

	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	e/Time of Computation			8/13/2015 1:59:05 PM									
5	From File			ProUCLinput_15-007(c)_0-1.xls									
6	Full Precision			OFF									
7	Confidence Coefficient			95%									
8	f Bootstrap Operations			2000									
9													
10													
11	Aluminum												
12													
13	General Statistics												
14	Total Number of Observations					22	Number of Distinct Observations					22	
15							Number of Missing Observations					0	
16	Minimum					2390	Mean					9735	
17	Maximum					21100	Median					9270	
18	SD					5583	Std. Error of Mean					1190	
19	Coefficient of Variation					0.57	Skewness					0.63	
20													
21	Normal GOF Test												
22	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk GOF Test						
23	5% Shapiro Wilk Critical Value					0.91	Data appear Normal at 5% Significance Level						
24	Lilliefors Test Statistic					0.13	Lilliefors GOF Test						
25	5% Lilliefors Critical Value					0.18	Data appear Normal at 5% Significance Level						
26	Data appear Normal at 5% Significance Level												
27													
28	Assuming Normal Distribution												
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)						
30	95% Student's-t UCL						11784	95% Adjusted-CLT UCL (Chen-1995)					11865
31								95% Modified-t UCL (Johnson-1978)					11810
32													
33	Gamma GOF Test												
34	A-D Test Statistic					0.35	Anderson-Darling Gamma GOF Test						
35	5% A-D Critical Value					0.74	data appear Gamma Distributed at 5% Significance Level						
36	K-S Test Statistic					0.14	Kolmogrov-Smirnoff Gamma GOF Test						
37	5% K-S Critical Value					0.18	data appear Gamma Distributed at 5% Significance Level						
38	Detected data appear Gamma Distributed at 5% Significance Level												
39													
40	Gamma Statistics												
41	k hat (MLE)					3.01	k star (bias corrected MLE)					2.63	
42	Theta hat (MLE)					3232	Theta star (bias corrected MLE)					3699	
43	nu hat (MLE)					132.6	nu star (bias corrected)					115.8	
44	MLE Mean (bias corrected)					9735	MLE Sd (bias corrected)					6001	
45							Approximate Chi Square Value (0.05)					91.9	
46	Adjusted Level of Significance					0.03	Adjusted Chi Square Value					90.3	
47													
48	Assuming Gamma Distribution												
49	roximate Gamma UCL (use when n>=50))						12260	Adjusted Gamma UCL (use when n<50)					12475
50													
51	Lognormal GOF Test												
52	Shapiro Wilk Test Statistic					0.95	Shapiro Wilk Lognormal GOF Test						
53	5% Shapiro Wilk Critical Value					0.91	Data appear Lognormal at 5% Significance Level						
54	Lilliefors Test Statistic					0.13	Lilliefors Lognormal GOF Test						
55	5% Lilliefors Critical Value					0.18	Data appear Lognormal at 5% Significance Level						
56	Data appear Lognormal at 5% Significance Level												
57													
58	Lognormal Statistics												
59	Minimum of Logged Data					7.77	Mean of logged Data					9.00	
60	Maximum of Logged Data					9.95	SD of logged Data					0.63	
61													
62	Assuming Lognormal Distribution												
63	95% H-UCL					13377	90% Chebyshev (MVUE) UCL					14095	
64	95% Chebyshev (MVUE) UCL					16008	97.5% Chebyshev (MVUE) UCL					18664	
65	99% Chebyshev (MVUE) UCL					23880							
66													
67	Nonparametric Distribution Free UCL Statistics												
68	Data appear to follow a Discernible Distribution at 5% Significance Level												
69													
70	Nonparametric Distribution Free UCLs												
71	95% CLT UCL					11693	95% Jackknife UCL					11784	
72	95% Standard Bootstrap UCL					11634	95% Bootstrap-t UCL					12012	
73	95% Hall's Bootstrap UCL					11825	95% Percentile Bootstrap UCL					11769	
74	95% BCA Bootstrap UCL					11920							
75	90% Chebyshev(Mean, Sd) UCL					13307	95% Chebyshev(Mean, Sd) UCL					14924	
76	97.5% Chebyshev(Mean, Sd) UCL					17169	99% Chebyshev(Mean, Sd) UCL					21580	
77													
78	Suggested UCL to Use												
79	95% Student's-t UCL					11784							
80													
81	ations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate												
82	ommendations are based upon the results of the simulation studies summarized in Sinha, Sinha, and												

A	B	C	D	E	F	G	H	I	J	K	L
165	KM SD (logged)				0.68	95% Critical H Value (KM-Log)					2.18
166	KM Standard Error of Mean (logged)				0.15						
167											
168	DL/2 Statistics										
169	DL/2 Normal				DL/2 Log-Transformed						
170	Mean in Original Scale				1.99	Mean in Log Scale					0.48
171	SD in Original Scale				0.99	SD in Log Scale					0.78
172	95% t UCL (Assumes normality)				2.36	95% H-Stat UCL					3.29
173	DL/2 is not a recommended method, provided for comparisons and historical reasons										
174											
175	Nonparametric Distribution Free UCL Statistics										
176	Detected Data appear Normal Distributed at 5% Significance Level										
177											
178	Suggested UCL to Use										
179	95% KM (t) UCL				2.36	95% KM (Percentile Bootstrap) UCL					2.35
180											
181	utions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate										
182	Recommendations are based upon data size, data distribution, and skewness.										
183	Recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and										
184	Recommendations results will not cover all Real World data sets; for additional insight the user may want to consult										
185											
186											
187	Barium										
188											
189	General Statistics										
190	Total Number of Observations				22	Number of Distinct Observations					21
191						Number of Missing Observations					0
192	Minimum				46.9	Mean					129.9
193	Maximum				226	Median					143.5
194	SD				56.4	Std. Error of Mean					12.0
195	Coefficient of Variation				0.43	Skewness					-0.16
196											
197	Normal GOF Test										
198	Shapiro Wilk Test Statistic				0.91	Shapiro Wilk GOF Test					
199	5% Shapiro Wilk Critical Value				0.91	Data appear Normal at 5% Significance Level					
200	Lilliefors Test Statistic				0.15	Lilliefors GOF Test					
201	5% Lilliefors Critical Value				0.18	Data appear Normal at 5% Significance Level					
202	Data appear Normal at 5% Significance Level										
203											
204	Assuming Normal Distribution										
205	95% Normal UCL				95% UCLs (Adjusted for Skewness)						
206	95% Student's-t UCL				150.6	95% Adjusted-CLT UCL (Chen-1995)					149.3
207						95% Modified-t UCL (Johnson-1978)					150.6
208											
209	Gamma GOF Test										
210	A-D Test Statistic				0.97	Anderson-Darling Gamma GOF Test					
211	5% A-D Critical Value				0.74	Data Not Gamma Distributed at 5% Significance Level					
212	K-S Test Statistic				0.19	Kolmogorov-Smirnoff Gamma GOF Test					
213	5% K-S Critical Value				0.18	Data Not Gamma Distributed at 5% Significance Level					
214	Data Not Gamma Distributed at 5% Significance Level										
215											
216	Gamma Statistics										
217	k hat (MLE)				4.61	k star (bias corrected MLE)					4.01
218	Theta hat (MLE)				28.1	Theta star (bias corrected MLE)					32.3
219	nu hat (MLE)				203.1	nu star (bias corrected)					176.8
220	MLE Mean (bias corrected)				129.9	MLE Sd (bias corrected)					64.8
221						Approximate Chi Square Value (0.05)					147
222	Adjusted Level of Significance				0.03	Adjusted Chi Square Value					145
223											
224	Assuming Gamma Distribution										
225	Approximate Gamma UCL (use when n>=50)				156.2	Adjusted Gamma UCL (use when n<50)					158.4
226											
227	Lognormal GOF Test										
228	Shapiro Wilk Test Statistic				0.88	Shapiro Wilk Lognormal GOF Test					
229	5% Shapiro Wilk Critical Value				0.91	Data Not Lognormal at 5% Significance Level					
230	Lilliefors Test Statistic				0.2	Lilliefors Lognormal GOF Test					
231	5% Lilliefors Critical Value				0.18	Data Not Lognormal at 5% Significance Level					
232	Data Not Lognormal at 5% Significance Level										
233											
234	Lognormal Statistics										
235	Minimum of Logged Data				3.84	Mean of logged Data					4.75
236	Maximum of Logged Data				5.42	SD of logged Data					0.51
237											
238	Assuming Lognormal Distribution										
239	95% H-UCL				166	90% Chebyshev (MVUE) UCL					176.7
240	95% Chebyshev (MVUE) UCL				197	97.5% Chebyshev (MVUE) UCL					225.3
241	99% Chebyshev (MVUE) UCL				280.9						
242											
243	Nonparametric Distribution Free UCL Statistics										
244	Data appear to follow a Discernible Distribution at 5% Significance Level										
245											
246	Nonparametric Distribution Free UCLs										

