	A	B	C	D	E	F	G	H	I	J	K	L
1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options											
4	Date/Time of Computation			3/2/2015 7:25:56 PM								
5	From File			EPC_013Sub_EU05.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					10	Number of Distinct Observations					5
15							Number of Missing Observations					0
16	Minimum					5100	Mean					7872
17	Maximum					14000	Median					7872
18	SD					2486	Std. Error of Mean					786
19	Coefficient of Variation					0.316	Skewness					1.676
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic					0.782	**Shapiro Wilk GOF Test**					
23	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic					0.3	**Lilliefors GOF Test**					
25	5% Lilliefors Critical Value					0.28	Data Not Normal at 5% Significance Level					
26	**Data Not 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					9313	95% Adjusted-CLT UCL (Chen-1995)					9610
31							95% Modified-t UCL (Johnson-1978)					9382
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic					0.812	**Anderson-Darling Gamma GOF Test**					
35	5% A-D Critical Value					0.725	Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic					0.263	**Kolmogrov-Smirnoff Gamma GOF Test**					
37	5% K-S Critical Value					0.266	Detected 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)					12.98	k star (bias corrected MLE)					9.155
42	Theta hat (MLE)					606.3	Theta star (bias corrected MLE)					859.9
43	nu hat (MLE)					259.7	nu star (bias corrected)					183.1
44	MLE Mean (bias corrected)					7872	MLE Sd (bias corrected)					2602
45							Approximate Chi Square Value (0.05)					152.8
46	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					148
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50)					9433	95% Adjusted Gamma UCL (use when n<50)					9740
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic					0.857	**Shapiro Wilk Lognormal GOF Test**					

	A	B	C	D	E	F	G	H	I	J	K	L
53					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.254	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	8.537	Mean of logged Data					8.932
60					Maximum of Logged Data	9.547	SD of logged Data					0.287
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	9521	90% Chebyshev (MVUE) UCL					10010
64					95% Chebyshev (MVUE) UCL	10986	97.5% Chebyshev (MVUE) UCL					12340
65					99% Chebyshev (MVUE) UCL	15000						
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	9165	95% Jackknife UCL					9313
72					95% Standard Bootstrap UCL	9078	95% Bootstrap-t UCL					9828
73					95% Hall's Bootstrap UCL	15953	95% Percentile Bootstrap UCL					9239
74					95% BCA Bootstrap UCL	9516						
75					90% Chebyshev(Mean, Sd) UCL	10230	95% Chebyshev(Mean, Sd) UCL					11298
76					97.5% Chebyshev(Mean, Sd) UCL	12780	99% Chebyshev(Mean, Sd) UCL					15692
77												
78	**Suggested UCL to Use**											
79					95% Adjusted Gamma UCL	9740						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
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												
87	**Cesium-137**											
88												
89	**General Statistics**											
90					Total Number of Observations	10	Number of Distinct Observations					6
91							Number of Missing Observations					0
92					Minimum	-0.0054	Mean					0.128
93					Maximum	0.562	Median					0.128
94					SD	0.163	Std. Error of Mean					0.0514
95					Coefficient of Variation	1.269	Skewness					2.443
96												
97	**Normal GOF Test**											
98					Shapiro Wilk Test Statistic	0.668	**Shapiro Wilk GOF Test**					
99					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
100					Lilliefors Test Statistic	0.4	**Lilliefors GOF Test**					
101					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
102	**Data Not Normal at 5% Significance Level**											
103												
104	**Assuming Normal Distribution**											

