	Shapiro Wilk Test Statistic	0.777
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.369	95% H-UCL	0.481
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.236
95% Adjusted-CLT UCL	0.483	97.5% Chebyshev (MVUE) UCL	0.305
95% Modified-t UCL	0.389	99% Chebyshev (MVUE) UCL	0.443
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.303	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.526		
nu star	10.9		
Approximate Chi Square Value (.05)	4.51	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.358
Adjusted Chi Square Value	4.122	95% Jackknife UCL	0.369
		95% Standard Bootstrap UCL	0.357
Anderson-Darling Test Statistic	2.855	95% Bootstrap-t UCL	1.743
Anderson-Darling 5% Critical Value	0.838	95% Hall's Bootstrap UCL	1.443
Kolmogorov-Smirnov Test Statistic	0.332	95% Percentile Bootstrap UCL	0.392
Kolmogorov-Smirnov 5% Critical Value	0.22	95% BCA Bootstrap UCL	0.53
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.685
		97.5% Chebyshev(Mean, Sd) UCL	0.912
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.358
95% Approximate Gamma UCL	0.385		
95% Adjusted Gamma UCL	0.421		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.358

Result or 1/2 DL (fluorene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	0.0034	Minimum of Log Data	-5.671
Maximum	0.141	Maximum of Log Data	-1.959
Mean	0.0163	Mean of log Data	-4.835
Median	0.0054	SD of log Data	0.973
SD	0.0324		
Coefficient of Variation	1.986		
Skewness	3.744		

Relevant UCL Statistics

Normal Distribution Test	Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.419	Shapiro Wilk Test Statistic	0.679
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0296	95% H-UCL	0.0236
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0259
95% Adjusted-CLT UCL	0.0361	97.5% Chebyshev (MVUE) UCL	0.0318
95% Modified-t UCL	0.0307	99% Chebyshev (MVUE) UCL	0.0433
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.722	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0226		
nu star	25.98		
Approximate Chi Square Value (.05)	15.36	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0289
Adjusted Chi Square Value	14.58	95% Jackknife UCL	0.0296
		95% Standard Bootstrap UCL	0.0283
Anderson-Darling Test Statistic	3.308	95% Bootstrap-t UCL	0.0734
Anderson-Darling 5% Critical Value	0.775	95% Hall's Bootstrap UCL	0.0694
Kolmogorov-Smirnov Test Statistic	0.441	95% Percentile Bootstrap UCL	0.0303
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	0.0394
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0496
		97.5% Chebyshev(Mean, Sd) UCL	0.064
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0923
95% Approximate Gamma UCL	0.0276		
95% Adjusted Gamma UCL	0.0291		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0496

Result or 1/2 DL (indeno(1,2,3-cd)pyrene)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	0.0082	Minimum of Log Data	-4.798
Maximum	1.51	Maximum of Log Data	0.412
Mean	0.151	Mean of log Data	-3.227
Median	0.0338	SD of log Data	1.61
SD	0.349		
Coefficient of Variation	2.305		
Skewness	3.88		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.433	Shapiro Wilk Test Statistic	0.849
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

95% Student's-t UCL	0.294	95% H-UCL	0.604
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.373
95% Adjusted-CLT UCL	0.367	97.5% Chebyshev (MVUE) UCL	0.48
95% Modified-t UCL	0.307	99% Chebyshev (MVUE) UCL	0.691
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.435	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.347		
nu star	15.68		
Approximate Chi Square Value (.05)	7.735	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.286
Adjusted Chi Square Value	7.204	95% Jackknife UCL	0.294
		95% Standard Bootstrap UCL	0.283
Anderson-Darling Test Statistic	1.422	95% Bootstrap-t UCL	0.715
Anderson-Darling 5% Critical Value	0.805	95% Hall's Bootstrap UCL	0.755
Kolmogorov-Smirnov Test Statistic	0.238	95% Percentile Bootstrap UCL	0.31
Kolmogorov-Smirnov 5% Critical Value	0.216	95% BCA Bootstrap UCL	0.406
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.509
		97.5% Chebyshev(Mean, Sd) UCL	0.664
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.969
95% Approximate Gamma UCL	0.306		
95% Adjusted Gamma UCL	0.329		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.969

Result or 1/2 DL (iron)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	8450	Minimum of Log Data	9.042
Maximum	102000	Maximum of Log Data	11.53
Mean	19477	Mean of log Data	9.653
Median	14700	SD of log Data	0.564
SD	21073		
Coefficient of Variation	1.082		
Skewness	3.929		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.446	Shapiro Wilk Test Statistic	0.786
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	28117	95% H-UCL	24305
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28989
95% Adjusted-CLT UCL	32561	97.5% Chebyshev (MVUE) UCL	33713
95% Modified-t UCL	28884	99% Chebyshev (MVUE) UCL	42995

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.024	Data do not follow a Discernable Distribution (0.05)	
Theta Star	9622		
nu star	72.87		
Approximate Chi Square Value (.05)	54.22	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	27646
Adjusted Chi Square Value	52.67	95% Jackknife UCL	28117
		95% Standard Bootstrap UCL	27363
Anderson-Darling Test Statistic	1.88	95% Bootstrap-t UCL	50030
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	59925
Kolmogorov-Smirnov Test Statistic	0.266	95% Percentile Bootstrap UCL	29158
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL	34109
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	41127
		97.5% Chebyshev(Mean, Sd) UCL	50495
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	68897
95% Approximate Gamma UCL	26179		
95% Adjusted Gamma UCL	26946		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	41127

Result or 1/2 DL (lead)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	16
Raw Statistics		Log-transformed Statistics	
Minimum	8.22	Minimum of Log Data	2.107
Maximum	471	Maximum of Log Data	6.155
Mean	57.7	Mean of log Data	3.182
Median	17.1	SD of log Data	1.161
SD	111.1		
Coefficient of Variation	1.926		
Skewness	3.403		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.491	Shapiro Wilk Test Statistic	0.821
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	103.3	95% H-UCL	107
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	105.1
95% Adjusted-CLT UCL	123.2	97.5% Chebyshev (MVUE) UCL	131.2
95% Modified-t UCL	106.8	99% Chebyshev (MVUE) UCL	182.5
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.615	Data do not follow a Discernable Distribution (0.05)	
Theta Star	93.85		
nu star	22.13		
Approximate Chi Square Value (.05)	12.44	Nonparametric Statistics	

Adjusted Level of Significance	0.0357	95% CLT UCL	100.8
Adjusted Chi Square Value	11.74	95% Jackknife UCL	103.3
		95% Standard Bootstrap UCL	99.39
Anderson-Darling Test Statistic	2.108	95% Bootstrap-t UCL	197
Anderson-Darling 5% Critical Value	0.783	95% Hall's Bootstrap UCL	232.9
Kolmogorov-Smirnov Test Statistic	0.352	95% Percentile Bootstrap UCL	105.7
Kolmogorov-Smirnov 5% Critical Value	0.212	95% BCA Bootstrap UCL	130.8
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	171.9
		97.5% Chebyshev(Mean, Sd) UCL	221.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	318.3
95% Approximate Gamma UCL	102.7		
95% Adjusted Gamma UCL	108.7		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	318.3

Result or 1/2 DL (lithium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	2.59	Minimum of Log Data	0.952
Maximum	26.6	Maximum of Log Data	3.281
Mean	16.57	Mean of log Data	2.729
Median	16.15	SD of log Data	0.49
SD	5.136		
Coefficient of Variation	0.31		
Skewness	-0.697		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.93	Shapiro Wilk Test Statistic	0.671
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
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	18.68	95% H-UCL	21.97
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	26.08
95% Adjusted-CLT UCL	18.35	97.5% Chebyshev (MVUE) UCL	29.95
95% Modified-t UCL	18.64	99% Chebyshev (MVUE) UCL	37.54
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.486	Data appear Normal at 5% Significance Level	
Theta Star	3.021		
nu star	197.5		
Approximate Chi Square Value (.05)	166	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	18.56
Adjusted Chi Square Value	163.2	95% Jackknife UCL	18.68
		95% Standard Bootstrap UCL	18.51
Anderson-Darling Test Statistic	1.234	95% Bootstrap-t UCL	18.55
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	18.52

Kolmogorov-Smirnov Test Statistic	0.223	95% Percentile Bootstrap UCL	18.41
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	18.37
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	21.85
		97.5% Chebyshev(Mean, Sd) UCL	24.13
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28.62
95% Approximate Gamma UCL	19.72		
95% Adjusted Gamma UCL	20.05		
Potential UCL to Use		Use 95% Student's-t UCL	18.68

Result or 1/2 DL (manganese)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	82.3	Minimum of Log Data	4.41
Maximum	1210	Maximum of Log Data	7.098
Mean	369.5	Mean of log Data	5.754
Median	296	SD of log Data	0.565
SD	247.7		
Coefficient of Variation	0.67		
Skewness	2.484		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.741	Shapiro Wilk Test Statistic	0.939
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	471	95% H-UCL	493.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	588.4
95% Adjusted-CLT UCL	502	97.5% Chebyshev (MVUE) UCL	684.4
95% Modified-t UCL	476.7	99% Chebyshev (MVUE) UCL	872.9
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.813	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	131.3		
nu star	101.3		
Approximate Chi Square Value (.05)	79.05	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	465.5
Adjusted Chi Square Value	77.16	95% Jackknife UCL	471
		95% Standard Bootstrap UCL	461.6
Anderson-Darling Test Statistic	0.663	95% Bootstrap-t UCL	536.8
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	887
Kolmogorov-Smirnov Test Statistic	0.172	95% Percentile Bootstrap UCL	465.4
Kolmogorov-Smirnov 5% Critical Value	0.205	95% BCA Bootstrap UCL	499.5
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	623.9
		97.5% Chebyshev(Mean, Sd) UCL	734
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	950.3

95% Approximate Gamma UCL	473.3		
95% Adjusted Gamma UCL	484.9		
Potential UCL to Use		Use 95% Approximate Gamma UCL	473.3

Result or 1/2 DL (mercury)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	15
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0011	Minimum of Log Data	-6.768
Maximum	0.064	Maximum of Log Data	-2.749
Mean	0.0126	Mean of log Data	-5.156
Median	0.0074	SD of log Data	1.364
SD	0.0163		
Coefficient of Variation	1.295		
Skewness	2.2		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.876
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0193	95% H-UCL	0.0425
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0351
95% Adjusted-CLT UCL	0.0211	97.5% Chebyshev (MVUE) UCL	0.0445
95% Modified-t UCL	0.0196	99% Chebyshev (MVUE) UCL	0.063
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.673	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.0187		
nu star	24.24		
Approximate Chi Square Value (.05)	14.04	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0189
Adjusted Chi Square Value	13.29	95% Jackknife UCL	0.0193
		95% Standard Bootstrap UCL	0.0187
Anderson-Darling Test Statistic	0.775	95% Bootstrap-t UCL	0.0246
Anderson-Darling 5% Critical Value	0.777	95% Hall's Bootstrap UCL	0.0464
Kolmogorov-Smirnov Test Statistic	0.234	95% Percentile Bootstrap UCL	0.0192
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	0.0209
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0294
		97.5% Chebyshev(Mean, Sd) UCL	0.0366
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0509
95% Approximate Gamma UCL	0.0218		
95% Adjusted Gamma UCL	0.023		
Potential UCL to Use		Use 95% Approximate Gamma UCL	0.0218

Result or 1/2 DL (molybdenum)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	15

Raw Statistics		Log-transformed Statistics	
Minimum	0.037	Minimum of Log Data	-3.297
Maximum	10.7	Maximum of Log Data	2.37
Mean	0.949	Mean of log Data	-1.744
Median	0.11	SD of log Data	1.698
SD	2.5		
Coefficient of Variation	2.636		
Skewness	3.897		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.406	Shapiro Wilk Test Statistic	0.851
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.974	95% H-UCL	3.547
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.934
95% Adjusted-CLT UCL	2.496	97.5% Chebyshev (MVUE) UCL	2.499
95% Modified-t UCL	2.064	99% Chebyshev (MVUE) UCL	3.609
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.363	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.616		
nu star	13.05		
Approximate Chi Square Value (.05)	5.929	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	1.918
Adjusted Chi Square Value	5.473	95% Jackknife UCL	1.974
		95% Standard Bootstrap UCL	1.909
Anderson-Darling Test Statistic	1.907	95% Bootstrap-t UCL	5.875
Anderson-Darling 5% Critical Value	0.823	95% Hall's Bootstrap UCL	5.186
Kolmogorov-Smirnov Test Statistic	0.276	95% Percentile Bootstrap UCL	2.078
Kolmogorov-Smirnov 5% Critical Value	0.218	95% BCA Bootstrap UCL	2.807
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.517
		97.5% Chebyshev(Mean, Sd) UCL	4.629
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.812
95% Approximate Gamma UCL	2.088		
95% Adjusted Gamma UCL	2.262		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	6.812

Result or 1/2 DL (nickel)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17

Raw Statistics		Log-transformed Statistics	
Minimum	11.7	Minimum of Log Data	2.46
Maximum	51.7	Maximum of Log Data	3.945
Mean	17.04	Mean of log Data	2.762
Median	14.6	SD of log Data	0.343
SD	9.054		
Coefficient of Variation	0.531		
Skewness	3.644		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.519	Shapiro Wilk Test Statistic	0.727
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	20.76	95% H-UCL	19.67
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.75
95% Adjusted-CLT UCL	22.51	97.5% Chebyshev (MVUE) UCL	25.35
95% Modified-t UCL	21.06	99% Chebyshev (MVUE) UCL	30.46
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.852	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.912		
nu star	210.7		
Approximate Chi Square Value (.05)	178.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	20.55
Adjusted Chi Square Value	175.2	95% Jackknife UCL	20.76
		95% Standard Bootstrap UCL	20.4
Anderson-Darling Test Statistic	1.832	95% Bootstrap-t UCL	27.42
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL	33.85
Kolmogorov-Smirnov Test Statistic	0.262	95% Percentile Bootstrap UCL	20.86
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	23.26
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	26.35
		97.5% Chebyshev(Mean, Sd) UCL	30.37
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	38.28
95% Approximate Gamma UCL	20.16		
95% Adjusted Gamma UCL	20.49		
Potential UCL to Use		Use 95% Student's-t UCL	20.76
		or 95% Modified-t UCL	21.06

Result or 1/2 DL (phenanthrene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	16

Raw Statistics		Log-transformed Statistics	
Minimum	0.0036	Minimum of Log Data	-5.614
Maximum	1.34	Maximum of Log Data	0.293

Mean	0.109	Mean of log Data	-3.947
Median	0.0071	SD of log Data	1.591
SD	0.314		
Coefficient of Variation	2.872		
Skewness	3.979		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.37	Shapiro Wilk Test Statistic	0.807
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.238	95% H-UCL	0.276
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.175
95% Adjusted-CLT UCL	0.305	97.5% Chebyshev (MVUE) UCL	0.225
95% Modified-t UCL	0.249	99% Chebyshev (MVUE) UCL	0.324
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.356	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.307		
nu star	12.81		
Approximate Chi Square Value (.05)	5.764	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.231
Adjusted Chi Square Value	5.316	95% Jackknife UCL	0.238
		95% Standard Bootstrap UCL	0.23
Anderson-Darling Test Statistic	2.6	95% Bootstrap-t UCL	0.851
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	0.793
Kolmogorov-Smirnov Test Statistic	0.318	95% Percentile Bootstrap UCL	0.249
Kolmogorov-Smirnov 5% Critical Value	0.218	95% BCA Bootstrap UCL	0.341
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.431
		97.5% Chebyshev(Mean, Sd) UCL	0.571
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.845
95% Approximate Gamma UCL	0.243		
95% Adjusted Gamma UCL	0.263		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.845