	A	B	C	D	E	F	G	H	I	J	K	L
247				95% CLT UCL		149.7				95% Jackknife UCL		150.6
248				95% Standard Bootstrap UCL		149.3				95% Bootstrap-t UCL		150.2
249				95% Hall's Bootstrap UCL		148.4				95% Percentile Bootstrap UCL		149.1
250				95% BCA Bootstrap UCL		148.4						
251				90% Chebyshev(Mean, Sd) UCL		166				95% Chebyshev(Mean, Sd) UCL		182.4
252				97.5% Chebyshev(Mean, Sd) UCL		205				99% Chebyshev(Mean, Sd) UCL		249.6
253												
254				Suggested UCL to Use								
255				95% Student's-t UCL		150.6						
256												
257				ations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate								
258				ommendations are based upon the results of the simulation studies summarized in Singh, Singh, and								
259				and Singh and Singh (2003). However, simulations results will not cover all Real World data sets								
260				For additional insight the user may want to consult a statistician.								
261												
262				highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may								
263				reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.								
264												
265												
266				Beryllium								
267												
268				General Statistics								
269				Total Number of Observations		22				Number of Distinct Observations		22
270										Number of Missing Observations		0
271				Minimum		0.19				Mean		0.75
272				Maximum		1.33				Median		0.77
273				SD		0.34				Std. Error of Mean		0.077
274				Coefficient of Variation		0.46				Skewness		0.067
275												
276				Normal GOF Test								
277				Shapiro Wilk Test Statistic		0.95				Shapiro Wilk GOF Test		
278				5% Shapiro Wilk Critical Value		0.91				Data appear Normal at 5% Significance Level		
279				Lilliefors Test Statistic		0.11				Lilliefors GOF Test		
280				5% Lilliefors Critical Value		0.18				Data appear Normal at 5% Significance Level		
281				Data appear Normal at 5% Significance Level								
282												
283				Assuming Normal Distribution								
284				95% Normal UCL						95% UCLs (Adjusted for Skewness)		
285				95% Student's-t UCL		0.88				95% Adjusted-CLT UCL (Chen-1995)		0.87
286										95% Modified-t UCL (Johnson-1978)		0.88
287												
288				Gamma GOF Test								
289				A-D Test Statistic		0.38				Anderson-Darling Gamma GOF Test		
290				5% A-D Critical Value		0.74				data appear Gamma Distributed at 5% Significance Level		
291				K-S Test Statistic		0.12				Kolmogrov-Smirnoff Gamma GOF Test		
292				5% K-S Critical Value		0.18				data appear Gamma Distributed at 5% Significance Level		
293				Detected data appear Gamma Distributed at 5% Significance Level								
294												
295				Gamma Statistics								
296				k hat (MLE)		4.12				k star (bias corrected MLE)		3.58
297				Theta hat (MLE)		0.18				Theta star (bias corrected MLE)		0.21
298				nu hat (MLE)		181.3				nu star (bias corrected)		157.9
299				MLE Mean (bias corrected)		0.75				MLE Sd (bias corrected)		0.39
300										Approximate Chi Square Value (0.05)		129.9
301				Adjusted Level of Significance		0.03				Adjusted Chi Square Value		128
302												
303				Assuming Gamma Distribution								
304				Approximate Gamma UCL (use when n>=50))		0.91				Adjusted Gamma UCL (use when n<50)		0.93
305												
306				Lognormal GOF Test								
307				Shapiro Wilk Test Statistic		0.93				Shapiro Wilk Lognormal GOF Test		
308				5% Shapiro Wilk Critical Value		0.91				Data appear Lognormal at 5% Significance Level		
309				Lilliefors Test Statistic		0.14				Lilliefors Lognormal GOF Test		
310				5% Lilliefors Critical Value		0.18				Data appear Lognormal at 5% Significance Level		
311				Data appear Lognormal at 5% Significance Level								
312												
313				Lognormal Statistics								
314				Minimum of Logged Data		-1.61				Mean of logged Data		-0.40
315				Maximum of Logged Data		0.28				SD of logged Data		0.54
316												
317				Assuming Lognormal Distribution								
318				95% H-UCL		0.98				90% Chebyshev (MVUE) UCL		1.04
319				95% Chebyshev (MVUE) UCL		1.17				97.5% Chebyshev (MVUE) UCL		1.35
320				99% Chebyshev (MVUE) UCL		1.70						
321												
322				Nonparametric Distribution Free UCL Statistics								
323				Data appear to follow a Discernible Distribution at 5% Significance Level								
324												
325				Nonparametric Distribution Free UCLs								
326				95% CLT UCL		0.87				95% Jackknife UCL		0.88
327				95% Standard Bootstrap UCL		0.87				95% Bootstrap-t UCL		0.88
328				95% Hall's Bootstrap UCL		0.87				95% Percentile Bootstrap UCL		0.87

	A	B	C	D	E	F	G	H	I	J	K	L
985	Minimum					155	Mean					313.3
986	Maximum					525	Median					316
987	SD					90.6	Std. Error of Mean					19.3
988	Coefficient of Variation					0.28	Skewness					0.31
989												
990	Normal GOF Test											
991	Shapiro Wilk Test Statistic					0.98	Shapiro Wilk GOF Test					
992	5% Shapiro Wilk Critical Value					0.91	Data appear Normal at 5% Significance Level					
993	Lilliefors Test Statistic					0.09	Lilliefors GOF Test					
994	5% Lilliefors Critical Value					0.18	Data appear Normal at 5% Significance Level					
995	Data appear Normal at 5% Significance Level											
996												
997	Assuming Normal Distribution											
998	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
999	95% Student's-t UCL					346.6	95% Adjusted-CLT UCL (Chen-1995)					346.5
1000							95% Modified-t UCL (Johnson-1978)					346.8
1001												
1002	Gamma GOF Test											
1003	A-D Test Statistic					0.21	Anderson-Darling Gamma GOF Test					
1004	5% A-D Critical Value					0.74	data appear Gamma Distributed at 5% Significance Level					
1005	K-S Test Statistic					0.11	Kolmogrov-Smirnoff Gamma GOF Test					
1006	5% K-S Critical Value					0.18	data appear Gamma Distributed at 5% Significance Level					
1007	Detected data appear Gamma Distributed at 5% Significance Level											
1008												
1009	Gamma Statistics											
1010	k hat (MLE)					12.04	k star (bias corrected MLE)					10.4
1011	Theta hat (MLE)					25.9	Theta star (bias corrected MLE)					29.9
1012	nu hat (MLE)					530.9	nu star (bias corrected)					459.8
1013	MLE Mean (bias corrected)					313.3	MLE Sd (bias corrected)					96.9
1014							Approximate Chi Square Value (0.05)					411.1
1015	Adjusted Level of Significance					0.03	Adjusted Chi Square Value					407.6
1016												
1017	Assuming Gamma Distribution											
1018	Approximate Gamma UCL (use when n>=50))					350.4	Adjusted Gamma UCL (use when n<50)					353.4
1019												
1020	Lognormal GOF Test											
1021	Shapiro Wilk Test Statistic					0.97	Shapiro Wilk Lognormal GOF Test					
1022	5% Shapiro Wilk Critical Value					0.91	Data appear Lognormal at 5% Significance Level					
1023	Lilliefors Test Statistic					0.12	Lilliefors Lognormal GOF Test					
1024	5% Lilliefors Critical Value					0.18	Data appear Lognormal at 5% Significance Level					
1025	Data appear Lognormal at 5% Significance Level											
1026												
1027	Lognormal Statistics											
1028	Minimum of Logged Data					5.04	Mean of logged Data					5.70
1029	Maximum of Logged Data					6.26	SD of logged Data					0.30
1030												
1031	Assuming Lognormal Distribution											
1032	95% H-UCL					355.2	90% Chebyshev (MVUE) UCL					375.5
1033	95% Chebyshev (MVUE) UCL					403.5	97.5% Chebyshev (MVUE) UCL					442.3
1034	99% Chebyshev (MVUE) UCL					518.4						
1035												
1036	Nonparametric Distribution Free UCL Statistics											
1037	Data appear to follow a Discernible Distribution at 5% Significance Level											
1038												
1039	Nonparametric Distribution Free UCLs											
1040	95% CLT UCL					345.1	95% Jackknife UCL					346.6
1041	95% Standard Bootstrap UCL					345.3	95% Bootstrap-t UCL					349.7
1042	95% Hall's Bootstrap UCL					346.7	95% Percentile Bootstrap UCL					344.9
1043	95% BCA Bootstrap UCL					343.7						
1044	90% Chebyshev(Mean, Sd) UCL					371.3	95% Chebyshev(Mean, Sd) UCL					397.5
1045	97.5% Chebyshev(Mean, Sd) UCL					433.9	99% Chebyshev(Mean, Sd) UCL					505.5
1046												
1047	Suggested UCL to Use											
1048	95% Student's-t UCL					346.6						
1049												
1050	Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
1051	Recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
1052	Singh and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
1053	For additional insight the user may want to consult a statistician.											
1054												
1055	Nickel											
1056												
1057	General Statistics											
1058	Total Number of Observations					22	Number of Distinct Observations					22
1059	Number of Detects					21	Number of Non-Detects					1
1060	Number of Distinct Detects					21	Number of Distinct Non-Detects					1
1061	Minimum Detect					1.5	Minimum Non-Detect					0.84
1062	Maximum Detect					12.9	Maximum Non-Detect					0.84
1063	Variance Detects					8.29	Percent Non-Detects					4.54
1064	Mean Detects					7.05	SD Detects					2.88
1065	Median Detects					6.32	CV Detects					0.40
1066	Skewness Detects					0.29	Kurtosis Detects					-0.45

