	A	B	C	D	E	F	G	H	I	J	K	L
1	**UCL Statistics for Data Sets with Non-Detects**											
2												
3	User Selected Options											
4	Date/Time of Computation			7/30/2013 10:41:28 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	mber of Bootstrap Operations			2000								
9												
10	**Chlordane**											
11												
12	**General Statistics**											
13	Total Number of Observations					67	Number of Distinct Observations					60
14	Number of Detects					33	Number of Non-Detects					34
15	Number of Distinct Detects					33	Number of Distinct Non-Detects					27
16	Minimum Detect					0.117	Minimum Non-Detect					0.0438
17	Maximum Detect					1.18	Maximum Non-Detect					0.91
18	Variance Detects					0.0443	Percent Non-Detects					50.75%
19	Mean Detects					0.468	SD Detects					0.21
20	Median Detects					0.42	CV Detects					0.45
21	Skewness Detects					1.247	Kurtosis Detects					2.988
22	Mean of Logged Detects					-0.859	SD of Logged Detects					0.471
23												
24	**Normal GOF Test on Detects Only**											
25	Shapiro Wilk Test Statistic					0.912	**Shapiro Wilk GOF Test**					
26	5% Shapiro Wilk Critical Value					0.931	Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic					0.174	**Lilliefors GOF Test**					
28	5% Lilliefors Critical Value					0.154	Detected Data Not Normal at 5% Significance Level					
29	**Detected Data Not Normal at 5% Significance Level**											
30												
31	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
32	Mean					0.309	Standard Error of Mean					0.033
33	SD					0.242	95% KM (BCA) UCL					0.366
34	95% KM (t) UCL					0.364	95% KM (Percentile Bootstrap) UCL					0.363
35	95% KM (z) UCL					0.363	95% KM Bootstrap t UCL					0.366
36	90% KM Chebyshev UCL					0.408	95% KM Chebyshev UCL					0.453
37	97.5% KM Chebyshev UCL					0.515	99% KM Chebyshev UCL					0.637
38												
39	**Gamma GOF Tests on Detected Observations Only**											
40	A-D Test Statistic					0.629	**Anderson-Darling GOF Test**					
41	5% A-D Critical Value					0.748	etected data appear Gamma Distributed at 5% Significance Lev					
42	K-S Test Statistic					0.144	**Kolmogrov-Smirnoff GOF**					
43	5% K-S Critical Value					0.154	etected data appear Gamma Distributed at 5% Significance Lev					
44	**Detected data appear Gamma Distributed at 5% Significance Level**											
45												
46	**Gamma Statistics on Detected Data Only**											
47	k hat (MLE)					5.199	k star (bias corrected MLE)					4.747
48	Theta hat (MLE)					0.0899	Theta star (bias corrected MLE)					0.0985
49	nu hat (MLE)					343.2	nu star (bias corrected)					313.3
50	MLE Mean (bias corrected)					0.468	MLE Sd (bias corrected)					0.215
51												
52	**Gamma Kaplan-Meier (KM) Statistics**											
53	k hat (KM)					1.631	nu hat (KM)					218.5
54	Approximate Chi Square Value (218.55, α)					185.3	Adjusted Chi Square Value (218.55, β)					184.7
55	5% Gamma Approximate KM-UCL (use when n>=50)					0.364	95% Gamma Adjusted KM-UCL (use when n<50)					0.365
56												
57	**Gamma ROS Statistics using Imputed Non-Detects**											
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
59	GROS may not be used when kstar of detected data is small such as < 0.1											
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
62	Minimum					0.077	Mean					0.324

	A	B	C	D	E	F	G	H	I	J	K	L
63					Maximum	1.18					Median	0.286
64					SD	0.213					CV	0.659
65					k hat (MLE)	2.539					k star (bias corrected MLE)	2.435
66					Theta hat (MLE)	0.128					Theta star (bias corrected MLE)	0.133
67					nu hat (MLE)	340.2					nu star (bias corrected)	326.3
68					MLE Mean (bias corrected)	0.324					MLE Sd (bias corrected)	0.208
69											Adjusted Level of Significance (β)	0.0464
70					Approximate Chi Square Value (326.32, α)	285.5					Adjusted Chi Square Value (326.32, β)	284.6
71					95% Gamma Approximate UCL (use when n>=50)	0.371					95% Gamma Adjusted UCL (use when n<50)	0.372
72												
73					**Lognormal GOF Test on Detected Observations Only**							
74					Shapiro Wilk Test Statistic	0.944			**Shapiro Wilk GOF Test**			
75					5% Shapiro Wilk Critical Value	0.931			Detected Data appear Lognormal at 5% Significance Level			
76					Lilliefors Test Statistic	0.167			**Lilliefors GOF Test**			
77					5% Lilliefors Critical Value	0.154			Detected Data Not Lognormal at 5% Significance Level			
78					**Detected Data appear Approximate Lognormal at 5% Significance Level**							
79												
80					**Lognormal ROS Statistics Using Imputed Non-Detects**							
81					Mean in Original Scale	0.339					Mean in Log Scale	-1.226
82					SD in Original Scale	0.199					SD in Log Scale	0.526
83					95% t UCL (assumes normality of ROS data)	0.379					95% Percentile Bootstrap UCL	0.378
84					95% BCA Bootstrap UCL	0.383					95% Bootstrap t UCL	0.386
85					95% H-UCL (Log ROS)	0.381						
86												
87					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
88					KM Mean (logged)	-1.63					95% H-UCL (KM -Log)	0.474
89					KM SD (logged)	1.08					95% Critical H Value (KM-Log)	2.258
90					KM Standard Error of Mean (logged)	0.161						
91												
92					**DL/2 Statistics**							
93					**DL/2 Normal**				**DL/2 Log-Transformed**			
94					Mean in Original Scale	0.319					Mean in Log Scale	-1.458
95					SD in Original Scale	0.222					SD in Log Scale	0.918
96					95% t UCL (Assumes normality)	0.364					95% H-Stat UCL	0.455
97					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
98												
99					**Nonparametric Distribution Free UCL Statistics**							
100					**Detected Data appear Gamma Distributed at 5% Significance Level**							
101												
102					**Suggested UCL to Use**							
103					95% KM (t) UCL	0.364			95% GROS Approximate Gamma UCL			0.371
104					95% Approximate Gamma KM-UCL	0.364						
105												
106	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
107	Recommendations are based upon data size, data distribution, and skewness.											
108	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
109	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia											
110												