Result or 1/2 DL (pyrene)

General Statistics

Number of Valid Samples	18	Number of Unique Samples	17

Raw Statistics		Log-transformed Statistics	
Minimum	0.0061	Minimum of Log Data	-5.099
Maximum	1.87	Maximum of Log Data	0.626
Mean	0.147	Mean of log Data	-3.778
Median	0.0109	SD of log Data	1.68
SD	0.436		
Coefficient of Variation	2.972		
Skewness	4.066		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.357	Shapiro Wilk Test Statistic	0.795
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.325	95% H-UCL	0.436
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.244
95% Adjusted-CLT UCL	0.421	97.5% Chebyshev (MVUE) UCL	0.315
95% Modified-t UCL	0.342	99% Chebyshev (MVUE) UCL	0.455
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.337	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.435		
nu star	12.14		
Approximate Chi Square Value (.05)	5.319	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.316
Adjusted Chi Square Value	4.891	95% Jackknife UCL	0.325
		95% Standard Bootstrap UCL	0.317
Anderson-Darling Test Statistic	2.472	95% Bootstrap-t UCL	1.188
Anderson-Darling 5% Critical Value	0.829	95% Hall's Bootstrap UCL	0.978
Kolmogorov-Smirnov Test Statistic	0.28	95% Percentile Bootstrap UCL	0.343
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	0.465
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.594
		97.5% Chebyshev(Mean, Sd) UCL	0.788
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.169
95% Approximate Gamma UCL	0.335		
95% Adjusted Gamma UCL	0.364		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1.169

Result or 1/2 DL (silver)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	14
Raw Statistics		Log-transformed Statistics	
Minimum	0.0135	Minimum of Log Data	-4.305
Maximum	0.41	Maximum of Log Data	-0.892
Mean	0.0543	Mean of log Data	-3.38
Median	0.03	SD of log Data	0.781
SD	0.0909		
Coefficient of Variation	1.676		
Skewness	3.94		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.398	Shapiro Wilk Test Statistic	0.734
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0915	95% H-UCL	0.0721
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0843
95% Adjusted-CLT UCL	0.111	97.5% Chebyshev (MVUE) UCL	0.101
95% Modified-t UCL	0.0948	99% Chebyshev (MVUE) UCL	0.134
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.048	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0517		
nu star	37.74		
Approximate Chi Square Value (.05)	24.68	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.0895
Adjusted Chi Square Value	23.66	95% Jackknife UCL	0.0915
		95% Standard Bootstrap UCL	0.0886
Anderson-Darling Test Statistic	2.923	95% Bootstrap-t UCL	0.231
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	0.2
Kolmogorov-Smirnov Test Statistic	0.42	95% Percentile Bootstrap UCL	0.0964
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	0.12
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.148
		97.5% Chebyshev(Mean, Sd) UCL	0.188
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.267
95% Approximate Gamma UCL	0.083		
95% Adjusted Gamma UCL	0.0865		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.148

Result or 1/2 DL (strontium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	26.6	Minimum of Log Data	3.281
Maximum	93.6	Maximum of Log Data	4.539
Mean	57.32	Mean of log Data	3.989
Median	52.85	SD of log Data	0.364
SD	19.7		
Coefficient of Variation	0.344		
Skewness	0.325		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.934
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	65.4	95% H-UCL	68.27
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	79.37

95% Adjusted-CLT UCL	65.34	97.5% Chebyshev (MVUE) UCL	88.84
95% Modified-t UCL	65.45	99% Chebyshev (MVUE) UCL	107.4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	7.18	Data appear Normal at 5% Significance Level	
Theta Star	7.983		
nu star	258.5		
Approximate Chi Square Value (.05)	222.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	64.96
Adjusted Chi Square Value	219	95% Jackknife UCL	65.4
		95% Standard Bootstrap UCL	64.93
Anderson-Darling Test Statistic	0.455	95% Bootstrap-t UCL	66.2
Anderson-Darling 5% Critical Value	0.74	95% Hall's Bootstrap UCL	65.45
Kolmogorov-Smirnov Test Statistic	0.186	95% Percentile Bootstrap UCL	64.92
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	64.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	77.56
		97.5% Chebyshev(Mean, Sd) UCL	86.32
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	103.5
95% Approximate Gamma UCL	66.66		
95% Adjusted Gamma UCL	67.64		
Potential UCL to Use		Use 95% Student's-t UCL	65.4

Result or 1/2 DL (thallium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	12
Raw Statistics		Log-transformed Statistics	
Minimum	0.0455	Minimum of Log Data	-3.09
Maximum	0.63	Maximum of Log Data	-0.462
Mean	0.109	Mean of log Data	-2.67
Median	0.05	SD of log Data	0.771
SD	0.16		
Coefficient of Variation	1.47		
Skewness	2.87		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.442	Shapiro Wilk Test Statistic	0.56
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.174	95% H-UCL	0.144
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.169
95% Adjusted-CLT UCL	0.198	97.5% Chebyshev (MVUE) UCL	0.202
95% Modified-t UCL	0.178	99% Chebyshev (MVUE) UCL	0.268
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.078	Data do not follow a Discernable Distribution (0.05)	

Theta Star	0.101		
nu star	38.82		
Approximate Chi Square Value (.05)	25.55	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.171
Adjusted Chi Square Value	24.52	95% Jackknife UCL	0.174
		95% Standard Bootstrap UCL	0.168
Anderson-Darling Test Statistic	4.13	95% Bootstrap-t UCL	0.76
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	0.596
Kolmogorov-Smirnov Test Statistic	0.397	95% Percentile Bootstrap UCL	0.167
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	0.196
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.273
		97.5% Chebyshev(Mean, Sd) UCL	0.344
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.483
95% Approximate Gamma UCL	0.165		
95% Adjusted Gamma UCL	0.172		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.273

Result or 1/2 DL (tin)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	14
Raw Statistics		Log-transformed Statistics	
Minimum	0.195	Minimum of Log Data	-1.635
Maximum	3.67	Maximum of Log Data	1.3
Mean	0.625	Mean of log Data	-0.897
Median	0.295	SD of log Data	0.805
SD	0.846		
Coefficient of Variation	1.354		
Skewness	3.137		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.533	Shapiro Wilk Test Statistic	0.763
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.972	95% H-UCL	0.897
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.043
95% Adjusted-CLT UCL	1.111	97.5% Chebyshev (MVUE) UCL	1.256
95% Modified-t UCL	0.996	99% Chebyshev (MVUE) UCL	1.673
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.131	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.552		
nu star	40.73		
Approximate Chi Square Value (.05)	27.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	0.953
Adjusted Chi Square Value	26.04	95% Jackknife UCL	0.972

		95% Standard Bootstrap UCL	0.958
Anderson-Darling Test Statistic	2.399	95% Bootstrap-t UCL	1.597
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	2.128
Kolmogorov-Smirnov Test Statistic	0.388	95% Percentile Bootstrap UCL	0.998
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	1.139
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.494
		97.5% Chebyshev(Mean, Sd) UCL	1.87
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.609
95% Approximate Gamma UCL	0.939		
95% Adjusted Gamma UCL	0.978		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1.494

Result or 1/2 DL (titanium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	17
Raw Statistics		Log-transformed Statistics	
Minimum	3.41	Minimum of Log Data	1.227
Maximum	55.9	Maximum of Log Data	4.024
Mean	20.67	Mean of log Data	2.882
Median	18.7	SD of log Data	0.591
SD	11.65		
Coefficient of Variation	0.563		
Skewness	1.656		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.93
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	25.45	95% H-UCL	28.82
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	34.38
95% Adjusted-CLT UCL	26.33	97.5% Chebyshev (MVUE) UCL	40.17
95% Modified-t UCL	25.63	99% Chebyshev (MVUE) UCL	51.53
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.002	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	6.886		
nu star	108.1		
Approximate Chi Square Value (.05)	85.08	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	25.19
Adjusted Chi Square Value	83.12	95% Jackknife UCL	25.45
		95% Standard Bootstrap UCL	25.01
Anderson-Darling Test Statistic	0.339	95% Bootstrap-t UCL	27.18
Anderson-Darling 5% Critical Value	0.744	95% Hall's Bootstrap UCL	31.11
Kolmogorov-Smirnov Test Statistic	0.11	95% Percentile Bootstrap UCL	25.41
Kolmogorov-Smirnov 5% Critical Value	0.205	95% BCA Bootstrap UCL	26.43

Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	32.64
		97.5% Chebyshev(Mean, Sd) UCL	37.82
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	47.99
95% Approximate Gamma UCL	26.26		
95% Adjusted Gamma UCL	26.88		
Potential UCL to Use		Use 95% Approximate Gamma UCL	26.26

Result or 1/2 DL (vanadium)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	7.85	Minimum of Log Data	2.061
Maximum	45.8	Maximum of Log Data	3.824
Mean	19.66	Mean of log Data	2.884
Median	18.65	SD of log Data	0.449
SD	9.126		
Coefficient of Variation	0.464		
Skewness	1.322		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.905	Shapiro Wilk Test Statistic	0.981
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	23.4	95% H-UCL	24.54
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.98
95% Adjusted-CLT UCL	23.91	97.5% Chebyshev (MVUE) UCL	33.02
95% Modified-t UCL	23.51	99% Chebyshev (MVUE) UCL	40.95
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.562	Data appear Normal at 5% Significance Level	
Theta Star	4.309		
nu star	164.2		
Approximate Chi Square Value (.05)	135.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0357	95% CLT UCL	23.2
Adjusted Chi Square Value	133.1	95% Jackknife UCL	23.4
		95% Standard Bootstrap UCL	23.08
Anderson-Darling Test Statistic	0.2	95% Bootstrap-t UCL	24.27
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	25.56
Kolmogorov-Smirnov Test Statistic	0.0982	95% Percentile Bootstrap UCL	23.38
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	23.66
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	29.03
		97.5% Chebyshev(Mean, Sd) UCL	33.09
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	41.06
95% Approximate Gamma UCL	23.81		
95% Adjusted Gamma UCL	24.26		

Potential UCL to Use		Use 95% Student's-t UCL	23.4

Result or 1/2 DL (zinc)

General Statistics			
Number of Valid Samples	18	Number of Unique Samples	18
Raw Statistics		**Log-transformed Statistics**	
Minimum	29.5	Minimum of Log Data	3.384
Maximum	5640	Maximum of Log Data	8.638
Mean	418.4	Mean of log Data	4.562
Median	53.95	SD of log Data	1.321
SD	1308		
Coefficient of Variation	3.125		
Skewness	4.195		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.313	Shapiro Wilk Test Statistic	0.791
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	954.5	95% H-UCL	630.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	542.9
95% Adjusted-CLT UCL	1251	97.5% Chebyshev (MVUE) UCL	686.4
95% Modified-t UCL	1005	99% Chebyshev (MVUE) UCL	968.2
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.403	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1037		
nu star	14.52		
Approximate Chi Square Value (.05)	6.931	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	925.3
Adjusted Chi Square Value	6.432	95% Jackknife UCL	954.5
		95% Standard Bootstrap UCL	894.1
Anderson-Darling Test Statistic	2.911	95% Bootstrap-t UCL	5665
Anderson-Darling 5% Critical Value	0.813	95% Hall's Bootstrap UCL	3753
Kolmogorov-Smirnov Test Statistic	0.278	95% Percentile Bootstrap UCL	1025
Kolmogorov-Smirnov 5% Critical Value	0.217	95% BCA Bootstrap UCL	1352
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1762
		97.5% Chebyshev(Mean, Sd) UCL	2343
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3485
95% Approximate Gamma UCL	876.6		
95% Adjusted Gamma UCL	944.6		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	3485

APPENDIX A-4

NORTH OF MARLIN SOIL

	General UCL Statistics for Full Data Sets
User Selected Options	
From File	J:\1352 - Gulfco RI\risk\eco\Tables for Revisited SLERA\soil N of Marlin aug 2008.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result or 1/2 DL (1,1-dichloroethane)

General Statistics

Number of Valid Samples	19	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	6.4000E-5	Minimum of Log Data	-9.657
Maximum	0.518	Maximum of Log Data	-0.658
Mean	0.0286	Mean of log Data	-7.963
Median	8.7000E-5	SD of log Data	2.504
SD	0.119		
Coefficient of Variation	4.147		
Skewness	4.355		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.258	Shapiro Wilk Test Statistic	0.689
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0757	95% H-UCL	0.172
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0196
95% Adjusted-CLT UCL	0.102	97.5% Chebyshev (MVUE) UCL	0.026
95% Modified-t UCL	0.0803	99% Chebyshev (MVUE) UCL	0.0385
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.179	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.16		
nu star	6.805		
Approximate Chi Square Value (.05)	2.064	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0733
Adjusted Chi Square Value	1.844	95% Jackknife UCL	0.0757
		95% Standard Bootstrap UCL	0.0709
Anderson-Darling Test Statistic	4.123	95% Bootstrap-t UCL	2.611
Anderson-Darling 5% Critical Value	0.899	95% Hall's Bootstrap UCL	1.441
Kolmogorov-Smirnov Test Statistic	0.386	95% Percentile Bootstrap UCL	0.0826
Kolmogorov-Smirnov 5% Critical Value	0.221	95% BCA Bootstrap UCL	0.111
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.147
		97.5% Chebyshev(Mean, Sd) UCL	0.198
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.299
95% Approximate Gamma UCL	0.0942		
95% Adjusted Gamma UCL	0.105		

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.299

Result or 1/2 DL (1,1-dichloroethene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		**Log-transformed Statistics**	
Minimum	1.4500E-4	Minimum of Log Data	-8.839
Maximum	0.313	Maximum of Log Data	-1.162
Mean	0.0179	Mean of log Data	-7.528
Median	1.9050E-4	SD of log Data	2.12
SD	0.0715		
Coefficient of Variation	3.989		
Skewness	4.348		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.267	Shapiro Wilk Test Statistic	0.64
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.0464	95% H-UCL	0.0481
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0135
95% Adjusted-CLT UCL	0.0624	97.5% Chebyshev (MVUE) UCL	0.0177
95% Modified-t UCL	0.0491	99% Chebyshev (MVUE) UCL	0.026
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.211	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0851		
nu star	8.005		
Approximate Chi Square Value (.05)	2.738	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0449
Adjusted Chi Square Value	2.476	95% Jackknife UCL	0.0464
		95% Standard Bootstrap UCL	0.0439
Anderson-Darling Test Statistic	4.354	95% Bootstrap-t UCL	0.671
Anderson-Darling 5% Critical Value	0.884	95% Hall's Bootstrap UCL	0.399
Kolmogorov-Smirnov Test Statistic	0.427	95% Percentile Bootstrap UCL	0.0504
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	0.0673
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0894
		97.5% Chebyshev(Mean, Sd) UCL	0.12
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.181
95% Approximate Gamma UCL	0.0524		
95% Adjusted Gamma UCL	0.058		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.181