	A	B	C	D	E	F	G	H	I	J	K	L
1395	97.5% Chebyshev(Mean, Sd) UCL					96.7%	99% Chebyshev(Mean, Sd) UCL					128.4%
1396												
1397	Suggested UCL to Use											
1398	95% Student's-t UCL					58.0%	or 95% Modified-t UCL					59.1%
1399												
1400	itions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
1401	ommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
1402	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
1403	For additional insight the user may want to consult a statistician.											
1404												

	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	Time of Computation		8/13/2015 2:00:35 PM									
5	From File		ProUCLinput_15-007(c)_0-5.xls									
6	Full Precision		OFF									
7	Confidence Coefficient		95%									
8	Number of Bootstrap Operations		2000									
9												
10												
11	Aluminum											
12												
13	General Statistics											
14	Total Number of Observations				47		Number of Distinct Observations				47	
15							Number of Missing Observations				0	
16	Minimum				411		Mean				11600	
17	Maximum				22900		Median				11500	
18	SD				6236		Std. Error of Mean				909.6	
19	Coefficient of Variation				0.53		Skewness				0.02	
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic				0.94		Shapiro Wilk GOF Test					
23	5% Shapiro Wilk Critical Value				0.94		Data appear Normal at 5% Significance Level					
24	Lilliefors Test Statistic				0.10		Lilliefors GOF Test					
25	5% Lilliefors Critical Value				0.12		Data appear Normal at 5% Significance Level					
26	Data appear Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL				95% UCLs (Adjusted for Skewness)							
30	95% Student's-t UCL				13127		95% Adjusted-CLT UCL (Chen-1995)				13100	
31							95% Modified-t UCL (Johnson-1978)				13127	
32												
33	Gamma GOF Test											
34	A-D Test Statistic				0.97		Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value				0.75		Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic				0.12		Kolmogorov-Smirnov Gamma GOF Test					
37	5% K-S Critical Value				0.13		Data appear Gamma Distributed at 5% Significance Level					
38	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)				2.38		k star (bias corrected MLE)				2.25	
42	Theta hat (MLE)				4857		Theta star (bias corrected MLE)				5156	
43	nu hat (MLE)				224.5		nu star (bias corrected)				211.5	
44	MLE Mean (bias corrected)				11600		MLE Sd (bias corrected)				7733	
45							Approximate Chi Square Value (0.05)				178.8	
46	Adjusted Level of Significance				0.04		Adjusted Chi Square Value				177.9	
47												
48	Assuming Gamma Distribution											
49	Approximate Gamma UCL (use when n>=50)				13718		Adjusted Gamma UCL (use when n<50)				13791	
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic				0.85		Shapiro Wilk Lognormal GOF Test					
53	5% Shapiro Wilk Critical Value				0.94		Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic				0.15		Lilliefors Lognormal GOF Test					
55	5% Lilliefors Critical Value				0.12		Data Not Lognormal at 5% Significance Level					
56	Data Not Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59	Minimum of Logged Data				6.01		Mean of logged Data				9.13	
60	Maximum of Logged Data				10.04		SD of logged Data				0.80	
61												
62	Assuming Lognormal Distribution											
63	95% H-UCL				16522		90% Chebyshev (MVUE) UCL				17721	

	A	B	C	D	E	F	G	H	I	J	K	L
64		95% Chebyshev (MVUE) UCL				19992	97.5% Chebyshev (MVUE) UCL				23143	
65		99% Chebyshev (MVUE) UCL				29333						
66												
67		Nonparametric Distribution Free UCL Statistics										
68		Data appear to follow a Discernible Distribution at 5% Significance Level										
69												
70		Nonparametric Distribution Free UCLs										
71		95% CLT UCL				13096	95% Jackknife UCL				13127	
72		95% Standard Bootstrap UCL				13093	95% Bootstrap-t UCL				13211	
73		95% Hall's Bootstrap UCL				13086	95% Percentile Bootstrap UCL				13107	
74		95% BCA Bootstrap UCL				13049						
75		90% Chebyshev(Mean, Sd) UCL				14329	95% Chebyshev(Mean, Sd) UCL				15565	
76		97.5% Chebyshev(Mean, Sd) UCL				17280	99% Chebyshev(Mean, Sd) UCL				20650	
77												
78		Suggested UCL to Use										
79		95% Student's-t UCL				13127						
80												
81		Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate										
82		Recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and										
83		and Singh and Singh (2003). However, simulations results will not cover all Real World data sets										
84		For additional insight the user may want to consult a statistician.										
85												
86		Arsenic										
87												
88		General Statistics										
89		Total Number of Observations				47	Number of Distinct Observations				44	
90		Number of Detects				43	Number of Non-Detects				4	
91		Number of Distinct Detects				40	Number of Distinct Non-Detects				4	
92		Minimum Detect				0.40	Minimum Non-Detect				0.33	
93		Maximum Detect				3.63	Maximum Non-Detect				1.2	
94		Variance Detects				0.57	Percent Non-Detects				8.51	
95		Mean Detects				2.41	SD Detects				0.76	
96		Median Detects				2.72	CV Detects				0.31	
97		Skewness Detects				-0.69	Kurtosis Detects				-0.24	
98		Mean of Logged Detects				0.81	SD of Logged Detects				0.42	
99												
100		Normal GOF Test on Detects Only										
101		Shapiro Wilk Test Statistic				0.93	Shapiro Wilk GOF Test					
102		5% Shapiro Wilk Critical Value				0.94	Detected Data Not Normal at 5% Significance Level					
103		Lilliefors Test Statistic				0.16	Lilliefors GOF Test					
104		5% Lilliefors Critical Value				0.13	Detected Data Not Normal at 5% Significance Level					
105		Detected Data Not Normal at 5% Significance Level										
106												
107		Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs										
108		Mean				2.25	Standard Error of Mean				0.13	
109		SD				0.89	95% KM (BCA) UCL				2.45	
110		95% KM (t) UCL				2.47	95% KM (Percentile Bootstrap) UCL				2.46	
111		95% KM (z) UCL				2.47	95% KM Bootstrap t UCL				2.46	
112		90% KM Chebyshev UCL				2.65	95% KM Chebyshev UCL				2.83	
113		97.5% KM Chebyshev UCL				3.08	99% KM Chebyshev UCL				3.57	
114												
115		Gamma GOF Tests on Detected Observations Only										
116		A-D Test Statistic				1.71	Anderson-Darling GOF Test					
117		5% A-D Critical Value				0.75	Detected Data Not Gamma Distributed at 5% Significance Level					
118		K-S Test Statistic				0.18	Kolmogrov-Smirnoff GOF					
119		5% K-S Critical Value				0.13	Detected Data Not Gamma Distributed at 5% Significance Level					
120		Detected Data Not Gamma Distributed at 5% Significance Level										
121												
122		Gamma Statistics on Detected Data Only										
123		k hat (MLE)				7.35	k star (bias corrected MLE)				6.85	
124		Theta hat (MLE)				0.32	Theta star (bias corrected MLE)				0.35	
125		nu hat (MLE)				632.7	nu star (bias corrected)				589.8	
126		MLE Mean (bias corrected)				2.41	MLE Sd (bias corrected)				0.92	