	A	B	C	D	E	F	G	H	I	J	K	L
105	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
106					95% Student's-t UCL	0.222				95% Adjusted-CLT UCL (Chen-1995)		0.255
107										95% Modified-t UCL (Johnson-1978)		0.229
108	Gamma Statistics Not Available											
109	Lognormal Statistics Not Available											
110												
111	Nonparametric Distribution Free UCL Statistics											
112	Data do not follow a Discernible Distribution (0.05)											
113												
114	Nonparametric Distribution Free UCLs											
115					95% CLT UCL	0.213				95% Jackknife UCL		0.222
116					95% Standard Bootstrap UCL	0.21				95% Bootstrap-t UCL		0.311
117					95% Hall's Bootstrap UCL	0.564				95% Percentile Bootstrap UCL		0.224
118					95% BCA Bootstrap UCL	0.252						
119					90% Chebyshev(Mean, Sd) UCL	0.282				95% Chebyshev(Mean, Sd) UCL		0.352
120					97.5% Chebyshev(Mean, Sd) UCL	0.449				99% Chebyshev(Mean, Sd) UCL		0.64
121												
122	Suggested UCL to Use											
123					95% Chebyshev (Mean, Sd) UCL	0.352						
124												
125	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
126	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
127	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
128	For additional insight the user may want to consult a statistician.											
129												
130												
131	Chromium											
132												
133	General Statistics											
134					Total Number of Observations	10				Number of Distinct Observations		6
135										Number of Missing Observations		0
136					Minimum	8.26				Mean		27.46
137					Maximum	164				Median		12
138					SD	48.05				Std. Error of Mean		15.19
139					Coefficient of Variation	1.75				Skewness		3.145
140												
141	Normal GOF Test											
142					Shapiro Wilk Test Statistic	0.408	Shapiro Wilk GOF Test					
143					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
144					Lilliefors Test Statistic	0.47	Lilliefors GOF Test					
145					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
146	Data Not Normal at 5% Significance Level											
147												
148	Assuming Normal Distribution											
149	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
150					95% Student's-t UCL	55.31				95% Adjusted-CLT UCL (Chen-1995)		68.59
151										95% Modified-t UCL (Johnson-1978)		57.83
152												
153	Gamma GOF Test											
154					A-D Test Statistic	2.568	Anderson-Darling Gamma GOF Test					
155					5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level					
156					K-S Test Statistic	0.443	Kolmogrov-Smirnoff Gamma GOF Test					

	A	B	C	D	E	F	G	H	I	J	K	L
157					5% K-S Critical Value	0.274	Data Not Gamma Distributed at 5% Significance Level					
158	**Data Not Gamma Distributed at 5% Significance Level**											
159												
160	**Gamma Statistics**											
161					k hat (MLE)	1.021				k star (bias corrected MLE)		0.782
162					Theta hat (MLE)	26.88				Theta star (bias corrected MLE)		35.13
163					nu hat (MLE)	20.43				nu star (bias corrected)		15.63
164					MLE Mean (bias corrected)	27.46				MLE Sd (bias corrected)		31.06
165										Approximate Chi Square Value (0.05)		7.703
166					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		6.758
167												
168	**Assuming Gamma Distribution**											
169					95% Approximate Gamma UCL (use when n>=50))	55.72				95% Adjusted Gamma UCL (use when n<50)		63.51
170												
171	**Lognormal GOF Test**											
172					Shapiro Wilk Test Statistic	0.555	**Shapiro Wilk Lognormal GOF Test**					
173					5% Shapiro Wilk Critical Value	0.842	Data Not Lognormal at 5% Significance Level					
174					Lilliefors Test Statistic	0.411	**Lilliefors Lognormal GOF Test**					
175					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
176	**Data Not Lognormal at 5% Significance Level**											
177												
178	**Lognormal Statistics**											
179					Minimum of Logged Data	2.111				Mean of logged Data		2.749
180					Maximum of Logged Data	5.1				SD of logged Data		0.85
181												
182	**Assuming Lognormal Distribution**											
183					95% H-UCL	49.61				90% Chebyshev (MVUE) UCL		39.41
184					95% Chebyshev (MVUE) UCL	47.55				97.5% Chebyshev (MVUE) UCL		58.85
185					99% Chebyshev (MVUE) UCL	81.05						
186												
187	**Nonparametric Distribution Free UCL Statistics**											
188	**Data do not follow a Discernible Distribution (0.05)**											
189												
190	**Nonparametric Distribution Free UCLs**											
191					95% CLT UCL	52.45				95% Jackknife UCL		55.31
192					95% Standard Bootstrap UCL	51.29				95% Bootstrap-t UCL		660.6
193					95% Hall's Bootstrap UCL	684.1				95% Percentile Bootstrap UCL		57.66
194					95% BCA Bootstrap UCL	72.46						
195					90% Chebyshev(Mean, Sd) UCL	73.04				95% Chebyshev(Mean, Sd) UCL		93.69
196					97.5% Chebyshev(Mean, Sd) UCL	122.3				99% Chebyshev(Mean, Sd) UCL		178.6
197												
198	**Suggested UCL to Use**											
199					95% Chebyshev (Mean, Sd) UCL	93.69						
200												
201	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
202	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
203	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
204	For additional insight the user may want to consult a statistician.											
205												
206												
207	**Iron**											
208												