Result or 1/2 DL (1,2-dichloroethane)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	18
Raw Statistics		Log-transformed Statistics	
Minimum	4.6000E-5	Minimum of Log Data	-9.987
Maximum	0.177	Maximum of Log Data	-1.732
Mean	0.0106	Mean of log Data	-8.083
Median	6.2500E-5	SD of log Data	2.49
SD	0.0404		
Coefficient of Variation	3.799		
Skewness	4.329		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.282	Shapiro Wilk Test Statistic	0.741
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0267	95% H-UCL	0.143
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0169
95% Adjusted-CLT UCL	0.0357	97.5% Chebyshev (MVUE) UCL	0.0223
95% Modified-t UCL	0.0282	99% Chebyshev (MVUE) UCL	0.0331
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.209	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0508		
nu star	7.952		
Approximate Chi Square Value (.05)	2.708	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0259
Adjusted Chi Square Value	2.447	95% Jackknife UCL	0.0267
		95% Standard Bootstrap UCL	0.0255
Anderson-Darling Test Statistic	3.162	95% Bootstrap-t UCL	0.349
Anderson-Darling 5% Critical Value	0.885	95% Hall's Bootstrap UCL	0.153
Kolmogorov-Smirnov Test Statistic	0.358	95% Percentile Bootstrap UCL	0.0291
Kolmogorov-Smirnov 5% Critical Value	0.22	95% BCA Bootstrap UCL	0.0389
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.051
		97.5% Chebyshev(Mean, Sd) UCL	0.0685
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.103
95% Approximate Gamma UCL	0.0312		
95% Adjusted Gamma UCL	0.0345		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.103

Result or 1/2 DL (2-butanone)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	1.2600E-4	Minimum of Log Data	-8.979

Maximum	0.208	Maximum of Log Data	-1.57
Mean	0.0139	Mean of log Data	-6.223
Median	0.0029	SD of log Data	1.907
SD	0.0471		
Coefficient of Variation	3.378		
Skewness	4.338		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.288	Shapiro Wilk Test Statistic	0.858
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0327	95% H-UCL	0.0777
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0326
95% Adjusted-CLT UCL	0.0432	97.5% Chebyshev (MVUE) UCL	0.0424
95% Modified-t UCL	0.0344	99% Chebyshev (MVUE) UCL	0.0618
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.326	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0427		
nu star	12.4		
Approximate Chi Square Value (.05)	5.488	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0317
Adjusted Chi Square Value	5.091	95% Jackknife UCL	0.0327
		95% Standard Bootstrap UCL	0.0315
Anderson-Darling Test Statistic	2.196	95% Bootstrap-t UCL	0.25
Anderson-Darling 5% Critical Value	0.834	95% Hall's Bootstrap UCL	0.129
Kolmogorov-Smirnov Test Statistic	0.356	95% Percentile Bootstrap UCL	0.0353
Kolmogorov-Smirnov 5% Critical Value	0.214	95% BCA Bootstrap UCL	0.0466
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.061
		97.5% Chebyshev(Mean, Sd) UCL	0.0814
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.121
95% Approximate Gamma UCL	0.0315		
95% Adjusted Gamma UCL	0.0339		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.121

Result or 1/2 DL (2-methylnaphthalene)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	0.005	Minimum of Log Data	-5.298
Maximum	0.053	Maximum of Log Data	-2.937
Mean	0.0103	Mean of log Data	-4.915
Median	0.0059	SD of log Data	0.663
SD	0.0131		
Coefficient of Variation	1.267		

Skewness	2.781		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.416	Shapiro Wilk Test Statistic	0.497
Shapiro Wilk Critical Value	0.935	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**	
95% Student's-t UCL	0.014	95% H-UCL	0.0115
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0138
95% Adjusted-CLT UCL	0.015	97.5% Chebyshev (MVUE) UCL	0.0158
95% Modified-t UCL	0.0142	99% Chebyshev (MVUE) UCL	0.0198
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.491	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0069		
nu star	107.3		
Approximate Chi Square Value (.05)	84.44	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0139
Adjusted Chi Square Value	83.51	95% Jackknife UCL	0.014
		95% Standard Bootstrap UCL	0.0138
Anderson-Darling Test Statistic	9.26	95% Bootstrap-t UCL	0.0166
Anderson-Darling 5% Critical Value	0.765	95% Hall's Bootstrap UCL	0.0135
Kolmogorov-Smirnov Test Statistic	0.468	95% Percentile Bootstrap UCL	0.0141
Kolmogorov-Smirnov 5% Critical Value	0.149	95% BCA Bootstrap UCL	0.0152
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0198
		97.5% Chebyshev(Mean, Sd) UCL	0.024
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.032
95% Approximate Gamma UCL	0.0131		
95% Adjusted Gamma UCL	0.0133		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0198

Result or 1/2 DL (4,4'-dde)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	31

Raw Statistics		Log-transformed Statistics	
Minimum	1.8950E-4	Minimum of Log Data	-8.571
Maximum	0.0149	Maximum of Log Data	-4.206
Mean	7.0636E-4	Mean of log Data	-8.216
Median	2.1150E-4	SD of log Data	0.842
SD	0.0024		
Coefficient of Variation	3.483		
Skewness	5.808		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.222	Shapiro Wilk Test Statistic	0.415

Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0014	95% H-UCL	5.2862E-4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.4086E-4
95% Adjusted-CLT UCL	0.0018	97.5% Chebyshev (MVUE) UCL	7.5362E-4
95% Modified-t UCL	0.0014	99% Chebyshev (MVUE) UCL	9.7511E-4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.603	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0011		
nu star	43.4		
Approximate Chi Square Value (.05)	29.29	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0013
Adjusted Chi Square Value	28.77	95% Jackknife UCL	0.0014
		95% Standard Bootstrap UCL	0.0013
Anderson-Darling Test Statistic	10.81	95% Bootstrap-t UCL	0.0475
Anderson-Darling 5% Critical Value	0.799	95% Hall's Bootstrap UCL	0.0081
Kolmogorov-Smirnov Test Statistic	0.505	95% Percentile Bootstrap UCL	0.0015
Kolmogorov-Smirnov 5% Critical Value	0.154	95% BCA Bootstrap UCL	0.0020
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0024
		97.5% Chebyshev(Mean, Sd) UCL	0.0032
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0047
95% Approximate Gamma UCL	0.0010		
95% Adjusted Gamma UCL	0.0010		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0024

Result or 1/2 DL (4,4'-ddt)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	28
Raw Statistics		Log-transformed Statistics	
Minimum	7.3000E-5	Minimum of Log Data	-9.525
Maximum	0.0108	Maximum of Log Data	-4.528
Mean	7.0422E-4	Mean of log Data	-8.523
Median	8.3500E-5	SD of log Data	1.323
SD	0.0019		
Coefficient of Variation	2.703		
Skewness	4.722		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.372	Shapiro Wilk Test Statistic	0.755
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0012	95% H-UCL	8.9022E-4

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.001
95% Adjusted-CLT UCL	0.0014	97.5% Chebyshev (MVUE) UCL	0.0012
95% Modified-t UCL	0.0012	99% Chebyshev (MVUE) UCL	0.0017
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.479	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0014		
nu star	34.46		
Approximate Chi Square Value (.05)	22.04	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0012
Adjusted Chi Square Value	21.58	95% Jackknife UCL	0.0012
		95% Standard Bootstrap UCL	0.0012
Anderson-Darling Test Statistic	4.944	95% Bootstrap-t UCL	0.0028
Anderson-Darling 5% Critical Value	0.812	95% Hall's Bootstrap UCL	0.0032
Kolmogorov-Smirnov Test Statistic	0.31	95% Percentile Bootstrap UCL	0.0012
Kolmogorov-Smirnov 5% Critical Value	0.155	95% BCA Bootstrap UCL	0.0016
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0020
		97.5% Chebyshev(Mean, Sd) UCL	0.0026
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0038
95% Approximate Gamma UCL	0.0011		
95% Adjusted Gamma UCL	0.0011		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0038

Result or 1/2 DL (acenaphthene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	0.0049	Minimum of Log Data	-5.3
Maximum	0.157	Maximum of Log Data	-1.852
Mean	0.0142	Mean of log Data	-4.898
Median	0.0055	SD of log Data	0.825
SD	0.03		
Coefficient of Variation	2.115		
Skewness	4.095		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.345	Shapiro Wilk Test Statistic	0.489
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0227	95% H-UCL	0.0143
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0173
95% Adjusted-CLT UCL	0.0261	97.5% Chebyshev (MVUE) UCL	0.0203
95% Modified-t UCL	0.0232	99% Chebyshev (MVUE) UCL	0.0262
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.85	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0167		
nu star	61.21		
Approximate Chi Square Value (.05)	44.22	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0224
Adjusted Chi Square Value	43.56	95% Jackknife UCL	0.0227
		95% Standard Bootstrap UCL	0.0222
Anderson-Darling Test Statistic	9.363	95% Bootstrap-t UCL	0.0524
Anderson-Darling 5% Critical Value	0.781	95% Hall's Bootstrap UCL	0.0561
Kolmogorov-Smirnov Test Statistic	0.497	95% Percentile Bootstrap UCL	0.0229
Kolmogorov-Smirnov 5% Critical Value	0.152	95% BCA Bootstrap UCL	0.0271
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.036
		97.5% Chebyshev(Mean, Sd) UCL	0.0455
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.064
95% Approximate Gamma UCL	0.0197		
95% Adjusted Gamma UCL	0.02		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.036

Result or 1/2 DL (aluminum)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	32
Raw Statistics		Log-transformed Statistics	
Minimum	1810	Minimum of Log Data	7.501
Maximum	18300	Maximum of Log Data	9.815
Mean	11971	Mean of log Data	9.317
Median	11700	SD of log Data	0.437
SD	3979		
Coefficient of Variation	0.332		
Skewness	-0.25		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.962	Shapiro Wilk Test Statistic	0.833
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
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	13092	95% H-UCL	14053
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16219
95% Adjusted-CLT UCL	13032	97.5% Chebyshev (MVUE) UCL	17956
95% Modified-t UCL	13087	99% Chebyshev (MVUE) UCL	21367
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	6.424	Data appear Normal at 5% Significance Level	
Theta Star	1863		
nu star	462.6		
Approximate Chi Square Value (.05)	413.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	13062

Adjusted Chi Square Value	411.6	95% Jackknife UCL	13092
		95% Standard Bootstrap UCL	13034
Anderson-Darling Test Statistic	0.592	95% Bootstrap-t UCL	13062
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	13058
Kolmogorov-Smirnov Test Statistic	0.0919	95% Percentile Bootstrap UCL	13052
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	13052
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14862
		97.5% Chebyshev(Mean, Sd) UCL	16113
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	18569
95% Approximate Gamma UCL	13385		
95% Adjusted Gamma UCL	13453		
Potential UCL to Use		Use 95% Student's-t UCL	13092

Result or 1/2 DL (anthracene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	24
Raw Statistics		Log-transformed Statistics	
Minimum	0.0037	Minimum of Log Data	-5.594
Maximum	0.264	Maximum of Log Data	-1.332
Mean	0.0215	Mean of log Data	-4.761
Median	0.006	SD of log Data	1.024
SD	0.0516		
Coefficient of Variation	2.397		
Skewness	4.003		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.372	Shapiro Wilk Test Statistic	0.624
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0361	95% H-UCL	0.022
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0264
95% Adjusted-CLT UCL	0.0418	97.5% Chebyshev (MVUE) UCL	0.0317
95% Modified-t UCL	0.037	99% Chebyshev (MVUE) UCL	0.0422
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.623	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0346		
nu star	44.87		
Approximate Chi Square Value (.05)	30.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0357
Adjusted Chi Square Value	29.96	95% Jackknife UCL	0.0361
		95% Standard Bootstrap UCL	0.0361
Anderson-Darling Test Statistic	7.709	95% Bootstrap-t UCL	0.0846
Anderson-Darling 5% Critical Value	0.797	95% Hall's Bootstrap UCL	0.0941
Kolmogorov-Smirnov Test Statistic	0.452	95% Percentile Bootstrap UCL	0.037

Kolmogorov-Smirnov 5% Critical Value	0.154	95% BCA Bootstrap UCL	0.0437
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0591
		97.5% Chebyshev(Mean, Sd) UCL	0.0753
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.107
95% Approximate Gamma UCL	0.0317		
95% Adjusted Gamma UCL	0.0323		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.107

Result or 1/2 DL (antimony)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	23
Raw Statistics		Log-transformed Statistics	
Minimum	0.095	Minimum of Log Data	-2.354
Maximum	8.09	Maximum of Log Data	2.091
Mean	1.416	Mean of log Data	-0.752
Median	0.125	SD of log Data	1.642
SD	1.779		
Coefficient of Variation	1.256		
Skewness	1.716		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.738	Shapiro Wilk Test Statistic	0.731
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	1.917	95% H-UCL	4.438
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.311
95% Adjusted-CLT UCL	1.994	97.5% Chebyshev (MVUE) UCL	5.452
95% Modified-t UCL	1.931	99% Chebyshev (MVUE) UCL	7.692
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.538	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.632		
nu star	38.74		
Approximate Chi Square Value (.05)	25.48	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	1.904
Adjusted Chi Square Value	25	95% Jackknife UCL	1.917
		95% Standard Bootstrap UCL	1.915
Anderson-Darling Test Statistic	4.128	95% Bootstrap-t UCL	2.065
Anderson-Darling 5% Critical Value	0.806	95% Hall's Bootstrap UCL	2.167
Kolmogorov-Smirnov Test Statistic	0.349	95% Percentile Bootstrap UCL	1.93
Kolmogorov-Smirnov 5% Critical Value	0.155	95% BCA Bootstrap UCL	2.035
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2.708
		97.5% Chebyshev(Mean, Sd) UCL	3.267
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4.366
95% Approximate Gamma UCL	2.152		

95% Adjusted Gamma UCL	2.195		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	4.366

Result or 1/2 DL (aroclor-1254)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	34

Raw Statistics		Log-transformed Statistics	
Minimum	0.0019	Minimum of Log Data	-6.269
Maximum	0.0938	Maximum of Log Data	-2.367
Mean	0.0056	Mean of log Data	-5.848
Median	0.0021	SD of log Data	0.763
SD	0.0154		
Coefficient of Variation	2.735		
Skewness	5.714		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.254	Shapiro Wilk Test Statistic	0.554
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0099	95% H-UCL	0.0050
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0061
95% Adjusted-CLT UCL	0.0124	97.5% Chebyshev (MVUE) UCL	0.0071
95% Modified-t UCL	0.0104	99% Chebyshev (MVUE) UCL	0.0091
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.826	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0068		
nu star	59.44		
Approximate Chi Square Value (.05)	42.71	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0098
Adjusted Chi Square Value	42.07	95% Jackknife UCL	0.0099
		95% Standard Bootstrap UCL	0.0097
Anderson-Darling Test Statistic	8.285	95% Bootstrap-t UCL	0.0476
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL	0.0303
Kolmogorov-Smirnov Test Statistic	0.394	95% Percentile Bootstrap UCL	0.0107
Kolmogorov-Smirnov 5% Critical Value	0.152	95% BCA Bootstrap UCL	0.0152
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0168
		97.5% Chebyshev(Mean, Sd) UCL	0.0216
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0311
95% Approximate Gamma UCL	0.0078		
95% Adjusted Gamma UCL	0.0079		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0168