	A	B	C	D	E	F	G	H	I	J	K	L
127												
128	Gamma Kaplan-Meier (KM) Statistics											
129			k hat (KM)		6.27					nu hat (KM)		590.3
130			pproximate Chi Square Value (590.26, α)		534.9					Adjusted Chi Square Value (590.26, β)		533.2
131			Approximate KM-UCL (use when $n \geq 50$)		2.48					Gamma Adjusted KM-UCL (use when $n < 50$)		2.49
132												
133	Gamma ROS Statistics using Imputed Non-Detects											
134	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
135	GROS may not be used when kstar of detected data is small such as < 0.1											
136	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
137	Gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM e											
138			Minimum		0.40					Mean		2.31
139			Maximum		3.63					Median		2.54
140			SD		0.80					CV		0.34
141			k hat (MLE)		6.40					k star (bias corrected MLE)		6.01
142			Theta hat (MLE)		0.36					Theta star (bias corrected MLE)		0.38
143			nu hat (MLE)		602.2					nu star (bias corrected)		565.1
144			MLE Mean (bias corrected)		2.31					MLE Sd (bias corrected)		0.94
145										Adjusted Level of Significance (β)		0.04
146			pproximate Chi Square Value (565.11, α)		511					Adjusted Chi Square Value (565.11, β)		509.3
147			Gamma Approximate UCL (use when $n \geq 50$)		2.55					Gamma Adjusted UCL (use when $n < 50$)		2.56
148												
149	Lognormal GOF Test on Detected Observations Only											
150			Shapiro Wilk Test Statistic		0.82					Shapiro Wilk GOF Test		
151			5% Shapiro Wilk Critical Value		0.94					Detected Data Not Lognormal at 5% Significance Le		
152			Lilliefors Test Statistic		0.18					Lilliefors GOF Test		
153			5% Lilliefors Critical Value		0.13					Detected Data Not Lognormal at 5% Significance Le		
154	Detected Data Not Lognormal at 5% Significance Level											
155												
156	Lognormal ROS Statistics Using Imputed Non-Detects											
157			Mean in Original Scale		2.29					Mean in Log Scale		0.74
158			SD in Original Scale		0.82					SD in Log Scale		0.46
159			95% t UCL (assumes normality of ROS data)		2.5					95% Percentile Bootstrap UCL		2.48
160			95% BCA Bootstrap UCL		2.48					95% Bootstrap t UCL		2.48
161			95% H-UCL (Log ROS)		2.66							
162												
163	DL/2 Statistics											
164			DL/2 Normal							DL/2 Log-Transformed		
165			Mean in Original Scale		2.24					Mean in Log Scale		0.65
166			SD in Original Scale		0.92					SD in Log Scale		0.67
167			95% t UCL (Assumes normality)		2.47					95% H-Stat UCL		2.96
168	DL/2 is not a recommended method, provided for comparisons and historical reasons											
169												
170	Nonparametric Distribution Free UCL Statistics											
171	Data do not follow a Discernible Distribution at 5% Significance Level											
172												
173	Suggested UCL to Use											
174			95% KM (Chebyshev) UCL		2.83							
175												
176	Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropri											
177	Recommendations are based upon data size, data distribution, and skewness.											
178	Recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and											
179	Simulation results will not cover all Real World data sets; for additional insight the user may want to cons											
180												
181												
182	Barium											
183												
184	General Statistics											
185			Total Number of Observations		47					Number of Distinct Observations		39
186										Number of Missing Observations		0
187			Minimum		13.2					Mean		146.6
188			Maximum		253					Median		163
189			SD		58.3					Std. Error of Mean		8.50

	A	B	C	D	E	F	G	H	I	J	K	L
190	Coefficient of Variation					0.39	Skewness					-0.64
191												
192	Normal GOF Test											
193	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk GOF Test					
194	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level					
195	Lilliefors Test Statistic					0.18	Lilliefors GOF Test					
196	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level					
197	Data Not Normal at 5% Significance Level											
198												
199	Assuming Normal Distribution											
200	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
201	95% Student's-t UCL					160.9	95% Adjusted-CLT UCL (Chen-1995)					159.8
202							95% Modified-t UCL (Johnson-1978)					160.8
203												
204	Gamma GOF Test											
205	A-D Test Statistic					2.86	Anderson-Darling Gamma GOF Test					
206	5% A-D Critical Value					0.75	Data Not Gamma Distributed at 5% Significance Level					
207	K-S Test Statistic					0.24	Kolmogorov-Smirnov Gamma GOF Test					
208	5% K-S Critical Value					0.13	Data Not Gamma Distributed at 5% Significance Level					
209	Data Not Gamma Distributed at 5% Significance Level											
210												
211	Gamma Statistics											
212	k hat (MLE)					3.97	k star (bias corrected MLE)					3.73
213	Theta hat (MLE)					36.9	Theta star (bias corrected MLE)					39.2
214	nu hat (MLE)					373.5	nu star (bias corrected)					351
215	MLE Mean (bias corrected)					146.6	MLE Sd (bias corrected)					75.8
216							Approximate Chi Square Value (0.05)					308.6
217	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					307.3
218												
219	Assuming Gamma Distribution											
220	Approximate Gamma UCL (use when n>=50))					166.8	Adjusted Gamma UCL (use when n<50)					167.5
221												
222	Lognormal GOF Test											
223	Shapiro Wilk Test Statistic					0.78	Shapiro Wilk Lognormal GOF Test					
224	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level					
225	Lilliefors Test Statistic					0.25	Lilliefors Lognormal GOF Test					
226	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level					
227	Data Not Lognormal at 5% Significance Level											
228												
229	Lognormal Statistics											
230	Minimum of Logged Data					2.58	Mean of logged Data					4.85
231	Maximum of Logged Data					5.53	SD of logged Data					0.61
232												
233	Assuming Lognormal Distribution											
234	95% H-UCL					185.1	90% Chebyshev (MVUE) UCL					198.6
235	95% Chebyshev (MVUE) UCL					218.6	97.5% Chebyshev (MVUE) UCL					246.5
236	99% Chebyshev (MVUE) UCL					301.2						
237												
238	Nonparametric Distribution Free UCL Statistics											
239	Data do not follow a Discernible Distribution (0.05)											
240												
241	Nonparametric Distribution Free UCLs											
242	95% CLT UCL					160.6	95% Jackknife UCL					160.9
243	95% Standard Bootstrap UCL					160.3	95% Bootstrap-t UCL					160
244	95% Hall's Bootstrap UCL					159.2	95% Percentile Bootstrap UCL					160.2
245	95% BCA Bootstrap UCL					159.5						
246	90% Chebyshev(Mean, Sd) UCL					172.2	95% Chebyshev(Mean, Sd) UCL					183.7
247	97.5% Chebyshev(Mean, Sd) UCL					199.8	99% Chebyshev(Mean, Sd) UCL					231.3
248												
249	Suggested UCL to Use											
250	95% Chebyshev (Mean, Sd) UCL					183.7						
251												
252	Instructions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											

	A	B	C	D	E	F	G	H	I	J	K	L
253	Recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
254	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
255	For additional insight the user may want to consult a statistician.											
256												
257	highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may											
258	reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.											
259												
260												
261	Beryllium											
262												
263	General Statistics											
264	Total Number of Observations				47	Number of Distinct Observations				45		
265						Number of Missing Observations				0		
266	Minimum				0.19	Mean				0.89		
267	Maximum				1.58	Median				0.93		
268	SD				0.37	Std. Error of Mean				0.05		
269	Coefficient of Variation				0.41	Skewness				-0.34		
270												
271	Normal GOF Test											
272	Shapiro Wilk Test Statistic				0.94	Shapiro Wilk GOF Test						
273	5% Shapiro Wilk Critical Value				0.94	Data Not Normal at 5% Significance Level						
274	Lilliefors Test Statistic				0.08	Lilliefors GOF Test						
275	5% Lilliefors Critical Value				0.12	Data appear Normal at 5% Significance Level						
276	Data appear Approximate Normal at 5% Significance Level											
277												
278	Assuming Normal Distribution											
279	95% Normal UCL					95% UCLs (Adjusted for Skewness)						
280	95% Student's-t UCL				0.99	95% Adjusted-CLT UCL (Chen-1995)				0.98		
281						95% Modified-t UCL (Johnson-1978)				0.99		
282												
283	Gamma GOF Test											
284	A-D Test Statistic				1.69	Anderson-Darling Gamma GOF Test						
285	5% A-D Critical Value				0.75	Data Not Gamma Distributed at 5% Significance Level						
286	K-S Test Statistic				0.15	Kolmogrov-Smirnoff Gamma GOF Test						
287	5% K-S Critical Value				0.13	Data Not Gamma Distributed at 5% Significance Level						
288	Data Not Gamma Distributed at 5% Significance Level											
289												
290	Gamma Statistics											
291	k hat (MLE)				4.24	k star (bias corrected MLE)				3.99		
292	Theta hat (MLE)				0.21	Theta star (bias corrected MLE)				0.22		
293	nu hat (MLE)				399.4	nu star (bias corrected)				375.2		
294	MLE Mean (bias corrected)				0.89	MLE Sd (bias corrected)				0.45		
295						Approximate Chi Square Value (0.05)				331.3		
296	Adjusted Level of Significance				0.04	Adjusted Chi Square Value				330		
297												
298	Assuming Gamma Distribution											
299	Approximate Gamma UCL (use when n>=50)				1.01	Adjusted Gamma UCL (use when n<50)				1.02		
300												
301	Lognormal GOF Test											
302	Shapiro Wilk Test Statistic				0.85	Shapiro Wilk Lognormal GOF Test						
303	5% Shapiro Wilk Critical Value				0.94	Data Not Lognormal at 5% Significance Level						
304	Lilliefors Test Statistic				0.18	Lilliefors Lognormal GOF Test						
305	5% Lilliefors Critical Value				0.12	Data Not Lognormal at 5% Significance Level						
306	Data Not Lognormal at 5% Significance Level											
307												
308	Lognormal Statistics											
309	Minimum of Logged Data				-1.61	Mean of logged Data				-0.22		
310	Maximum of Logged Data				0.45	SD of logged Data				0.55		
311												
312	Assuming Lognormal Distribution											
313	95% H-UCL				1.08	90% Chebyshev (MVUE) UCL				1.16		
314	95% Chebyshev (MVUE) UCL				1.26	97.5% Chebyshev (MVUE) UCL				1.41		
315	99% Chebyshev (MVUE) UCL				1.71							

	A	B	C	D	E	F	G	H	I	J	K	L
316												
317	Nonparametric Distribution Free UCL Statistics											
318	Data appear to follow a Discernible Distribution at 5% Significance Level											
319												
320	Nonparametric Distribution Free UCLs											
321	95% CLT UCL				0.99		95% Jackknife UCL				0.99	
322	95% Standard Bootstrap UCL				0.99		95% Bootstrap-t UCL				0.99	
323	95% Hall's Bootstrap UCL				0.98		95% Percentile Bootstrap UCL				0.99	
324	95% BCA Bootstrap UCL				0.98							
325	90% Chebyshev(Mean, Sd) UCL				1.06		95% Chebyshev(Mean, Sd) UCL				1.13	
326	97.5% Chebyshev(Mean, Sd) UCL				1.24		99% Chebyshev(Mean, Sd) UCL				1.44	
327												
328	Suggested UCL to Use											
329	95% Student's-t UCL				0.99							
330												
331	ations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
332	ommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
333	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
334	For additional insight the user may want to consult a statistician.											
335												
336	highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may											
337	reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.											
338												
339	Cadmium											
340												
341	General Statistics											
342	Total Number of Observations				47		Number of Distinct Observations				45	
343	Number of Detects				23		Number of Non-Detects				24	
344	Number of Distinct Detects				22		Number of Distinct Non-Detects				23	
345	Minimum Detect				0.12		Minimum Non-Detect				0.45	
346	Maximum Detect				0.63		Maximum Non-Detect				0.77	
347	Variance Detects				0.01		Percent Non-Detects				51.00	
348	Mean Detects				0.23		SD Detects				0.10	
349	Median Detects				0.21		CV Detects				0.45	
350	Skewness Detects				2.59		Kurtosis Detects				8.92	
351	Mean of Logged Detects				-1.51		SD of Logged Detects				0.36	
352												
353	Normal GOF Test on Detects Only											
354	Shapiro Wilk Test Statistic				0.74		Shapiro Wilk GOF Test					
355	5% Shapiro Wilk Critical Value				0.91		Detected Data Not Normal at 5% Significance Level					
356	Lilliefors Test Statistic				0.18		Lilliefors GOF Test					
357	5% Lilliefors Critical Value				0.18		Detected Data Not Normal at 5% Significance Level					
358	Detected Data Not Normal at 5% Significance Level											
359												
360	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
361	Mean				0.22		Standard Error of Mean				0.014	
362	SD				0.080		95% KM (BCA) UCL				0.25	
363	95% KM (t) UCL				0.25		95% KM (Percentile Bootstrap) UCL				0.25	
364	95% KM (z) UCL				0.25		95% KM Bootstrap t UCL				0.25	
365	90% KM Chebyshev UCL				0.27		95% KM Chebyshev UCL				0.29	
366	97.5% KM Chebyshev UCL				0.32		99% KM Chebyshev UCL				0.38	
367												
368	Gamma GOF Tests on Detected Observations Only											
369	A-D Test Statistic				0.72		Anderson-Darling GOF Test					
370	5% A-D Critical Value				0.74		data appear Gamma Distributed at 5% Significance Level					
371	K-S Test Statistic				0.15		Kolmogrov-Smirnoff GOF					
372	5% K-S Critical Value				0.18		data appear Gamma Distributed at 5% Significance Level					
373	Detected data appear Gamma Distributed at 5% Significance Level											
374												
375	Gamma Statistics on Detected Data Only											
376	k hat (MLE)				7.26		k star (bias corrected MLE)				6.34	
377	Theta hat (MLE)				0.03		Theta star (bias corrected MLE)				0.03	
378	nu hat (MLE)				334.3		nu star (bias corrected)				292	

	A	B	C	D	E	F	G	H	I	J	K	L
379	MLE Mean (bias corrected)					0.23	MLE Sd (bias corrected)					0.09
380												
381	Gamma Kaplan-Meier (KM) Statistics											
382	k hat (KM)					6.92	nu hat (KM)					651.3
383	Approximate Chi Square Value (651.28, α)					593.1	Adjusted Chi Square Value (651.28, β)					591.3
384	Approximate KM-UCL (use when $n \geq 50$)					0.24	Gamma Adjusted KM-UCL (use when $n < 50$)					0.24
385												
386	Gamma ROS Statistics using Imputed Non-Detects											
387	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
388	GROS may not be used when kstar of detected data is small such as < 0.1											
389	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
390	Gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
391	Minimum					0.12	Mean					0.22
392	Maximum					0.63	Median					0.21
393	SD					0.07	CV					0.33
394	k hat (MLE)					14.0	k star (bias corrected MLE)					13.1
395	Theta hat (MLE)					0.01	Theta star (bias corrected MLE)					0.01
396	nu hat (MLE)					1319	nu star (bias corrected)					1236
397	MLE Mean (bias corrected)					0.22	MLE Sd (bias corrected)					0.06
398							Adjusted Level of Significance (β)					0.04
399	Approximate Chi Square Value (N/A, α)					1155	Adjusted Chi Square Value (N/A, β)					1153
400	Gamma Approximate UCL (use when $n \geq 50$)					0.24	Gamma Adjusted UCL (use when $n < 50$)					0.24
401												
402	Lognormal GOF Test on Detected Observations Only											
403	Shapiro Wilk Test Statistic					0.93	Shapiro Wilk GOF Test					
404	5% Shapiro Wilk Critical Value					0.91	Detected Data appear Lognormal at 5% Significance Level					
405	Lilliefors Test Statistic					0.13	Lilliefors GOF Test					
406	5% Lilliefors Critical Value					0.18	Detected Data appear Lognormal at 5% Significance Level					
407	Detected Data appear Lognormal at 5% Significance Level											
408												
409	Lognormal ROS Statistics Using Imputed Non-Detects											
410	Mean in Original Scale					0.22	Mean in Log Scale					-1.53
411	SD in Original Scale					0.07	SD in Log Scale					0.25
412	95% t UCL (assumes normality of ROS data)					0.24	95% Percentile Bootstrap UCL					0.24
413	95% BCA Bootstrap UCL					0.24	95% Bootstrap t UCL					0.25
414	95% H-UCL (Log ROS)					0.23						
415												
416	UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed											
417	KM Mean (logged)					-1.54	95% H-UCL (KM -Log)					0.24
418	KM SD (logged)					0.32	95% Critical H Value (KM-Log)					1.78
419	KM Standard Error of Mean (logged)					0.06						
420												
421	DL/2 Statistics											
422	DL/2 Normal						DL/2 Log-Transformed					
423	Mean in Original Scale					0.26	Mean in Log Scale					-1.38
424	SD in Original Scale					0.08	SD in Log Scale					0.29
425	95% t UCL (Assumes normality)					0.28	95% H-Stat UCL					0.28
426	DL/2 is not a recommended method, provided for comparisons and historical reasons											
427												
428	Nonparametric Distribution Free UCL Statistics											
429	Detected Data appear Gamma Distributed at 5% Significance Level											
430												
431	Suggested UCL to Use											
432	95% KM (t) UCL					0.25	95% GROS Adjusted Gamma UCL					0.24
433	95% Adjusted Gamma KM-UCL					0.24						
434												
435	Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
436	Recommendations are based upon data size, data distribution, and skewness.											
437	Recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and											
438	Recommendations results will not cover all Real World data sets; for additional insight the user may want to consult											
439												
440												
441	Calcium											