Result or 1/2 DL (arsenic)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	32

Raw Statistics		Log-transformed Statistics	
Minimum	0.105	Minimum of Log Data	-2.254
Maximum	5.69	Maximum of Log Data	1.739
Mean	2.573	Mean of log Data	0.673
Median	2.53	SD of log Data	0.969
SD	1.369		
Coefficient of Variation	0.532		
Skewness	0.256		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.732
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
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	2.959	95% H-UCL	4.613
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.572
95% Adjusted-CLT UCL	2.959	97.5% Chebyshev (MVUE) UCL	6.652
95% Modified-t UCL	2.96	99% Chebyshev (MVUE) UCL	8.772
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.84	Data appear Normal at 5% Significance Level	
Theta Star	1.399		
nu star	132.5		
Approximate Chi Square Value (.05)	106.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	2.948
Adjusted Chi Square Value	105.8	95% Jackknife UCL	2.959
		95% Standard Bootstrap UCL	2.934
Anderson-Darling Test Statistic	2.399	95% Bootstrap-t UCL	2.955
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	2.96
Kolmogorov-Smirnov Test Statistic	0.231	95% Percentile Bootstrap UCL	2.938
Kolmogorov-Smirnov 5% Critical Value	0.149	95% BCA Bootstrap UCL	2.961
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.567
		97.5% Chebyshev(Mean, Sd) UCL	3.998
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4.843
95% Approximate Gamma UCL	3.189		
95% Adjusted Gamma UCL	3.221		
Potential UCL to Use		Use 95% Student's-t UCL	2.959

Result or 1/2 DL (barium)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	31

Raw Statistics		Log-transformed Statistics	
Minimum	46.1	Minimum of Log Data	3.831
Maximum	476	Maximum of Log Data	6.165
Mean	142.1	Mean of log Data	4.802
Median	121	SD of log Data	0.53
SD	95.9		
Coefficient of Variation	0.675		
Skewness	2.311		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.718	Shapiro Wilk Test Statistic	0.934
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	169.1	95% H-UCL	166.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	196.1
95% Adjusted-CLT UCL	174.9	97.5% Chebyshev (MVUE) UCL	220.5
95% Modified-t UCL	170.1	99% Chebyshev (MVUE) UCL	268.6
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.139	Data do not follow a Discernable Distribution (0.05)	
Theta Star	45.26		
nu star	226		
Approximate Chi Square Value (.05)	192.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	168.4
Adjusted Chi Square Value	190.8	95% Jackknife UCL	169.1
		95% Standard Bootstrap UCL	168
Anderson-Darling Test Statistic	1.456	95% Bootstrap-t UCL	180.8
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	182.1
Kolmogorov-Smirnov Test Statistic	0.199	95% Percentile Bootstrap UCL	168.2
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	175.1
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	211.7
		97.5% Chebyshev(Mean, Sd) UCL	241.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	301.1
95% Approximate Gamma UCL	167.1		
95% Adjusted Gamma UCL	168.3		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	211.7

Result or 1/2 DL (benzo(a)anthracene)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	25

Raw Statistics		Log-transformed Statistics	
Minimum	0.0025	Minimum of Log Data	-5.985
Maximum	1.18	Maximum of Log Data	0.166
Mean	0.068	Mean of log Data	-4.862
Median	0.0055	SD of log Data	1.45

SD	0.239		
Coefficient of Variation	3.512		
Skewness	4.117		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.304	Shapiro Wilk Test Statistic	0.587
Shapiro Wilk Critical Value	0.935	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**	
95% Student's-t UCL	0.135	95% H-UCL	0.0457
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.049
95% Adjusted-CLT UCL	0.163	97.5% Chebyshev (MVUE) UCL	0.0612
95% Modified-t UCL	0.14	99% Chebyshev (MVUE) UCL	0.085
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.307	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.222		
nu star	22.1		
Approximate Chi Square Value (.05)	12.41	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.134
Adjusted Chi Square Value	12.08	95% Jackknife UCL	0.135
		95% Standard Bootstrap UCL	0.133
Anderson-Darling Test Statistic	9.41	95% Bootstrap-t UCL	0.491
Anderson-Darling 5% Critical Value	0.853	95% Hall's Bootstrap UCL	0.61
Kolmogorov-Smirnov Test Statistic	0.502	95% Percentile Bootstrap UCL	0.137
Kolmogorov-Smirnov 5% Critical Value	0.159	95% BCA Bootstrap UCL	0.176
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.242
		97.5% Chebyshev(Mean, Sd) UCL	0.317
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.464
95% Approximate Gamma UCL	0.121		
95% Adjusted Gamma UCL	0.124		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.464

Result or 1/2 DL (benzo(a)pyrene)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	28

Raw Statistics		Log-transformed Statistics	
Minimum	0.0045	Minimum of Log Data	-5.403
Maximum	1.42	Maximum of Log Data	0.351
Mean	0.0922	Mean of log Data	-4.333
Median	0.0056	SD of log Data	1.62
SD	0.278		
Coefficient of Variation	3.017		
Skewness	4.117		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.361	Shapiro Wilk Test Statistic	0.651
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.171	95% H-UCL	0.117
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.115
95% Adjusted-CLT UCL	0.203	97.5% Chebyshev (MVUE) UCL	0.145
95% Modified-t UCL	0.176	99% Chebyshev (MVUE) UCL	0.205
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.335	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.275		
nu star	24.15		
Approximate Chi Square Value (.05)	13.96	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.169
Adjusted Chi Square Value	13.61	95% Jackknife UCL	0.171
		95% Standard Bootstrap UCL	0.168
Anderson-Darling Test Statistic	6.99	95% Bootstrap-t UCL	0.5
Anderson-Darling 5% Critical Value	0.847	95% Hall's Bootstrap UCL	0.495
Kolmogorov-Smirnov Test Statistic	0.422	95% Percentile Bootstrap UCL	0.175
Kolmogorov-Smirnov 5% Critical Value	0.158	95% BCA Bootstrap UCL	0.217
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.294
		97.5% Chebyshev(Mean, Sd) UCL	0.382
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.554
95% Approximate Gamma UCL	0.16		
95% Adjusted Gamma UCL	0.164		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.554

Result or 1/2 DL (benzo(b)fluoranthene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	32
Raw Statistics		Log-transformed Statistics	
Minimum	0.0036	Minimum of Log Data	-5.625
Maximum	1.62	Maximum of Log Data	0.482
Mean	0.12	Mean of log Data	-4.074
Median	0.0062	SD of log Data	1.886
SD	0.319		
Coefficient of Variation	2.649		
Skewness	3.981		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.412	Shapiro Wilk Test Statistic	0.774
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.21	95% H-UCL	0.315
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.257
95% Adjusted-CLT UCL	0.245	97.5% Chebyshev (MVUE) UCL	0.329
95% Modified-t UCL	0.216	99% Chebyshev (MVUE) UCL	0.471
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.334	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.36		
nu star	24.08		
Approximate Chi Square Value (.05)	13.91	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.208
Adjusted Chi Square Value	13.56	95% Jackknife UCL	0.21
		95% Standard Bootstrap UCL	0.207
Anderson-Darling Test Statistic	4.213	95% Bootstrap-t UCL	0.469
Anderson-Darling 5% Critical Value	0.847	95% Hall's Bootstrap UCL	0.615
Kolmogorov-Smirnov Test Statistic	0.321	95% Percentile Bootstrap UCL	0.214
Kolmogorov-Smirnov 5% Critical Value	0.158	95% BCA Bootstrap UCL	0.267
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.352
		97.5% Chebyshev(Mean, Sd) UCL	0.452
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.649
95% Approximate Gamma UCL	0.208		
95% Adjusted Gamma UCL	0.214		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.649

Result or 1/2 DL (benzo(g,h,i)perylene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	29
Raw Statistics		Log-transformed Statistics	
Minimum	0.0046	Minimum of Log Data	-5.368
Maximum	1.28	Maximum of Log Data	0.247
Mean	0.0961	Mean of log Data	-4.016
Median	0.0058	SD of log Data	1.685
SD	0.24		
Coefficient of Variation	2.497		
Skewness	4.019		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.442	Shapiro Wilk Test Statistic	0.756
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.164	95% H-UCL	0.19
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.18
95% Adjusted-CLT UCL	0.191	97.5% Chebyshev (MVUE) UCL	0.228
95% Modified-t UCL	0.168	99% Chebyshev (MVUE) UCL	0.323

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.38	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.253		
nu star	27.35		
Approximate Chi Square Value (.05)	16.42	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.162
Adjusted Chi Square Value	16.03	95% Jackknife UCL	0.164
		95% Standard Bootstrap UCL	0.162
Anderson-Darling Test Statistic	4.565	95% Bootstrap-t UCL	0.284
Anderson-Darling 5% Critical Value	0.836	95% Hall's Bootstrap UCL	0.403
Kolmogorov-Smirnov Test Statistic	0.351	95% Percentile Bootstrap UCL	0.173
Kolmogorov-Smirnov 5% Critical Value	0.157	95% BCA Bootstrap UCL	0.206
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.27
		97.5% Chebyshev(Mean, Sd) UCL	0.346
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.494
95% Approximate Gamma UCL	0.16		
95% Adjusted Gamma UCL	0.164		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.494

Result or 1/2 DL (benzo(k)fluoranthene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	25

Raw Statistics		Log-transformed Statistics	
Minimum	0.0055	Minimum of Log Data	-5.203
Maximum	0.799	Maximum of Log Data	-0.224
Mean	0.0601	Mean of log Data	-4.26
Median	0.0085	SD of log Data	1.298
SD	0.169		
Coefficient of Variation	2.819		
Skewness	3.875		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.357	Shapiro Wilk Test Statistic	0.62
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.108	95% H-UCL	0.06
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0682
95% Adjusted-CLT UCL	0.126	97.5% Chebyshev (MVUE) UCL	0.0841
95% Modified-t UCL	0.111	99% Chebyshev (MVUE) UCL	0.115

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.428	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.141		
nu star	30.79		

Approximate Chi Square Value (.05)	19.12	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.107
Adjusted Chi Square Value	18.7	95% Jackknife UCL	0.108
		95% Standard Bootstrap UCL	0.104
Anderson-Darling Test Statistic	7.875	95% Bootstrap-t UCL	0.283
Anderson-Darling 5% Critical Value	0.824	95% Hall's Bootstrap UCL	0.309
Kolmogorov-Smirnov Test Statistic	0.467	95% Percentile Bootstrap UCL	0.106
Kolmogorov-Smirnov 5% Critical Value	0.156	95% BCA Bootstrap UCL	0.13
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.183
		97.5% Chebyshev(Mean, Sd) UCL	0.236
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.341
95% Approximate Gamma UCL	0.0968		
95% Adjusted Gamma UCL	0.099		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.341

Result or 1/2 DL (beryllium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	28
Raw Statistics		Log-transformed Statistics	
Minimum	0.013	Minimum of Log Data	-4.343
Maximum	2.88	Maximum of Log Data	1.058
Mean	0.752	Mean of log Data	-0.509
Median	0.695	SD of log Data	0.881
SD	0.461		
Coefficient of Variation	0.613		
Skewness	2.77		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.759	Shapiro Wilk Test Statistic	0.702
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.882	95% H-UCL	1.24
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.503
95% Adjusted-CLT UCL	0.916	97.5% Chebyshev (MVUE) UCL	1.776
95% Modified-t UCL	0.888	99% Chebyshev (MVUE) UCL	2.312
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.199	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.342		
nu star	158.3		
Approximate Chi Square Value (.05)	130.2	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.879
Adjusted Chi Square Value	129.1	95% Jackknife UCL	0.882
		95% Standard Bootstrap UCL	0.874
Anderson-Darling Test Statistic	2.229	95% Bootstrap-t UCL	0.94

Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL	1.53
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL	0.885
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	0.921
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.087
		97.5% Chebyshev(Mean, Sd) UCL	1.232
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.516
95% Approximate Gamma UCL	0.914		
95% Adjusted Gamma UCL	0.923		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1.087

Result or 1/2 DL (bis(2-ethylhexyl)phthalate)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	34
Raw Statistics		Log-transformed Statistics	
Minimum	0.0065	Minimum of Log Data	-5.036
Maximum	0.239	Maximum of Log Data	-1.431
Mean	0.0428	Mean of log Data	-3.438
Median	0.0282	SD of log Data	0.703
SD	0.0446		
Coefficient of Variation	1.041		
Skewness	3.194		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.598	Shapiro Wilk Test Statistic	0.925
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0554	95% H-UCL	0.0527
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0635
95% Adjusted-CLT UCL	0.0593	97.5% Chebyshev (MVUE) UCL	0.0733
95% Modified-t UCL	0.0561	99% Chebyshev (MVUE) UCL	0.0926
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.75	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0245		
nu star	126		
Approximate Chi Square Value (.05)	101.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0551
Adjusted Chi Square Value	100.1	95% Jackknife UCL	0.0554
		95% Standard Bootstrap UCL	0.0548
Anderson-Darling Test Statistic	2.221	95% Bootstrap-t UCL	0.0674
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	0.0691
Kolmogorov-Smirnov Test Statistic	0.22	95% Percentile Bootstrap UCL	0.0562
Kolmogorov-Smirnov 5% Critical Value	0.149	95% BCA Bootstrap UCL	0.0599
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0753
		97.5% Chebyshev(Mean, Sd) UCL	0.0893

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.117
95% Approximate Gamma UCL	0.0534		
95% Adjusted Gamma UCL	0.054		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0753

Result or 1/2 DL (boron)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	35
Raw Statistics		Log-transformed Statistics	
Minimum	0.555	Minimum of Log Data	-0.589
Maximum	39.2	Maximum of Log Data	3.669
Mean	7.576	Mean of log Data	1.383
Median	5.27	SD of log Data	1.32
SD	7.826		
Coefficient of Variation	1.033		
Skewness	2.044		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.801	Shapiro Wilk Test Statistic	0.863
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	9.779	95% H-UCL	17.75
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	20.02
95% Adjusted-CLT UCL	10.2	97.5% Chebyshev (MVUE) UCL	24.73
95% Modified-t UCL	9.853	99% Chebyshev (MVUE) UCL	33.99
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.852	Data do not follow a Discernable Distribution (0.05)	
Theta Star	8.892		
nu star	61.34		
Approximate Chi Square Value (.05)	44.33	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	9.721
Adjusted Chi Square Value	43.67	95% Jackknife UCL	9.779
		95% Standard Bootstrap UCL	9.629
Anderson-Darling Test Statistic	1.037	95% Bootstrap-t UCL	10.46
Anderson-Darling 5% Critical Value	0.781	95% Hall's Bootstrap UCL	10.98
Kolmogorov-Smirnov Test Statistic	0.18	95% Percentile Bootstrap UCL	9.74
Kolmogorov-Smirnov 5% Critical Value	0.152	95% BCA Bootstrap UCL	10.28
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	13.26
		97.5% Chebyshev(Mean, Sd) UCL	15.72
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	20.55
95% Approximate Gamma UCL	10.48		
95% Adjusted Gamma UCL	10.64		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	20.55