	A	B	C	D	E	F	G	H	I	J	K	L
442												
443	General Statistics											
444	Total Number of Observations					47	Number of Distinct Observations					40
445							Number of Missing Observations					0
446	Minimum					207	Mean					2555
447	Maximum					5210	Median					2510
448	SD					914.3	Std. Error of Mean					133.4
449	Coefficient of Variation					0.35	Skewness					0.27
450												
451	Normal GOF Test											
452	Shapiro Wilk Test Statistic					0.93	Shapiro Wilk GOF Test					
453	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level					
454	Lilliefors Test Statistic					0.14	Lilliefors GOF Test					
455	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level					
456	Data Not Normal at 5% Significance Level											
457												
458	Assuming Normal Distribution											
459	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
460	95% Student's-t UCL					2779	95% Adjusted-CLT UCL (Chen-1995)					2780
461							95% Modified-t UCL (Johnson-1978)					2780
462												
463	Gamma GOF Test											
464	A-D Test Statistic					2.58	Anderson-Darling Gamma GOF Test					
465	5% A-D Critical Value					0.75	Data Not Gamma Distributed at 5% Significance Level					
466	K-S Test Statistic					0.20	Kolmogrov-Smirnoff Gamma GOF Test					
467	5% K-S Critical Value					0.13	Data Not Gamma Distributed at 5% Significance Level					
468	Data Not Gamma Distributed at 5% Significance Level											
469												
470	Gamma Statistics											
471	k hat (MLE)					5.36	k star (bias corrected MLE)					5.04
472	Theta hat (MLE)					475.9	Theta star (bias corrected MLE)					506.9
473	nu hat (MLE)					504.6	nu star (bias corrected)					473.8
474	MLE Mean (bias corrected)					2555	MLE Sd (bias corrected)					1138
475							Approximate Chi Square Value (0.05)					424.3
476	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					422.8
477												
478	Assuming Gamma Distribution											
479	Approximate Gamma UCL (use when n>=50)					2853	Adjusted Gamma UCL (use when n<50)					2863
480												
481	Lognormal GOF Test											
482	Shapiro Wilk Test Statistic					0.73	Shapiro Wilk Lognormal GOF Test					
483	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level					
484	Lilliefors Test Statistic					0.24	Lilliefors Lognormal GOF Test					
485	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level					
486	Data Not Lognormal at 5% Significance Level											
487												
488	Lognormal Statistics											
489	Minimum of Logged Data					5.33	Mean of logged Data					7.75
490	Maximum of Logged Data					8.55	SD of logged Data					0.53
491												
492	Assuming Lognormal Distribution											
493	95% H-UCL					3104	90% Chebyshev (MVUE) UCL					3319
494	95% Chebyshev (MVUE) UCL					3615	97.5% Chebyshev (MVUE) UCL					4026
495	99% Chebyshev (MVUE) UCL					4835						
496												
497	Nonparametric Distribution Free UCL Statistics											
498	Data do not follow a Discernible Distribution (0.05)											
499												
500	Nonparametric Distribution Free UCLs											
501	95% CLT UCL					2774	95% Jackknife UCL					2779
502	95% Standard Bootstrap UCL					2770	95% Bootstrap-t UCL					2782
503	95% Hall's Bootstrap UCL					2803	95% Percentile Bootstrap UCL					2767
504	95% BCA Bootstrap UCL					2765						

	A	B	C	D	E	F	G	H	I	J	K	L
505	90% Chebyshev(Mean, Sd) UCL					2955	95% Chebyshev(Mean, Sd) UCL					3136
506	97.5% Chebyshev(Mean, Sd) UCL					3388	99% Chebyshev(Mean, Sd) UCL					3882
507												
508	Suggested UCL to Use											
509	95% Chebyshev (Mean, Sd) UCL					3136						
510												
511	ations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
512	ommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
513	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
514	For additional insight the user may want to consult a statistician.											
515												
516												
517	Chromium											
518												
519	General Statistics											
520	Total Number of Observations					47	Number of Distinct Observations					42
521							Number of Missing Observations					0
522	Minimum					1.66	Mean					18.3
523	Maximum					151	Median					13.7
524	SD					21.1	Std. Error of Mean					3.08
525	Coefficient of Variation					1.15	Skewness					5.64
526												
527	Normal GOF Test											
528	Shapiro Wilk Test Statistic					0.41	Shapiro Wilk GOF Test					
529	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level					
530	Lilliefors Test Statistic					0.34	Lilliefors GOF Test					
531	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level					
532	Data Not Normal at 5% Significance Level											
533												
534	Assuming Normal Distribution											
535	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
536	95% Student's-t UCL					23.5	95% Adjusted-CLT UCL (Chen-1995)					26.1
537							95% Modified-t UCL (Johnson-1978)					23.9
538												
539	Gamma GOF Test											
540	A-D Test Statistic					3.52	Anderson-Darling Gamma GOF Test					
541	5% A-D Critical Value					0.76	Data Not Gamma Distributed at 5% Significance Level					
542	K-S Test Statistic					0.21	Kolmogorov-Smirnov Gamma GOF Test					
543	5% K-S Critical Value					0.13	Data Not Gamma Distributed at 5% Significance Level					
544	Data Not Gamma Distributed at 5% Significance Level											
545												
546	Gamma Statistics											
547	k hat (MLE)					2.24	k star (bias corrected MLE)					2.11
548	Theta hat (MLE)					8.18	Theta star (bias corrected MLE)					8.68
549	nu hat (MLE)					210.9	nu star (bias corrected)					198.8
550	MLE Mean (bias corrected)					18.3	MLE Sd (bias corrected)					12.6
551							Approximate Chi Square Value (0.05)					167.2
552	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					166.3
553												
554	Assuming Gamma Distribution											
555	Approximate Gamma UCL (use when n>=50)					21.8	Adjusted Gamma UCL (use when n<50)					21.9
556												
557	Lognormal GOF Test											
558	Shapiro Wilk Test Statistic					0.85	Shapiro Wilk Lognormal GOF Test					
559	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level					
560	Lilliefors Test Statistic					0.18	Lilliefors Lognormal GOF Test					
561	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level					
562	Data Not Lognormal at 5% Significance Level											
563												
564	Lognormal Statistics											
565	Minimum of Logged Data					0.50	Mean of logged Data					2.67
566	Maximum of Logged Data					5.01	SD of logged Data					0.64
567												