Result or 1/2 DL (bromoform)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	6.8500E-5	Minimum of Log Data	-9.589
Maximum	0.018	Maximum of Log Data	-4.017
Mean	0.0023	Mean of log Data	-8.057
Median	9.2500E-5	SD of log Data	2.053
SD	0.0046		
Coefficient of Variation	1.992		
Skewness	2.642		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.561	Shapiro Wilk Test Statistic	0.687
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0042	95% H-UCL	0.0217
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0069
95% Adjusted-CLT UCL	0.0048	97.5% Chebyshev (MVUE) UCL	0.0091
95% Modified-t UCL	0.0043	99% Chebyshev (MVUE) UCL	0.0133
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.32	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0073		
nu star	12.14		
Approximate Chi Square Value (.05)	5.322	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0041
Adjusted Chi Square Value	4.931	95% Jackknife UCL	0.0042
		95% Standard Bootstrap UCL	0.0040
Anderson-Darling Test Statistic	2.937	95% Bootstrap-t UCL	0.0072
Anderson-Darling 5% Critical Value	0.835	95% Hall's Bootstrap UCL	0.0119
Kolmogorov-Smirnov Test Statistic	0.421	95% Percentile Bootstrap UCL	0.0042
Kolmogorov-Smirnov 5% Critical Value	0.214	95% BCA Bootstrap UCL	0.0049
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0070
		97.5% Chebyshev(Mean, Sd) UCL	0.0090
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.013
95% Approximate Gamma UCL	0.0053		
95% Adjusted Gamma UCL	0.0057		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.013

Result or 1/2 DL (butyl benzyl phthalate)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	29
Raw Statistics		Log-transformed Statistics	
Minimum	0.0045	Minimum of Log Data	-5.389
Maximum	0.151	Maximum of Log Data	-1.89
Mean	0.0125	Mean of log Data	-4.877
Median	0.0067	SD of log Data	0.703
SD	0.0255		
Coefficient of Variation	2.039		
Skewness	4.982		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.307	Shapiro Wilk Test Statistic	0.519
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0197	95% H-UCL	0.0125
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.015
95% Adjusted-CLT UCL	0.0233	97.5% Chebyshev (MVUE) UCL	0.0174
95% Modified-t UCL	0.0203	99% Chebyshev (MVUE) UCL	0.0219
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.069	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0117		
nu star	76.97		
Approximate Chi Square Value (.05)	57.76	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0195
Adjusted Chi Square Value	57	95% Jackknife UCL	0.0197
		95% Standard Bootstrap UCL	0.0194
Anderson-Darling Test Statistic	8.924	95% Bootstrap-t UCL	0.0398
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL	0.0422
Kolmogorov-Smirnov Test Statistic	0.488	95% Percentile Bootstrap UCL	0.0203
Kolmogorov-Smirnov 5% Critical Value	0.151	95% BCA Bootstrap UCL	0.0245
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.031
		97.5% Chebyshev(Mean, Sd) UCL	0.0391
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0548
95% Approximate Gamma UCL	0.0167		
95% Adjusted Gamma UCL	0.0169		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.031

Result or 1/2 DL (cadmium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	26
Raw Statistics		Log-transformed Statistics	
Minimum	0.003	Minimum of Log Data	-5.809
Maximum	0.8	Maximum of Log Data	-0.223

Mean	0.193	Mean of log Data	-3.263
Median	0.0105	SD of log Data	2.139
SD	0.239		
Coefficient of Variation	1.24		
Skewness	0.849		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.76	Shapiro Wilk Test Statistic	0.786
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.26	95% H-UCL	1.572
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.004
95% Adjusted-CLT UCL	0.265	97.5% Chebyshev (MVUE) UCL	1.302
95% Modified-t UCL	0.261	99% Chebyshev (MVUE) UCL	1.887
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.39	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.494		
nu star	28.11		
Approximate Chi Square Value (.05)	17.02	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.259
Adjusted Chi Square Value	16.62	95% Jackknife UCL	0.26
		95% Standard Bootstrap UCL	0.257
Anderson-Darling Test Statistic	3.561	95% Bootstrap-t UCL	0.269
Anderson-Darling 5% Critical Value	0.833	95% Hall's Bootstrap UCL	0.264
Kolmogorov-Smirnov Test Statistic	0.313	95% Percentile Bootstrap UCL	0.261
Kolmogorov-Smirnov 5% Critical Value	0.157	95% BCA Bootstrap UCL	0.262
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.367
		97.5% Chebyshev(Mean, Sd) UCL	0.442
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.59
95% Approximate Gamma UCL	0.319		
95% Adjusted Gamma UCL	0.326		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.59

Result or 1/2 DL (carbon disulfide)

General Statistics

Number of Valid Samples	19	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	4.4000E-5	Minimum of Log Data	-10.03
Maximum	0.0284	Maximum of Log Data	-3.561
Mean	0.0028	Mean of log Data	-8.197
Median	5.8000E-5	SD of log Data	2.3
SD	0.0066		
Coefficient of Variation	2.34		
Skewness	3.51		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.478	Shapiro Wilk Test Statistic	0.733
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0054	95% H-UCL	0.0531
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.01
95% Adjusted-CLT UCL	0.0066	97.5% Chebyshev (MVUE) UCL	0.0132
95% Modified-t UCL	0.0057	99% Chebyshev (MVUE) UCL	0.0195
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.284	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.01		
nu star	10.8		
Approximate Chi Square Value (.05)	4.45	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0053
Adjusted Chi Square Value	4.098	95% Jackknife UCL	0.0054
		95% Standard Bootstrap UCL	0.0051
Anderson-Darling Test Statistic	2.428	95% Bootstrap-t UCL	0.0102
Anderson-Darling 5% Critical Value	0.845	95% Hall's Bootstrap UCL	0.0129
Kolmogorov-Smirnov Test Statistic	0.384	95% Percentile Bootstrap UCL	0.0055
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.0075
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0095
		97.5% Chebyshev(Mean, Sd) UCL	0.0124
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.018
95% Approximate Gamma UCL	0.0069		
95% Adjusted Gamma UCL	0.0075		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.018

Result or 1/2 DL (chromium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	33
Raw Statistics		Log-transformed Statistics	
Minimum	7.76	Minimum of Log Data	2.049
Maximum	128	Maximum of Log Data	4.852
Mean	17.17	Mean of log Data	2.651
Median	12.8	SD of log Data	0.489
SD	19.6		
Coefficient of Variation	1.142		
Skewness	5.455		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.365	Shapiro Wilk Test Statistic	0.777
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	22.69	95% H-UCL	18.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.82
95% Adjusted-CLT UCL	25.72	97.5% Chebyshev (MVUE) UCL	24.38
95% Modified-t UCL	23.18	99% Chebyshev (MVUE) UCL	29.4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.545	Data do not follow a Discernable Distribution (0.05)	
Theta Star	6.745		
nu star	183.3		
Approximate Chi Square Value (.05)	153	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	22.54
Adjusted Chi Square Value	151.7	95% Jackknife UCL	22.69
		95% Standard Bootstrap UCL	22.43
Anderson-Darling Test Statistic	3.618	95% Bootstrap-t UCL	37.28
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	43.24
Kolmogorov-Smirnov Test Statistic	0.223	95% Percentile Bootstrap UCL	23.43
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	27.01
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	31.41
		97.5% Chebyshev(Mean, Sd) UCL	37.57
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	49.67
95% Approximate Gamma UCL	20.57		
95% Adjusted Gamma UCL	20.74		
Potential UCL to Use		Use 95% Student's-t UCL	22.69
		or 95% Modified-t UCL	23.18

Result or 1/2 DL (chrysene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	33
Raw Statistics		Log-transformed Statistics	
Minimum	0.0040	Minimum of Log Data	-5.502
Maximum	1.3	Maximum of Log Data	0.262
Mean	0.0885	Mean of log Data	-4.382
Median	0.0050	SD of log Data	1.633
SD	0.265		
Coefficient of Variation	3.001		
Skewness	3.989		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.361	Shapiro Wilk Test Statistic	0.683
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.163	95% H-UCL	0.115

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.112
95% Adjusted-CLT UCL	0.193	97.5% Chebyshev (MVUE) UCL	0.142
95% Modified-t UCL	0.168	99% Chebyshev (MVUE) UCL	0.2
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.334	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.265		
nu star	24.07		
Approximate Chi Square Value (.05)	13.9	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.161
Adjusted Chi Square Value	13.55	95% Jackknife UCL	0.163
		95% Standard Bootstrap UCL	0.163
Anderson-Darling Test Statistic	6.548	95% Bootstrap-t UCL	0.475
Anderson-Darling 5% Critical Value	0.847	95% Hall's Bootstrap UCL	0.489
Kolmogorov-Smirnov Test Statistic	0.37	95% Percentile Bootstrap UCL	0.166
Kolmogorov-Smirnov 5% Critical Value	0.158	95% BCA Bootstrap UCL	0.204
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.281
		97.5% Chebyshev(Mean, Sd) UCL	0.365
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.529
95% Approximate Gamma UCL	0.153		
95% Adjusted Gamma UCL	0.157		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.529

Result or 1/2 DL (cis-1,2-dichloroethene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	5.1000E-5	Minimum of Log Data	-9.884
Maximum	0.999	Maximum of Log Data	-0.001
Mean	0.0541	Mean of log Data	-8.276
Median	6.7000E-5	SD of log Data	2.711
SD	0.229		
Coefficient of Variation	4.232		
Skewness	4.356		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.253	Shapiro Wilk Test Statistic	0.631
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.145	95% H-UCL	0.356
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0226
95% Adjusted-CLT UCL	0.197	97.5% Chebyshev (MVUE) UCL	0.03
95% Modified-t UCL	0.154	99% Chebyshev (MVUE) UCL	0.0446
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.157	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.345		
nu star	5.949		
Approximate Chi Square Value (.05)	1.614	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.14
Adjusted Chi Square Value	1.426	95% Jackknife UCL	0.145
		95% Standard Bootstrap UCL	0.138
Anderson-Darling Test Statistic	4.69	95% Bootstrap-t UCL	12.24
Anderson-Darling 5% Critical Value	0.908	95% Hall's Bootstrap UCL	7.38
Kolmogorov-Smirnov Test Statistic	0.426	95% Percentile Bootstrap UCL	0.159
Kolmogorov-Smirnov 5% Critical Value	0.222	95% BCA Bootstrap UCL	0.213
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.283
		97.5% Chebyshev(Mean, Sd) UCL	0.382
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.577
95% Approximate Gamma UCL	0.199		
95% Adjusted Gamma UCL	0.226		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.577

Result or 1/2 DL (cobalt)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	36
Raw Statistics		Log-transformed Statistics	
Minimum	2.81	Minimum of Log Data	1.033
Maximum	10.3	Maximum of Log Data	2.332
Mean	6.318	Mean of log Data	1.803
Median	6.115	SD of log Data	0.3
SD	1.743		
Coefficient of Variation	0.276		
Skewness	0.102		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.982	Shapiro Wilk Test Statistic	0.951
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6.808	95% H-UCL	6.944
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.739
95% Adjusted-CLT UCL	6.801	97.5% Chebyshev (MVUE) UCL	8.346
95% Modified-t UCL	6.809	99% Chebyshev (MVUE) UCL	9.538
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	11.41	Data appear Normal at 5% Significance Level	
Theta Star	0.553		
nu star	821.8		
Approximate Chi Square Value (.05)	756.3	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	6.795

Adjusted Chi Square Value	753.4	95% Jackknife UCL	6.808
		95% Standard Bootstrap UCL	6.782
Anderson-Darling Test Statistic	0.303	95% Bootstrap-t UCL	6.811
Anderson-Darling 5% Critical Value	0.748	95% Hall's Bootstrap UCL	6.819
Kolmogorov-Smirnov Test Statistic	0.0941	95% Percentile Bootstrap UCL	6.799
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	6.809
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.584
		97.5% Chebyshev(Mean, Sd) UCL	8.132
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.208
95% Approximate Gamma UCL	6.865		
95% Adjusted Gamma UCL	6.891		
Potential UCL to Use		Use 95% Student's-t UCL	6.808

Result or 1/2 DL (copper)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	34
Raw Statistics		Log-transformed Statistics	
Minimum	4.59	Minimum of Log Data	1.524
Maximum	200	Maximum of Log Data	5.298
Mean	18.7	Mean of log Data	2.553
Median	10.05	SD of log Data	0.689
SD	31.9		
Coefficient of Variation	1.705		
Skewness	5.536		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.347	Shapiro Wilk Test Statistic	0.861
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	27.68	95% H-UCL	20.73
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	24.92
95% Adjusted-CLT UCL	32.69	97.5% Chebyshev (MVUE) UCL	28.71
95% Modified-t UCL	28.5	99% Chebyshev (MVUE) UCL	36.16
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.37	Data do not follow a Discernable Distribution (0.05)	
Theta Star	13.65		
nu star	98.64		
Approximate Chi Square Value (.05)	76.73	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	27.45
Adjusted Chi Square Value	75.85	95% Jackknife UCL	27.68
		95% Standard Bootstrap UCL	27.43
Anderson-Darling Test Statistic	2.951	95% Bootstrap-t UCL	50.7
Anderson-Darling 5% Critical Value	0.767	95% Hall's Bootstrap UCL	60.07
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL	28.98

Kolmogorov-Smirnov 5% Critical Value	0.15	95% BCA Bootstrap UCL	36.21
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	41.87
		97.5% Chebyshev(Mean, Sd) UCL	51.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	71.6
95% Approximate Gamma UCL	24.04		
95% Adjusted Gamma UCL	24.32		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	41.87

Result or 1/2 DL (cyclohexane)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	4.8100E-4	Minimum of Log Data	-7.64
Maximum	0.0255	Maximum of Log Data	-3.669
Mean	0.0056	Mean of log Data	-6.457
Median	6.3000E-4	SD of log Data	1.497
SD	0.0096		
Coefficient of Variation	1.696		
Skewness	1.55		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.553	Shapiro Wilk Test Statistic	0.705
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0094	95% H-UCL	0.016
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.012
95% Adjusted-CLT UCL	0.0101	97.5% Chebyshev (MVUE) UCL	0.0153
95% Modified-t UCL	0.0096	99% Chebyshev (MVUE) UCL	0.0218
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.452	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0125		
nu star	17.18		
Approximate Chi Square Value (.05)	8.804	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0092
Adjusted Chi Square Value	8.282	95% Jackknife UCL	0.0094
		95% Standard Bootstrap UCL	0.0090
Anderson-Darling Test Statistic	3.232	95% Bootstrap-t UCL	0.0118
Anderson-Darling 5% Critical Value	0.804	95% Hall's Bootstrap UCL	0.0083
Kolmogorov-Smirnov Test Statistic	0.355	95% Percentile Bootstrap UCL	0.0094
Kolmogorov-Smirnov 5% Critical Value	0.21	95% BCA Bootstrap UCL	0.0105
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0153
		97.5% Chebyshev(Mean, Sd) UCL	0.0194
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0276
95% Approximate Gamma UCL	0.0111		

95% Adjusted Gamma UCL	0.0118		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0276
Recommended UCL exceeds the maximum observation			

Result or 1/2 DL (dibenz(a,h)anthracene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	26
Raw Statistics		Log-transformed Statistics	
Minimum	0.0034	Minimum of Log Data	-5.674
Maximum	0.404	Maximum of Log Data	-0.906
Mean	0.0384	Mean of log Data	-4.616
Median	0.0054	SD of log Data	1.398
SD	0.0833		
Coefficient of Variation	2.166		
Skewness	3.088		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.49	Shapiro Wilk Test Statistic	0.646
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0619	95% H-UCL	0.052
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0571
95% Adjusted-CLT UCL	0.0689	97.5% Chebyshev (MVUE) UCL	0.0709
95% Modified-t UCL	0.0631	99% Chebyshev (MVUE) UCL	0.0982
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.451	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0852		
nu star	32.49		
Approximate Chi Square Value (.05)	20.46	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0613
Adjusted Chi Square Value	20.02	95% Jackknife UCL	0.0619
		95% Standard Bootstrap UCL	0.0615
Anderson-Darling Test Statistic	7.096	95% Bootstrap-t UCL	0.0836
Anderson-Darling 5% Critical Value	0.819	95% Hall's Bootstrap UCL	0.0724
Kolmogorov-Smirnov Test Statistic	0.456	95% Percentile Bootstrap UCL	0.0633
Kolmogorov-Smirnov 5% Critical Value	0.156	95% BCA Bootstrap UCL	0.0733
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0989
		97.5% Chebyshev(Mean, Sd) UCL	0.125
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.177
95% Approximate Gamma UCL	0.0611		
95% Adjusted Gamma UCL	0.0624		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.177

Result or 1/2 DL (dibenzofuran)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	27

Raw Statistics		Log-transformed Statistics	
Minimum	0.0030	Minimum of Log Data	-5.799
Maximum	0.0862	Maximum of Log Data	-2.451
Mean	0.0099	Mean of log Data	-4.945
Median	0.0075	SD of log Data	0.667
SD	0.0145		
Coefficient of Variation	1.457		
Skewness	4.686		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.375	Shapiro Wilk Test Statistic	0.732
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.014	95% H-UCL	0.0112
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0135
95% Adjusted-CLT UCL	0.0159	97.5% Chebyshev (MVUE) UCL	0.0155
95% Modified-t UCL	0.0143	99% Chebyshev (MVUE) UCL	0.0194
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.523	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0065		
nu star	109.7		
Approximate Chi Square Value (.05)	86.51	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0139
Adjusted Chi Square Value	85.57	95% Jackknife UCL	0.014
		95% Standard Bootstrap UCL	0.0137
Anderson-Darling Test Statistic	5.17	95% Bootstrap-t UCL	0.0303
Anderson-Darling 5% Critical Value	0.764	95% Hall's Bootstrap UCL	0.0344
Kolmogorov-Smirnov Test Statistic	0.389	95% Percentile Bootstrap UCL	0.0141
Kolmogorov-Smirnov 5% Critical Value	0.149	95% BCA Bootstrap UCL	0.0172
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0205
		97.5% Chebyshev(Mean, Sd) UCL	0.025
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.034
95% Approximate Gamma UCL	0.0126		
95% Adjusted Gamma UCL	0.0128		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0205

Result or 1/2 DL (diethyl phthalate)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	29

Raw Statistics		Log-transformed Statistics	
Minimum	0.0037	Minimum of Log Data	-5.578
Maximum	0.0498	Maximum of Log Data	-3
Mean	0.0097	Mean of log Data	-4.752
Median	0.0092	SD of log Data	0.448
SD	0.0072		
Coefficient of Variation	0.743		
Skewness	5.035		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.413	Shapiro Wilk Test Statistic	0.712
Shapiro Wilk Critical Value	0.935	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**	
95% Student's-t UCL	0.0118	95% H-UCL	0.011
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0127
95% Adjusted-CLT UCL	0.0128	97.5% Chebyshev (MVUE) UCL	0.0141
95% Modified-t UCL	0.012	99% Chebyshev (MVUE) UCL	0.0168
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.92	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0024		
nu star	282.3		
Approximate Chi Square Value (.05)	244.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0117
Adjusted Chi Square Value	242.7	95% Jackknife UCL	0.0118
		95% Standard Bootstrap UCL	0.0117
Anderson-Darling Test Statistic	4.813	95% Bootstrap-t UCL	0.0146
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	0.0208
Kolmogorov-Smirnov Test Statistic	0.332	95% Percentile Bootstrap UCL	0.012
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	0.0135
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.015
		97.5% Chebyshev(Mean, Sd) UCL	0.0173
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0218
95% Approximate Gamma UCL	0.0113		
95% Adjusted Gamma UCL	0.0113		
Potential UCL to Use		Use 95% Student's-t UCL	0.0118
		or 95% Modified-t UCL	0.012

Result or 1/2 DL (di-n-butyl phthalate)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	31

Raw Statistics		Log-transformed Statistics	
Minimum	0.0039	Minimum of Log Data	-5.525
Maximum	0.0835	Maximum of Log Data	-2.483

Mean	0.0155	Mean of log Data	-4.358
Median	0.0154	SD of log Data	0.624
SD	0.0128		
Coefficient of Variation	0.822		
Skewness	4.448		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.486	Shapiro Wilk Test Statistic	0.744
Shapiro Wilk Critical Value	0.935	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**	
95% Student's-t UCL	0.0191	95% H-UCL	0.0192
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.023
95% Adjusted-CLT UCL	0.0207	97.5% Chebyshev (MVUE) UCL	0.0262
95% Modified-t UCL	0.0194	99% Chebyshev (MVUE) UCL	0.0326
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.534	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0061		
nu star	182.4		
Approximate Chi Square Value (.05)	152.2	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.019
Adjusted Chi Square Value	150.9	95% Jackknife UCL	0.0191
		95% Standard Bootstrap UCL	0.0189
Anderson-Darling Test Statistic	4.3	95% Bootstrap-t UCL	0.0225
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	0.035
Kolmogorov-Smirnov Test Statistic	0.308	95% Percentile Bootstrap UCL	0.0195
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	0.0214
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0248
		97.5% Chebyshev(Mean, Sd) UCL	0.0288
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0367
95% Approximate Gamma UCL	0.0186		
95% Adjusted Gamma UCL	0.0188		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0248

Result or 1/2 DL (di-n-octyl phthalate)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	30
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0041	Minimum of Log Data	-5.48
Maximum	0.123	Maximum of Log Data	-2.096
Mean	0.0115	Mean of log Data	-4.921
Median	0.0047	SD of log Data	0.76
SD	0.0205		
Coefficient of Variation	1.774		
Skewness	4.971		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.376	Shapiro Wilk Test Statistic	0.707
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0173	95% H-UCL	0.0128
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0155
95% Adjusted-CLT UCL	0.0202	97.5% Chebyshev (MVUE) UCL	0.018
95% Modified-t UCL	0.0178	99% Chebyshev (MVUE) UCL	0.023
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.146	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0101		
nu star	82.54		
Approximate Chi Square Value (.05)	62.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0171
Adjusted Chi Square Value	61.81	95% Jackknife UCL	0.0173
		95% Standard Bootstrap UCL	0.0172
Anderson-Darling Test Statistic	5.068	95% Bootstrap-t UCL	0.0314
Anderson-Darling 5% Critical Value	0.772	95% Hall's Bootstrap UCL	0.0385
Kolmogorov-Smirnov Test Statistic	0.33	95% Percentile Bootstrap UCL	0.0178
Kolmogorov-Smirnov 5% Critical Value	0.15	95% BCA Bootstrap UCL	0.0216
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0264
		97.5% Chebyshev(Mean, Sd) UCL	0.0328
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0455
95% Approximate Gamma UCL	0.0152		
95% Adjusted Gamma UCL	0.0154		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0264

Result or 1/2 DL (ethylbenzene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	8.7000E-5	Minimum of Log Data	-9.35
Maximum	0.0050	Maximum of Log Data	-5.294
Mean	0.0016	Mean of log Data	-7.578
Median	1.1400E-4	SD of log Data	1.78
SD	0.0019		
Coefficient of Variation	1.168		
Skewness	0.735		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.759	Shapiro Wilk Test Statistic	0.748
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901

Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0024	95% H-UCL	0.0128
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0065
95% Adjusted-CLT UCL	0.0024	97.5% Chebyshev (MVUE) UCL	0.0085
95% Modified-t UCL	0.0024	99% Chebyshev (MVUE) UCL	0.0123
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.484	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0034		
nu star	18.4		
Approximate Chi Square Value (.05)	9.677	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0024
Adjusted Chi Square Value	9.127	95% Jackknife UCL	0.0024
		95% Standard Bootstrap UCL	0.0023
Anderson-Darling Test Statistic	2.006	95% Bootstrap-t UCL	0.0025
Anderson-Darling 5% Critical Value	0.8	95% Hall's Bootstrap UCL	0.0023
Kolmogorov-Smirnov Test Statistic	0.336	95% Percentile Bootstrap UCL	0.0024
Kolmogorov-Smirnov 5% Critical Value	0.209	95% BCA Bootstrap UCL	0.0024
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0036
		97.5% Chebyshev(Mean, Sd) UCL	0.0044
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0061
95% Approximate Gamma UCL	0.0031		
95% Adjusted Gamma UCL	0.0033		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0061
Recommended UCL exceeds the maximum observation			

Result or 1/2 DL (fluoranthene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	26
Raw Statistics		Log-transformed Statistics	
Minimum	0.0033	Minimum of Log Data	-5.69
Maximum	2.19	Maximum of Log Data	0.784
Mean	0.146	Mean of log Data	-4.243
Median	0.0063	SD of log Data	1.752
SD	0.469		
Coefficient of Variation	3.217		
Skewness	3.949		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.339	Shapiro Wilk Test Statistic	0.697
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.278	95% H-UCL	0.181

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.164
95% Adjusted-CLT UCL	0.329	97.5% Chebyshev (MVUE) UCL	0.209
95% Modified-t UCL	0.286	99% Chebyshev (MVUE) UCL	0.296
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.292	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.499		
nu star	21		
Approximate Chi Square Value (.05)	11.59	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.274
Adjusted Chi Square Value	11.27	95% Jackknife UCL	0.278
		95% Standard Bootstrap UCL	0.271
Anderson-Darling Test Statistic	6.927	95% Bootstrap-t UCL	0.911
Anderson-Darling 5% Critical Value	0.858	95% Hall's Bootstrap UCL	0.856
Kolmogorov-Smirnov Test Statistic	0.416	95% Percentile Bootstrap UCL	0.281
Kolmogorov-Smirnov 5% Critical Value	0.159	95% BCA Bootstrap UCL	0.352
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.486
		97.5% Chebyshev(Mean, Sd) UCL	0.633
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.923
95% Approximate Gamma UCL	0.264		
95% Adjusted Gamma UCL	0.271		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.923

Result or 1/2 DL (fluorene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	25
Raw Statistics		Log-transformed Statistics	
Minimum	0.0034	Minimum of Log Data	-5.674
Maximum	0.141	Maximum of Log Data	-1.959
Mean	0.0112	Mean of log Data	-5.042
Median	0.0053	SD of log Data	0.774
SD	0.0235		
Coefficient of Variation	2.098		
Skewness	5.169		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.329	Shapiro Wilk Test Statistic	0.623
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0178	95% H-UCL	0.0115
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.014
95% Adjusted-CLT UCL	0.0212	97.5% Chebyshev (MVUE) UCL	0.0163
95% Modified-t UCL	0.0183	99% Chebyshev (MVUE) UCL	0.0208
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	0.978	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0114		
nu star	70.43		
Approximate Chi Square Value (.05)	52.11	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0176
Adjusted Chi Square Value	51.39	95% Jackknife UCL	0.0178
		95% Standard Bootstrap UCL	0.0176
Anderson-Darling Test Statistic	7.344	95% Bootstrap-t UCL	0.035
Anderson-Darling 5% Critical Value	0.775	95% Hall's Bootstrap UCL	0.0372
Kolmogorov-Smirnov Test Statistic	0.454	95% Percentile Bootstrap UCL	0.0181
Kolmogorov-Smirnov 5% Critical Value	0.151	95% BCA Bootstrap UCL	0.0227
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0282
		97.5% Chebyshev(Mean, Sd) UCL	0.0356
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0501
95% Approximate Gamma UCL	0.0151		
95% Adjusted Gamma UCL	0.0153		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.0282

Result or 1/2 DL (indeno(1,2,3-cd)pyrene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	28
Raw Statistics		Log-transformed Statistics	
Minimum	0.007	Minimum of Log Data	-4.962
Maximum	1.51	Maximum of Log Data	0.412
Mean	0.113	Mean of log Data	-3.647
Median	0.0092	SD of log Data	1.563
SD	0.279		
Coefficient of Variation	2.469		
Skewness	4.199		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.427	Shapiro Wilk Test Statistic	0.762
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.192	95% H-UCL	0.201
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.204
95% Adjusted-CLT UCL	0.225	97.5% Chebyshev (MVUE) UCL	0.257
95% Modified-t UCL	0.197	99% Chebyshev (MVUE) UCL	0.361
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.423	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.268		
nu star	30.45		
Approximate Chi Square Value (.05)	18.84	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.19

Adjusted Chi Square Value	18.43	95% Jackknife UCL	0.192
		95% Standard Bootstrap UCL	0.19
Anderson-Darling Test Statistic	4.43	95% Bootstrap-t UCL	0.396
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	0.517
Kolmogorov-Smirnov Test Statistic	0.35	95% Percentile Bootstrap UCL	0.198
Kolmogorov-Smirnov 5% Critical Value	0.156	95% BCA Bootstrap UCL	0.243
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.316
		97.5% Chebyshev(Mean, Sd) UCL	0.404
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.577
95% Approximate Gamma UCL	0.183		
95% Adjusted Gamma UCL	0.187		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.577

Result or 1/2 DL (iron)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	32

Raw Statistics		Log-transformed Statistics	
Minimum	7120	Minimum of Log Data	8.871
Maximum	102000	Maximum of Log Data	11.53
Mean	17531	Mean of log Data	9.638
Median	15350	SD of log Data	0.436
SD	15039		
Coefficient of Variation	0.858		
Skewness	5.318		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.41	Shapiro Wilk Test Statistic	0.824
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	21765	95% H-UCL	19358
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22337
95% Adjusted-CLT UCL	24027	97.5% Chebyshev (MVUE) UCL	24726
95% Modified-t UCL	22136	99% Chebyshev (MVUE) UCL	29419
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.588	Data do not follow a Discernable Distribution (0.05)	
Theta Star	4885		
nu star	258.4		
Approximate Chi Square Value (.05)	222.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	21653
Adjusted Chi Square Value	220.6	95% Jackknife UCL	21765
		95% Standard Bootstrap UCL	21576
Anderson-Darling Test Statistic	2.629	95% Bootstrap-t UCL	29376
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	38680
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL	22237

Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	24682
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	28456
		97.5% Chebyshev(Mean, Sd) UCL	33183
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	42470
95% Approximate Gamma UCL	20389		
95% Adjusted Gamma UCL	20529		
Potential UCL to Use		Use 95% Student's-t UCL	21765
		or 95% Modified-t UCL	22136