	A	B	C	D	E	F	G	H	I	J	K	L
568	Assuming Lognormal Distribution											
569	95% H-UCL				21.4	90% Chebyshev (MVUE) UCL				23.0		
570	95% Chebyshev (MVUE) UCL				25.4	97.5% Chebyshev (MVUE) UCL				28.7		
571	99% Chebyshev (MVUE) UCL				35.3							
572												
573	Nonparametric Distribution Free UCL Statistics											
574	Data do not follow a Discernible Distribution (0.05)											
575												
576	Nonparametric Distribution Free UCLs											
577	95% CLT UCL				23.4	95% Jackknife UCL				23.5		
578	95% Standard Bootstrap UCL				23.3	95% Bootstrap-t UCL				31.9		
579	95% Hall's Bootstrap UCL				44.5	95% Percentile Bootstrap UCL				24.1		
580	95% BCA Bootstrap UCL				28.2							
581	90% Chebyshev(Mean, Sd) UCL				27.6	95% Chebyshev(Mean, Sd) UCL				31.7		
582	97.5% Chebyshev(Mean, Sd) UCL				37.6	99% Chebyshev(Mean, Sd) UCL				49.0		
583												
584	Suggested UCL to Use											
585	95% Chebyshev (Mean, Sd) UCL				31.7							
586												
587	tions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
588	mmendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
589	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
590	For additional insight the user may want to consult a statistician.											
591												
592												
593	Cobalt											
594												
595	General Statistics											
596	Total Number of Observations				47	Number of Distinct Observations				46		
597						Number of Missing Observations				0		
598	Minimum				0.36	Mean				5.11		
599	Maximum				7.86	Median				5.52		
600	SD				1.82	Std. Error of Mean				0.26		
601	Coefficient of Variation				0.35	Skewness				-0.83		
602												
603	Normal GOF Test											
604	Shapiro Wilk Test Statistic				0.92	Shapiro Wilk GOF Test						
605	5% Shapiro Wilk Critical Value				0.94	Data Not Normal at 5% Significance Level						
606	Lilliefors Test Statistic				0.14	Lilliefors GOF Test						
607	5% Lilliefors Critical Value				0.12	Data Not Normal at 5% Significance Level						
608	Data Not Normal at 5% Significance Level											
609												
610	Assuming Normal Distribution											
611	95% Normal UCL					95% UCLs (Adjusted for Skewness)						
612	95% Student's-t UCL				5.56	95% Adjusted-CLT UCL (Chen-1995)				5.51		
613						95% Modified-t UCL (Johnson-1978)				5.55		
614												
615	Gamma GOF Test											
616	A-D Test Statistic				2.72	Anderson-Darling Gamma GOF Test						
617	5% A-D Critical Value				0.75	Data Not Gamma Distributed at 5% Significance Level						
618	K-S Test Statistic				0.20	Kolmogrov-Smirnoff Gamma GOF Test						
619	5% K-S Critical Value				0.13	Data Not Gamma Distributed at 5% Significance Level						
620	Data Not Gamma Distributed at 5% Significance Level											
621												
622	Gamma Statistics											
623	k hat (MLE)				4.48	k star (bias corrected MLE)				4.21		
624	Theta hat (MLE)				1.14	Theta star (bias corrected MLE)				1.21		
625	nu hat (MLE)				421.4	nu star (bias corrected)				395.8		
626	MLE Mean (bias corrected)				5.11	MLE Sd (bias corrected)				2.49		
627						Approximate Chi Square Value (0.05)				350.7		
628	Adjusted Level of Significance				0.04	Adjusted Chi Square Value				349.4		
629												
630	Assuming Gamma Distribution											

	A	B	C	D	E	F	G	H	I	J	K	L
631	Approximate Gamma UCL (use when n>=50))					5.77	Adjusted Gamma UCL (use when n<50)					5.79
632												
633	Lognormal GOF Test											
634	Shapiro Wilk Test Statistic					0.71	Shapiro Wilk Lognormal GOF Test					
635	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level					
636	Lilliefors Test Statistic					0.23	Lilliefors Lognormal GOF Test					
637	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level					
638	Data Not Lognormal at 5% Significance Level											
639												
640	Lognormal Statistics											
641	Minimum of Logged Data					-1.01	Mean of logged Data					1.51
642	Maximum of Logged Data					2.06	SD of logged Data					0.59
643												
644	Assuming Lognormal Distribution											
645	95% H-UCL					6.48	90% Chebyshev (MVUE) UCL					6.95
646	95% Chebyshev (MVUE) UCL					7.64	97.5% Chebyshev (MVUE) UCL					8.59
647	99% Chebyshev (MVUE) UCL					10.41						
648												
649	Nonparametric Distribution Free UCL Statistics											
650	Data do not follow a Discernible Distribution (0.05)											
651												
652	Nonparametric Distribution Free UCLs											
653	95% CLT UCL					5.55	95% Jackknife UCL					5.56
654	95% Standard Bootstrap UCL					5.54	95% Bootstrap-t UCL					5.52
655	95% Hall's Bootstrap UCL					5.51	95% Percentile Bootstrap UCL					5.54
656	95% BCA Bootstrap UCL					5.53						
657	90% Chebyshev(Mean, Sd) UCL					5.91	95% Chebyshev(Mean, Sd) UCL					6.27
658	97.5% Chebyshev(Mean, Sd) UCL					6.77	99% Chebyshev(Mean, Sd) UCL					7.76
659												
660	Suggested UCL to Use											
661	95% Chebyshev (Mean, Sd) UCL					6.27						
662												
663	Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
664	recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
665	Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
666	For additional insight the user may want to consult a statistician.											
667												
668	Highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may											
669	not be reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.											
670												
671												
672	Copper											
673												
674	General Statistics											
675	Total Number of Observations					47	Number of Distinct Observations					44
676							Number of Missing Observations					0
677	Minimum					0.78	Mean					7.67
678	Maximum					10.8	Median					8.03
679	SD					2.01	Std. Error of Mean					0.29
680	Coefficient of Variation					0.26	Skewness					-1.48
681												
682	Normal GOF Test											
683	Shapiro Wilk Test Statistic					0.88	Shapiro Wilk GOF Test					
684	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level					
685	Lilliefors Test Statistic					0.14	Lilliefors GOF Test					
686	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level					
687	Data Not Normal at 5% Significance Level											
688												
689	Assuming Normal Distribution											
690	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
691	95% Student's-t UCL					8.16	95% Adjusted-CLT UCL (Chen-1995)					8.09
692							95% Modified-t UCL (Johnson-1978)					8.15
693												

	A	B	C	D	E	F	G	H	I	J	K	L	
694	Gamma GOF Test												
695	A-D Test Statistic					3.67	Anderson-Darling Gamma GOF Test						
696	5% A-D Critical Value					0.75	Data Not Gamma Distributed at 5% Significance Level						
697	K-S Test Statistic					0.23	Kolmogrov-Smirnoff Gamma GOF Test						
698	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
699	Data Not Gamma Distributed at 5% Significance Level												
700													
701	Gamma Statistics												
702	k hat (MLE)					7.61	k star (bias corrected MLE)					7.14	
703	Theta hat (MLE)					1.00	Theta star (bias corrected MLE)					1.07	
704	nu hat (MLE)					715.9	nu star (bias corrected)					671.5	
705	MLE Mean (bias corrected)					7.67	MLE Sd (bias corrected)					2.87	
706							Approximate Chi Square Value (0.05)					612.4	
707	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					610.6	
708													
709	Assuming Gamma Distribution												
710	Approximate Gamma UCL (use when n>=50))					8.41	Adjusted Gamma UCL (use when n<50)					8.44	
711													
712	Lognormal GOF Test												
713	Shapiro Wilk Test Statistic					0.60	Shapiro Wilk Lognormal GOF Test						
714	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level						
715	Lilliefors Test Statistic					0.28	Lilliefors Lognormal GOF Test						
716	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level						
717	Data Not Lognormal at 5% Significance Level												
718													
719	Lognormal Statistics												
720	Minimum of Logged Data					-0.24	Mean of logged Data					1.97	
721	Maximum of Logged Data					2.38	SD of logged Data					0.46	
722													
723	Assuming Lognormal Distribution												
724	95% H-UCL					9.05	90% Chebyshev (MVUE) UCL					9.63	
725	95% Chebyshev (MVUE) UCL					10.39	97.5% Chebyshev (MVUE) UCL					11.44	
726	99% Chebyshev (MVUE) UCL					13.51							
727													
728	Nonparametric Distribution Free UCL Statistics												
729	Data do not follow a Discernible Distribution (0.05)												
730													
731	Nonparametric Distribution Free UCLs												
732	95% CLT UCL					8.15	95% Jackknife UCL					8.16	
733	95% Standard Bootstrap UCL					8.15	95% Bootstrap-t UCL					8.10	
734	95% Hall's Bootstrap UCL					8.09	95% Percentile Bootstrap UCL					8.13	
735	95% BCA Bootstrap UCL					8.11							
736	90% Chebyshev(Mean, Sd) UCL					8.55	95% Chebyshev(Mean, Sd) UCL					8.95	
737	97.5% Chebyshev(Mean, Sd) UCL					9.51	99% Chebyshev(Mean, Sd) UCL					10.61	
738													
739	Suggested UCL to Use												
740	95% Student's-t UCL					8.16	or 95% Modified-t UCL					8.15	
741													
742	Recommendations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate												
743	Recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and												
744	Singh and Singh (2003). However, simulations results will not cover all Real World data sets												
745	For additional insight the user may want to consult a statistician.												
746													
747	Highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may												
748	be unreliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.												
749													
750													
751	Iron												
752													
753	General Statistics												
754	Total Number of Observations					47	Number of Distinct Observations					43	
755							Number of Missing Observations					0	
756	Minimum					6100	Mean					13302	