Result or 1/2 DL (lead)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	31
Raw Statistics		Log-transformed Statistics	
Minimum	5.88	Minimum of Log Data	1.772
Maximum	471	Maximum of Log Data	6.155
Mean	37.8	Mean of log Data	2.932
Median	15.2	SD of log Data	0.931
SD	80.99		
Coefficient of Variation	2.143		
Skewness	4.731		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.388	Shapiro Wilk Test Statistic	0.781
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	60.6	95% H-UCL	41.65
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	50.42
95% Adjusted-CLT UCL	71.37	97.5% Chebyshev (MVUE) UCL	59.92
95% Modified-t UCL	62.38	99% Chebyshev (MVUE) UCL	78.59
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.79	Data do not follow a Discernable Distribution (0.05)	
Theta Star	47.83		
nu star	56.89		
Approximate Chi Square Value (.05)	40.55	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	60
Adjusted Chi Square Value	39.93	95% Jackknife UCL	60.6
		95% Standard Bootstrap UCL	60.09
Anderson-Darling Test Statistic	5.207	95% Bootstrap-t UCL	105.3
Anderson-Darling 5% Critical Value	0.784	95% Hall's Bootstrap UCL	130.3
Kolmogorov-Smirnov Test Statistic	0.389	95% Percentile Bootstrap UCL	61.68
Kolmogorov-Smirnov 5% Critical Value	0.152	95% BCA Bootstrap UCL	78.41
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	96.63
		97.5% Chebyshev(Mean, Sd) UCL	122.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	172.1

95% Approximate Gamma UCL	53.02		
95% Adjusted Gamma UCL	53.86		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	96.63

Result or 1/2 DL (lithium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	33
Raw Statistics		Log-transformed Statistics	
Minimum	2.59	Minimum of Log Data	0.952
Maximum	32.2	Maximum of Log Data	3.472
Mean	18.84	Mean of log Data	2.869
Median	18.55	SD of log Data	0.424
SD	5.952		
Coefficient of Variation	0.316		
Skewness	0.0191		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.97	Shapiro Wilk Test Statistic	0.789
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
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	20.51	95% H-UCL	22.03
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	25.35
95% Adjusted-CLT UCL	20.47	97.5% Chebyshev (MVUE) UCL	27.99
95% Modified-t UCL	20.51	99% Chebyshev (MVUE) UCL	33.19
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	7.068	Data appear Normal at 5% Significance Level	
Theta Star	2.665		
nu star	508.9		
Approximate Chi Square Value (.05)	457.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	20.47
Adjusted Chi Square Value	455.4	95% Jackknife UCL	20.51
		95% Standard Bootstrap UCL	20.44
Anderson-Darling Test Statistic	0.738	95% Bootstrap-t UCL	20.48
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	20.47
Kolmogorov-Smirnov Test Statistic	0.121	95% Percentile Bootstrap UCL	20.44
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	20.45
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	23.16
		97.5% Chebyshev(Mean, Sd) UCL	25.03
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28.71
95% Approximate Gamma UCL	20.95		
95% Adjusted Gamma UCL	21.05		
Potential UCL to Use		Use 95% Student's-t UCL	20.51

Result or 1/2 DL (m,p-xylene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	1.6050E-4	Minimum of Log Data	-8.737
Maximum	0.0091	Maximum of Log Data	-4.694
Mean	0.0020	Mean of log Data	-7.556
Median	2.0500E-4	SD of log Data	1.604
SD	0.0034		
Coefficient of Variation	1.668		
Skewness	1.515		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.573	Shapiro Wilk Test Statistic	0.676
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0034	95% H-UCL	0.0073
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0048
95% Adjusted-CLT UCL	0.0036	97.5% Chebyshev (MVUE) UCL	0.0062
95% Modified-t UCL	0.0035	99% Chebyshev (MVUE) UCL	0.0089
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.428	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0048		
nu star	16.25		
Approximate Chi Square Value (.05)	8.141	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0033
Adjusted Chi Square Value	7.642	95% Jackknife UCL	0.0034
		95% Standard Bootstrap UCL	0.0033
Anderson-Darling Test Statistic	3.262	95% Bootstrap-t UCL	0.0041
Anderson-Darling 5% Critical Value	0.81	95% Hall's Bootstrap UCL	0.0030
Kolmogorov-Smirnov Test Statistic	0.411	95% Percentile Bootstrap UCL	0.0034
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	0.0036
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0055
		97.5% Chebyshev(Mean, Sd) UCL	0.0070
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0099
95% Approximate Gamma UCL	0.0041		
95% Adjusted Gamma UCL	0.0044		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0099
Recommended UCL exceeds the maximum observation			

Result or 1/2 DL (manganese)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	36
Raw Statistics		Log-transformed Statistics	
Minimum	82.3	Minimum of Log Data	4.41
Maximum	1210	Maximum of Log Data	7.098
Mean	347	Mean of log Data	5.709
Median	289.5	SD of log Data	0.542
SD	204.1		
Coefficient of Variation	0.588		
Skewness	2.242		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.816	Shapiro Wilk Test Statistic	0.963
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	404.5	95% H-UCL	417.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	491.6
95% Adjusted-CLT UCL	416.6	97.5% Chebyshev (MVUE) UCL	553.9
95% Modified-t UCL	406.6	99% Chebyshev (MVUE) UCL	676.4
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.417	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	101.6		
nu star	246		
Approximate Chi Square Value (.05)	210.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	403
Adjusted Chi Square Value	209.2	95% Jackknife UCL	404.5
		95% Standard Bootstrap UCL	401.3
Anderson-Darling Test Statistic	0.549	95% Bootstrap-t UCL	424.9
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	467
Kolmogorov-Smirnov Test Statistic	0.11	95% Percentile Bootstrap UCL	405.4
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	417.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	495.3
		97.5% Chebyshev(Mean, Sd) UCL	559.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	685.4
95% Approximate Gamma UCL	405.2		
95% Adjusted Gamma UCL	408.1		
Potential UCL to Use		Use 95% Approximate Gamma UCL	405.2

Result or 1/2 DL (mercury)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	23
Raw Statistics		Log-transformed Statistics	
Minimum	0.0011	Minimum of Log Data	-6.768
Maximum	0.064	Maximum of Log Data	-2.749

Mean	0.0094	Mean of log Data	-5.346
Median	0.0074	SD of log Data	1.23
SD	0.0124		
Coefficient of Variation	1.306		
Skewness	2.923		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.667	Shapiro Wilk Test Statistic	0.846
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.013	95% H-UCL	0.0177
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0205
95% Adjusted-CLT UCL	0.0139	97.5% Chebyshev (MVUE) UCL	0.0251
95% Modified-t UCL	0.0131	99% Chebyshev (MVUE) UCL	0.0342
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.803	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0118		
nu star	57.82		
Approximate Chi Square Value (.05)	41.34	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0129
Adjusted Chi Square Value	40.7	95% Jackknife UCL	0.013
		95% Standard Bootstrap UCL	0.0128
Anderson-Darling Test Statistic	1.891	95% Bootstrap-t UCL	0.0153
Anderson-Darling 5% Critical Value	0.783	95% Hall's Bootstrap UCL	0.0288
Kolmogorov-Smirnov Test Statistic	0.247	95% Percentile Bootstrap UCL	0.0132
Kolmogorov-Smirnov 5% Critical Value	0.152	95% BCA Bootstrap UCL	0.0141
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0185
		97.5% Chebyshev(Mean, Sd) UCL	0.0224
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.03
95% Approximate Gamma UCL	0.0133		
95% Adjusted Gamma UCL	0.0135		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.03

Result or 1/2 DL (methylcyclohexane)

General Statistics

Number of Valid Samples	19	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	1.4950E-4	Minimum of Log Data	-8.808
Maximum	0.0085	Maximum of Log Data	-4.762
Mean	0.0024	Mean of log Data	-7.039
Median	0.0015	SD of log Data	1.607
SD	0.0030		
Coefficient of Variation	1.259		
Skewness	1.227		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.726	Shapiro Wilk Test Statistic	0.815
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0036	95% H-UCL	0.0125
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0081
95% Adjusted-CLT UCL	0.0038	97.5% Chebyshev (MVUE) UCL	0.0105
95% Modified-t UCL	0.0037	99% Chebyshev (MVUE) UCL	0.0151
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.541	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0045		
nu star	20.57		
Approximate Chi Square Value (.05)	11.27	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0036
Adjusted Chi Square Value	10.67	95% Jackknife UCL	0.0036
		95% Standard Bootstrap UCL	0.0035
Anderson-Darling Test Statistic	1.396	95% Bootstrap-t UCL	0.0040
Anderson-Darling 5% Critical Value	0.793	95% Hall's Bootstrap UCL	0.0035
Kolmogorov-Smirnov Test Statistic	0.289	95% Percentile Bootstrap UCL	0.0037
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL	0.0039
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0055
		97.5% Chebyshev(Mean, Sd) UCL	0.0068
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0095
95% Approximate Gamma UCL	0.0044		
95% Adjusted Gamma UCL	0.0047		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0095
Recommended UCL exceeds the maximum observation			

Result or 1/2 DL (molybdenum)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	28
Raw Statistics		Log-transformed Statistics	
Minimum	0.037	Minimum of Log Data	-3.297
Maximum	10.7	Maximum of Log Data	2.37
Mean	0.586	Mean of log Data	-1.916
Median	0.115	SD of log Data	1.44
SD	1.788		
Coefficient of Variation	3.054		
Skewness	5.477		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.321	Shapiro Wilk Test Statistic	0.86

Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	1.089	95% H-UCL	0.851
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.917
95% Adjusted-CLT UCL	1.367	97.5% Chebyshev (MVUE) UCL	1.144
95% Modified-t UCL	1.135	99% Chebyshev (MVUE) UCL	1.589
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.445	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.316		
nu star	32.04		
Approximate Chi Square Value (.05)	20.1	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	1.076
Adjusted Chi Square Value	19.67	95% Jackknife UCL	1.089
		95% Standard Bootstrap UCL	1.077
Anderson-Darling Test Statistic	3.324	95% Bootstrap-t UCL	2.845
Anderson-Darling 5% Critical Value	0.82	95% Hall's Bootstrap UCL	2.784
Kolmogorov-Smirnov Test Statistic	0.217	95% Percentile Bootstrap UCL	1.164
Kolmogorov-Smirnov 5% Critical Value	0.156	95% BCA Bootstrap UCL	1.557
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.885
		97.5% Chebyshev(Mean, Sd) UCL	2.447
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3.551
95% Approximate Gamma UCL	0.933		
95% Adjusted Gamma UCL	0.954		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	3.551

Result or 1/2 DL (naphthalene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	1.5800E-4	Minimum of Log Data	-8.753
Maximum	0.251	Maximum of Log Data	-1.382
Mean	0.0236	Mean of log Data	-6.08
Median	0.0018	SD of log Data	2.079
SD	0.0644		
Coefficient of Variation	2.734		
Skewness	3.147		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.407	Shapiro Wilk Test Statistic	0.901
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0492	95% H-UCL	0.173

95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0529
95% Adjusted-CLT UCL	0.0593	97.5% Chebyshev (MVUE) UCL	0.0693
95% Modified-t UCL	0.051	99% Chebyshev (MVUE) UCL	0.102
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.285	Data appear Lognormal at 5% Significance Level	
Theta Star	0.0827		
nu star	10.82		
Approximate Chi Square Value (.05)	4.458	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0479
Adjusted Chi Square Value	4.107	95% Jackknife UCL	0.0492
		95% Standard Bootstrap UCL	0.0476
Anderson-Darling Test Statistic	2.192	95% Bootstrap-t UCL	0.506
Anderson-Darling 5% Critical Value	0.844	95% Hall's Bootstrap UCL	0.25
Kolmogorov-Smirnov Test Statistic	0.332	95% Percentile Bootstrap UCL	0.05
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.063
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.088
		97.5% Chebyshev(Mean, Sd) UCL	0.116
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.171
95% Approximate Gamma UCL	0.0571		
95% Adjusted Gamma UCL	0.062		
Potential UCL to Use		Use 99% Chebyshev (MVUE) UCL	0.102

Result or 1/2 DL (nickel)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	32
Raw Statistics		Log-transformed Statistics	
Minimum	9.74	Minimum of Log Data	2.276
Maximum	51.7	Maximum of Log Data	3.945
Mean	17.17	Mean of log Data	2.795
Median	16	SD of log Data	0.288
SD	6.788		
Coefficient of Variation	0.395		
Skewness	3.881		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.637	Shapiro Wilk Test Statistic	0.884
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	19.08	95% H-UCL	18.61
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	20.67
95% Adjusted-CLT UCL	19.82	97.5% Chebyshev (MVUE) UCL	22.24
95% Modified-t UCL	19.21	99% Chebyshev (MVUE) UCL	25.32
Gamma Distribution Test		Data Distribution	

k star (bias corrected)	9.72	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	1.767		
nu star	699.9		
Approximate Chi Square Value (.05)	639.5	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	19.03
Adjusted Chi Square Value	636.9	95% Jackknife UCL	19.08
		95% Standard Bootstrap UCL	18.99
Anderson-Darling Test Statistic	1.205	95% Bootstrap-t UCL	20.64
Anderson-Darling 5% Critical Value	0.748	95% Hall's Bootstrap UCL	27.37
Kolmogorov-Smirnov Test Statistic	0.146	95% Percentile Bootstrap UCL	19.15
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	19.93
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	22.1
		97.5% Chebyshev(Mean, Sd) UCL	24.24
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28.43
95% Approximate Gamma UCL	18.79		
95% Adjusted Gamma UCL	18.87		
Potential UCL to Use		Use 95% Approximate Gamma UCL	18.79

Result or 1/2 DL (phenanthrene)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	30
Raw Statistics		Log-transformed Statistics	
Minimum	0.0036	Minimum of Log Data	-5.614
Maximum	1.34	Maximum of Log Data	0.293
Mean	0.0998	Mean of log Data	-4.194
Median	0.007	SD of log Data	1.57
SD	0.299		
Coefficient of Variation	2.991		
Skewness	3.832		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.354	Shapiro Wilk Test Statistic	0.743
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.184	95% H-UCL	0.119
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.12
95% Adjusted-CLT UCL	0.216	97.5% Chebyshev (MVUE) UCL	0.151
95% Modified-t UCL	0.189	99% Chebyshev (MVUE) UCL	0.212
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.344	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.29		
nu star	24.76		
Approximate Chi Square Value (.05)	14.43	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.182

Adjusted Chi Square Value	14.07	95% Jackknife UCL	0.184
		95% Standard Bootstrap UCL	0.182
Anderson-Darling Test Statistic	6.276	95% Bootstrap-t UCL	0.515
Anderson-Darling 5% Critical Value	0.845	95% Hall's Bootstrap UCL	0.538
Kolmogorov-Smirnov Test Statistic	0.359	95% Percentile Bootstrap UCL	0.187
Kolmogorov-Smirnov 5% Critical Value	0.158	95% BCA Bootstrap UCL	0.218
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.317
		97.5% Chebyshev(Mean, Sd) UCL	0.411
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.595
95% Approximate Gamma UCL	0.171		
95% Adjusted Gamma UCL	0.176		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.595

Result or 1/2 DL (pyrene)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	28

Raw Statistics		Log-transformed Statistics	
Minimum	0.0044	Minimum of Log Data	-5.424
Maximum	1.97	Maximum of Log Data	0.678
Mean	0.143	Mean of log Data	-4.094
Median	0.0067	SD of log Data	1.701
SD	0.444		
Coefficient of Variation	3.103		
Skewness	3.879		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.344	Shapiro Wilk Test Statistic	0.703
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.268	95% H-UCL	0.184
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.172
95% Adjusted-CLT UCL	0.316	97.5% Chebyshev (MVUE) UCL	0.218
95% Modified-t UCL	0.276	99% Chebyshev (MVUE) UCL	0.309
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.31	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.461		
nu star	22.31		
Approximate Chi Square Value (.05)	12.57	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.265
Adjusted Chi Square Value	12.24	95% Jackknife UCL	0.268
		95% Standard Bootstrap UCL	0.261
Anderson-Darling Test Statistic	6.595	95% Bootstrap-t UCL	0.852
Anderson-Darling 5% Critical Value	0.853	95% Hall's Bootstrap UCL	0.824
Kolmogorov-Smirnov Test Statistic	0.37	95% Percentile Bootstrap UCL	0.268