	A	B	C	D	E	F	G	H	I	J	K	L
757	Maximum					18600	Median					14600
758	SD					3634	Std. Error of Mean					530.1
759	Coefficient of Variation					0.27	Skewness					-0.43
760												
761	Normal GOF Test											
762	Shapiro Wilk Test Statistic					0.92	Shapiro Wilk GOF Test					
763	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level					
764	Lilliefors Test Statistic					0.16	Lilliefors GOF Test					
765	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level					
766	Data Not Normal at 5% Significance Level											
767												
768	Assuming Normal Distribution											
769	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
770	95% Student's-t UCL					14192	95% Adjusted-CLT UCL (Chen-1995)					14138
771							95% Modified-t UCL (Johnson-1978)					14187
772												
773	Gamma GOF Test											
774	A-D Test Statistic					1.47	Anderson-Darling Gamma GOF Test					
775	5% A-D Critical Value					0.74	Data Not Gamma Distributed at 5% Significance Level					
776	K-S Test Statistic					0.18	Kolmogrov-Smirnoff Gamma GOF Test					
777	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level					
778	Data Not Gamma Distributed at 5% Significance Level											
779												
780	Gamma Statistics											
781	k hat (MLE)					11.83	k star (bias corrected MLE)					11.04
782	Theta hat (MLE)					1124	Theta star (bias corrected MLE)					1200
783	nu hat (MLE)					1112	nu star (bias corrected)					1042
784	MLE Mean (bias corrected)					13302	MLE Sd (bias corrected)					3995
785							Approximate Chi Square Value (0.05)					968.4
786	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					966.2
787												
788	Assuming Gamma Distribution											
789	Approximate Gamma UCL (use when n>=50)					14318	Adjusted Gamma UCL (use when n<50)					14351
790												
791	Lognormal GOF Test											
792	Shapiro Wilk Test Statistic					0.89	Shapiro Wilk Lognormal GOF Test					
793	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level					
794	Lilliefors Test Statistic					0.19	Lilliefors Lognormal GOF Test					
795	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level					
796	Data Not Lognormal at 5% Significance Level											
797												
798	Lognormal Statistics											
799	Minimum of Logged Data					8.71	Mean of logged Data					9.45
800	Maximum of Logged Data					9.83	SD of logged Data					0.30
801												
802	Assuming Lognormal Distribution											
803	95% H-UCL					14495	90% Chebyshev (MVUE) UCL					15193
804	95% Chebyshev (MVUE) UCL					16027	97.5% Chebyshev (MVUE) UCL					17184
805	99% Chebyshev (MVUE) UCL					19457						
806												
807	Nonparametric Distribution Free UCL Statistics											
808	Data do not follow a Discernible Distribution (0.05)											
809												
810	Nonparametric Distribution Free UCLs											
811	95% CLT UCL					14174	95% Jackknife UCL					14192
812	95% Standard Bootstrap UCL					14155	95% Bootstrap-t UCL					14147
813	95% Hall's Bootstrap UCL					14114	95% Percentile Bootstrap UCL					14162
814	95% BCA Bootstrap UCL					14076						
815	90% Chebyshev(Mean, Sd) UCL					14893	95% Chebyshev(Mean, Sd) UCL					15613
816	97.5% Chebyshev(Mean, Sd) UCL					16613	99% Chebyshev(Mean, Sd) UCL					18576
817												
818	Suggested UCL to Use											
819	95% Student's-t UCL					14192	or 95% Modified-t UCL					14187

	A	B	C	D	E	F	G	H	I	J	K	L	
820													
821	ations regarding the selection of a 95% UCL are provided to help the user to select the most appropriate												
822	mmendations are based upon the results of the simulation studies summarized in Singh, Singh, and												
823	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets												
824	For additional insight the user may want to consult a statistician.												
825													
826	highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may												
827	reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.												
828													
829													
830	Lead												
831													
832	General Statistics												
833	Total Number of Observations					47	Number of Distinct Observations					43	
834							Number of Missing Observations					0	
835	Minimum					3.68	Mean					1383	
836	Maximum					63700	Median					15.7	
837	SD					9288	Std. Error of Mean					1355	
838	Coefficient of Variation					6.71	Skewness					6.85	
839													
840	Normal GOF Test												
841	Shapiro Wilk Test Statistic					0.15	Shapiro Wilk GOF Test						
842	5% Shapiro Wilk Critical Value					0.94	Data Not Normal at 5% Significance Level						
843	Lilliefors Test Statistic					0.52	Lilliefors GOF Test						
844	5% Lilliefors Critical Value					0.12	Data Not Normal at 5% Significance Level						
845	Data Not Normal at 5% Significance Level												
846													
847	Assuming Normal Distribution												
848	95% Normal UCL						95% UCLs (Adjusted for Skewness)						
849	95% Student's-t UCL					3657	95% Adjusted-CLT UCL (Chen-1995)					5059	
850							95% Modified-t UCL (Johnson-1978)					3883	
851													
852	Gamma GOF Test												
853	A-D Test Statistic					15.41	Anderson-Darling Gamma GOF Test						
854	5% A-D Critical Value					0.93	Data Not Gamma Distributed at 5% Significance Level						
855	K-S Test Statistic					0.46	Kolmogrov-Smirnoff Gamma GOF Test						
856	5% K-S Critical Value					0.14	Data Not Gamma Distributed at 5% Significance Level						
857	Data Not Gamma Distributed at 5% Significance Level												
858													
859	Gamma Statistics												
860	k hat (MLE)					0.18	k star (bias corrected MLE)					0.18	
861	Theta hat (MLE)					7691	Theta star (bias corrected MLE)					7577	
862	nu hat (MLE)					16.9	nu star (bias corrected)					17.1	
863	MLE Mean (bias corrected)					1383	MLE Sd (bias corrected)					3237	
864							Approximate Chi Square Value (0.05)					8.78	
865	Adjusted Level of Significance					0.04	Adjusted Chi Square Value					8.59	
866													
867	Assuming Gamma Distribution												
868	Approximate Gamma UCL (use when n>=50)					2701	Adjusted Gamma UCL (use when n<50)					2761	
869													
870	Lognormal GOF Test												
871	Shapiro Wilk Test Statistic					0.58	Shapiro Wilk Lognormal GOF Test						
872	5% Shapiro Wilk Critical Value					0.94	Data Not Lognormal at 5% Significance Level						
873	Lilliefors Test Statistic					0.31	Lilliefors Lognormal GOF Test						
874	5% Lilliefors Critical Value					0.12	Data Not Lognormal at 5% Significance Level						
875	Data Not Lognormal at 5% Significance Level												
876													
877	Lognormal Statistics												
878	Minimum of Logged Data					1.30	Mean of logged Data					3.07	
879	Maximum of Logged Data					11.06	SD of logged Data					1.42	
880													
881	Assuming Lognormal Distribution												
882	95% H-UCL					108.5	90% Chebyshev (MVUE) UCL					104	

[illegible]

	A	B	C	D	E	F	G	H	I	J	K	L
1387	Nonparametric Distribution Free UCL Statistics											
1388	Data do not follow a Discernible Distribution (0.05)											
1389												
1390	Nonparametric Distribution Free UCLs											
1391	95% CLT UCL					46.5	95% Jackknife UCL					46.6
1392	95% Standard Bootstrap UCL					46.4	95% Bootstrap-t UCL					59
1393	95% Hall's Bootstrap UCL					76.6	95% Percentile Bootstrap UCL					47.1
1394	95% BCA Bootstrap UCL					50.6						
1395	90% Chebyshev(Mean, Sd) UCL					52.1	95% Chebyshev(Mean, Sd) UCL					57.7
1396	97.5% Chebyshev(Mean, Sd) UCL					65.5	99% Chebyshev(Mean, Sd) UCL					80.9
1397												
1398	Suggested UCL to Use											
1399	95% Student's-t UCL					46.6	or 95% Modified-t UCL					47.1
1400												
1401	tions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate											
1402	mmendations are based upon the results of the simulation studies summarized in Singh, Singh, and											
1403	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets											
1404	For additional insight the user may want to consult a statistician.											
1405												