Kolmogorov-Smirnov 5% Critical Value	0.159	95% BCA Bootstrap UCL	0.336
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.465
		97.5% Chebyshev(Mean, Sd) UCL	0.605
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.879
95% Approximate Gamma UCL	0.254		
95% Adjusted Gamma UCL	0.261		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.879

Result or 1/2 DL (silver)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	20
Raw Statistics		Log-transformed Statistics	
Minimum	0.0135	Minimum of Log Data	-4.305
Maximum	0.41	Maximum of Log Data	-0.892
Mean	0.0473	Mean of log Data	-3.473
Median	0.0298	SD of log Data	0.718
SD	0.0773		
Coefficient of Variation	1.632		
Skewness	4.047		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.382	Shapiro Wilk Test Statistic	0.695
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	0.0691	95% H-UCL	0.0518
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0625
95% Adjusted-CLT UCL	0.0778	97.5% Chebyshev (MVUE) UCL	0.0723
95% Modified-t UCL	0.0705	99% Chebyshev (MVUE) UCL	0.0915
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.233	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0384		
nu star	88.81		
Approximate Chi Square Value (.05)	68.08	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.0685
Adjusted Chi Square Value	67.26	95% Jackknife UCL	0.0691
		95% Standard Bootstrap UCL	0.068
Anderson-Darling Test Statistic	6.224	95% Bootstrap-t UCL	0.157
Anderson-Darling 5% Critical Value	0.77	95% Hall's Bootstrap UCL	0.157
Kolmogorov-Smirnov Test Statistic	0.432	95% Percentile Bootstrap UCL	0.0709
Kolmogorov-Smirnov 5% Critical Value	0.15	95% BCA Bootstrap UCL	0.0811
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.103
		97.5% Chebyshev(Mean, Sd) UCL	0.128
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.175
95% Approximate Gamma UCL	0.0617		

95% Adjusted Gamma UCL	0.0625		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.103

Result or 1/2 DL (strontium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	35
Raw Statistics		**Log-transformed Statistics**	
Minimum	22.1	Minimum of Log Data	3.096
Maximum	96.2	Maximum of Log Data	4.566
Mean	56.15	Mean of log Data	3.952
Median	53	SD of log Data	0.412
SD	20.95		
Coefficient of Variation	0.373		
Skewness	0.15		

Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.933
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
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	62.05	95% H-UCL	64.44
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	73.96
95% Adjusted-CLT UCL	61.98	97.5% Chebyshev (MVUE) UCL	81.51
95% Modified-t UCL	62.06	99% Chebyshev (MVUE) UCL	96.36
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	6.163	Data appear Normal at 5% Significance Level	
Theta Star	9.111		
nu star	443.7		
Approximate Chi Square Value (.05)	395.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	61.89
Adjusted Chi Square Value	393.8	95% Jackknife UCL	62.05
		95% Standard Bootstrap UCL	61.71
Anderson-Darling Test Statistic	0.492	95% Bootstrap-t UCL	62.12
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	62.04
Kolmogorov-Smirnov Test Statistic	0.106	95% Percentile Bootstrap UCL	61.53
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	61.57
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	71.37
		97.5% Chebyshev(Mean, Sd) UCL	77.95
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	90.89
95% Approximate Gamma UCL	62.93		
95% Adjusted Gamma UCL	63.26		
Potential UCL to Use		Use 95% Student's-t UCL	62.05

Result or 1/2 DL (tetrachloroethene)

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	18

Raw Statistics		Log-transformed Statistics	
Minimum	7.7500E-5	Minimum of Log Data	-9.465
Maximum	0.223	Maximum of Log Data	-1.501
Mean	0.0127	Mean of log Data	-7.936
Median	1.0500E-4	SD of log Data	2.239
SD	0.0509		
Coefficient of Variation	4.004		
Skewness	4.351		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.264	Shapiro Wilk Test Statistic	0.689
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.033	95% H-UCL	0.0528
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0115
95% Adjusted-CLT UCL	0.0444	97.5% Chebyshev (MVUE) UCL	0.0151
95% Modified-t UCL	0.0349	99% Chebyshev (MVUE) UCL	0.0222
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.208	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0612		
nu star	7.9		
Approximate Chi Square Value (.05)	2.677	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0319
Adjusted Chi Square Value	2.419	95% Jackknife UCL	0.033
		95% Standard Bootstrap UCL	0.0313
Anderson-Darling Test Statistic	3.918	95% Bootstrap-t UCL	0.477
Anderson-Darling 5% Critical Value	0.885	95% Hall's Bootstrap UCL	0.346
Kolmogorov-Smirnov Test Statistic	0.388	95% Percentile Bootstrap UCL	0.036
Kolmogorov-Smirnov 5% Critical Value	0.22	95% BCA Bootstrap UCL	0.0482
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0637
		97.5% Chebyshev(Mean, Sd) UCL	0.0857
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.129
95% Approximate Gamma UCL	0.0375		
95% Adjusted Gamma UCL	0.0416		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.129

Result or 1/2 DL (tin)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	20

Raw Statistics		Log-transformed Statistics	
Minimum	0.195	Minimum of Log Data	-1.635
Maximum	3.67	Maximum of Log Data	1.3
Mean	0.47	Mean of log Data	-1.072
Median	0.285	SD of log Data	0.642
SD	0.628		
Coefficient of Variation	1.334		
Skewness	4.232		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.431	Shapiro Wilk Test Statistic	0.665
Shapiro Wilk Critical Value	0.935	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**	
95% Student's-t UCL	0.647	95% H-UCL	0.524
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.627
95% Adjusted-CLT UCL	0.721	97.5% Chebyshev (MVUE) UCL	0.718
95% Modified-t UCL	0.659	99% Chebyshev (MVUE) UCL	0.896
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.594	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.295		
nu star	114.8		
Approximate Chi Square Value (.05)	91.06	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0428	95% CLT UCL	0.642
Adjusted Chi Square Value	90.1	95% Jackknife UCL	0.647
		95% Standard Bootstrap UCL	0.636
Anderson-Darling Test Statistic	6.272	95% Bootstrap-t UCL	0.881
Anderson-Darling 5% Critical Value	0.763	95% Hall's Bootstrap UCL	1.225
Kolmogorov-Smirnov Test Statistic	0.431	95% Percentile Bootstrap UCL	0.664
Kolmogorov-Smirnov 5% Critical Value	0.149	95% BCA Bootstrap UCL	0.747
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.926
		97.5% Chebyshev(Mean, Sd) UCL	1.124
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.511
95% Approximate Gamma UCL	0.593		
95% Adjusted Gamma UCL	0.599		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.926

Result or 1/2 DL (titanium)

General Statistics

Number of Valid Samples	36	Number of Unique Samples	33

Raw Statistics		Log-transformed Statistics	
Minimum	3.41	Minimum of Log Data	1.227
Maximum	57	Maximum of Log Data	4.043
Mean	20.83	Mean of log Data	2.854
Median	17.95	SD of log Data	0.641

SD	12.9		
Coefficient of Variation	0.619		
Skewness	1.414		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Test Statistic	0.951
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	24.46	95% H-UCL	26.55
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	31.75
95% Adjusted-CLT UCL	24.9	97.5% Chebyshev (MVUE) UCL	36.33
95% Modified-t UCL	24.54	99% Chebyshev (MVUE) UCL	45.33
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.679	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	7.774		
nu star	192.9		
Approximate Chi Square Value (.05)	161.7	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	24.36
Adjusted Chi Square Value	160.5	95% Jackknife UCL	24.46
		95% Standard Bootstrap UCL	24.39
Anderson-Darling Test Statistic	0.489	95% Bootstrap-t UCL	25.42
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	25.08
Kolmogorov-Smirnov Test Statistic	0.105	95% Percentile Bootstrap UCL	24.46
Kolmogorov-Smirnov 5% Critical Value	0.148	95% BCA Bootstrap UCL	24.77
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	30.19
		97.5% Chebyshev(Mean, Sd) UCL	34.25
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	42.21
95% Approximate Gamma UCL	24.83		
95% Adjusted Gamma UCL	25.03		
Potential UCL to Use		Use 95% Approximate Gamma UCL	24.83

Result or 1/2 DL (toluene)

General Statistics

Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	2.3900E-4	Minimum of Log Data	-8.339
Maximum	0.0127	Maximum of Log Data	-4.366
Mean	0.0046	Mean of log Data	-6.263
Median	0.0036	SD of log Data	1.613
SD	0.0047		
Coefficient of Variation	1.03		
Skewness	0.722		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.807	Shapiro Wilk Test Statistic	0.82
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.0065	95% H-UCL	0.0275
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0179
95% Adjusted-CLT UCL	0.0066	97.5% Chebyshev (MVUE) UCL	0.023
95% Modified-t UCL	0.0065	99% Chebyshev (MVUE) UCL	0.0331
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.608	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0076		
nu star	23.11		
Approximate Chi Square Value (.05)	13.18	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.0064
Adjusted Chi Square Value	12.52	95% Jackknife UCL	0.0065
		95% Standard Bootstrap UCL	0.0064
Anderson-Darling Test Statistic	1.109	95% Bootstrap-t UCL	0.0069
Anderson-Darling 5% Critical Value	0.785	95% Hall's Bootstrap UCL	0.0065
Kolmogorov-Smirnov Test Statistic	0.238	95% Percentile Bootstrap UCL	0.0064
Kolmogorov-Smirnov 5% Critical Value	0.207	95% BCA Bootstrap UCL	0.0065
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.0094
		97.5% Chebyshev(Mean, Sd) UCL	0.0115
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.0156
95% Approximate Gamma UCL	0.0081		
95% Adjusted Gamma UCL	0.0085		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	0.0156
Recommended UCL exceeds the maximum observation			

Result or 1/2 DL (vanadium)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	33
Raw Statistics		Log-transformed Statistics	
Minimum	7.85	Minimum of Log Data	2.061
Maximum	45.8	Maximum of Log Data	3.824
Mean	20.54	Mean of log Data	2.936
Median	19.55	SD of log Data	0.434
SD	8.387		
Coefficient of Variation	0.408		
Skewness	0.649		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.96
Shapiro Wilk Critical Value	0.935	Shapiro Wilk Critical Value	0.935
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	22.9	95% H-UCL	23.75
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	27.39
95% Adjusted-CLT UCL	23	97.5% Chebyshev (MVUE) UCL	30.3
95% Modified-t UCL	22.93	99% Chebyshev (MVUE) UCL	36.03
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	5.487	Data appear Normal at 5% Significance Level	
Theta Star	3.743		
nu star	395.1		
Approximate Chi Square Value (.05)	350	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	22.84
Adjusted Chi Square Value	348.1	95% Jackknife UCL	22.9
		95% Standard Bootstrap UCL	22.8
Anderson-Darling Test Statistic	0.319	95% Bootstrap-t UCL	23.04
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	23.09
Kolmogorov-Smirnov Test Statistic	0.0966	95% Percentile Bootstrap UCL	22.82
Kolmogorov-Smirnov 5% Critical Value	0.147	95% BCA Bootstrap UCL	23.08
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	26.63
		97.5% Chebyshev(Mean, Sd) UCL	29.27
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	34.45
95% Approximate Gamma UCL	23.19		
95% Adjusted Gamma UCL	23.31		
Potential UCL to Use		Use 95% Student's-t UCL	22.9

Result or 1/2 DL (xylene (total))

General Statistics			
Number of Valid Samples	19	Number of Unique Samples	19
Raw Statistics		Log-transformed Statistics	
Minimum	2.3100E-4	Minimum of Log Data	-8.373
Maximum	1.76	Maximum of Log Data	0.565
Mean	0.119	Mean of log Data	-5.435
Median	0.0031	SD of log Data	2.87
SD	0.4		
Coefficient of Variation	3.368		
Skewness	4.273		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.318	Shapiro Wilk Test Statistic	0.862
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.278	95% H-UCL	14.31
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.553
95% Adjusted-CLT UCL	0.366	97.5% Chebyshev (MVUE) UCL	0.737

95% Modified-t UCL	0.293	99% Chebyshev (MVUE) UCL	1.099
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.22	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.54		
nu star	8.358		
Approximate Chi Square Value (.05)	2.944	Nonparametric Statistics	
Adjusted Level of Significance	0.0369	95% CLT UCL	0.27
Adjusted Chi Square Value	2.67	95% Jackknife UCL	0.278
		95% Standard Bootstrap UCL	0.264
Anderson-Darling Test Statistic	1.648	95% Bootstrap-t UCL	1.513
Anderson-Darling 5% Critical Value	0.879	95% Hall's Bootstrap UCL	0.904
Kolmogorov-Smirnov Test Statistic	0.208	95% Percentile Bootstrap UCL	0.303
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	0.401
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.519
		97.5% Chebyshev(Mean, Sd) UCL	0.692
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.032
95% Approximate Gamma UCL	0.337		
95% Adjusted Gamma UCL	0.372		
Potential UCL to Use		Use 95% Adjusted Gamma UCL	0.372

Result or 1/2 DL (zinc)

General Statistics			
Number of Valid Samples	36	Number of Unique Samples	36
Raw Statistics		Log-transformed Statistics	
Minimum	21.1	Minimum of Log Data	3.049
Maximum	5640	Maximum of Log Data	8.638
Mean	242.5	Mean of log Data	4.287
Median	49.05	SD of log Data	1.039
SD	929.4		
Coefficient of Variation	3.833		
Skewness	5.918		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.228	Shapiro Wilk Test Statistic	0.776
Shapiro Wilk Critical Value	0.935	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	
95% Student's-t UCL	504.2	95% H-UCL	191.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	229.8
95% Adjusted-CLT UCL	660.5	97.5% Chebyshev (MVUE) UCL	276.5
95% Modified-t UCL	529.7	99% Chebyshev (MVUE) UCL	368.1
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.499	Data do not follow a Discernable Distribution (0.05)	
Theta Star	486.3		

nu star	35.9		
Approximate Chi Square Value (.05)	23.19	Nonparametric Statistics	
Adjusted Level of Significance	0.0428	95% CLT UCL	497.3
Adjusted Chi Square Value	22.72	95% Jackknife UCL	504.2
		95% Standard Bootstrap UCL	499.1
Anderson-Darling Test Statistic	6.288	95% Bootstrap-t UCL	2637
Anderson-Darling 5% Critical Value	0.81	95% Hall's Bootstrap UCL	1588
Kolmogorov-Smirnov Test Statistic	0.315	95% Percentile Bootstrap UCL	550.3
Kolmogorov-Smirnov 5% Critical Value	0.155	95% BCA Bootstrap UCL	832.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	917.7
		97.5% Chebyshev(Mean, Sd) UCL	1210
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1784
95% Approximate Gamma UCL	375.4		
95% Adjusted Gamma UCL	383.1		
Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	1784