	A	B	C	D	E	F	G	H	I	J	K	L
209	General Statistics											
210	Total Number of Observations					10	Number of Distinct Observations					10
211							Number of Missing Observations					0
212	Minimum					17294	Mean					21780
213	Maximum					31295	Median					20930
214	SD					4173	Std. Error of Mean					1320
215	Coefficient of Variation					0.192	Skewness					1.346
216												
217	Normal GOF Test											
218	Shapiro Wilk Test Statistic					0.894	Shapiro Wilk GOF Test					
219	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level					
220	Lilliefors Test Statistic					0.159	Lilliefors GOF Test					
221	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
222	Data appear Normal at 5% Significance Level											
223												
224	Assuming Normal Distribution											
225	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
226	95% Student's-t UCL					24199	95% Adjusted-CLT UCL (Chen-1995)					24551
227							95% Modified-t UCL (Johnson-1978)					24293
228												
229	Gamma GOF Test											
230	A-D Test Statistic					0.301	Anderson-Darling Gamma GOF Test					
231	5% A-D Critical Value					0.724	Detected data appear Gamma Distributed at 5% Significance Level					
232	K-S Test Statistic					0.143	Kolmogrov-Smirnoff Gamma GOF Test					
233	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
234	Detected data appear Gamma Distributed at 5% Significance Level											
235												
236	Gamma Statistics											
237	k hat (MLE)					33.41	k star (bias corrected MLE)					23.45
238	Theta hat (MLE)					652	Theta star (bias corrected MLE)					928.7
239	nu hat (MLE)					668.1	nu star (bias corrected)					469
240	MLE Mean (bias corrected)					21780	MLE Sd (bias corrected)					4498
241							Approximate Chi Square Value (0.05)					419.8
242	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					411.7
243												
244	Assuming Gamma Distribution											
245	95% Approximate Gamma UCL (use when n>=50))					24333	95% Adjusted Gamma UCL (use when n<50)					24812
246												
247	Lognormal GOF Test											
248	Shapiro Wilk Test Statistic					0.94	Shapiro Wilk Lognormal GOF Test					
249	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
250	Lilliefors Test Statistic					0.131	Lilliefors Lognormal GOF Test					
251	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
252	Data appear Lognormal at 5% Significance Level											
253												
254	Lognormal Statistics											
255	Minimum of Logged Data					9.758	Mean of logged Data					9.974
256	Maximum of Logged Data					10.35	SD of logged Data					0.179
257												
258	Assuming Lognormal Distribution											
259	95% H-UCL					24364	90% Chebyshev (MVUE) UCL					25471
260	95% Chebyshev (MVUE) UCL					27149	97.5% Chebyshev (MVUE) UCL					29478

	A	B	C	D	E	F	G	H	I	J	K	L
261					99% Chebyshev (MVUE) UCL	34054						
262												
263					Nonparametric Distribution Free UCL Statistics							
264					Data appear to follow a Discernible Distribution at 5% Significance Level							
265												
266					Nonparametric Distribution Free UCLs							
267					95% CLT UCL	23951				95% Jackknife UCL		24199
268					95% Standard Bootstrap UCL	23903				95% Bootstrap-t UCL		25373
269					95% Hall's Bootstrap UCL	27283				95% Percentile Bootstrap UCL		23798
270					95% BCA Bootstrap UCL	24428						
271					90% Chebyshev(Mean, Sd) UCL	25739				95% Chebyshev(Mean, Sd) UCL		27533
272					97.5% Chebyshev(Mean, Sd) UCL	30022				99% Chebyshev(Mean, Sd) UCL		34911
273												
274					Suggested UCL to Use							
275					95% Student's-t UCL	24199						
276												
277					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
278					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
279					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
280					For additional insight the user may want to consult a statistician.							
281												
282												
283	Manganese											
284												
285					General Statistics							
286					Total Number of Observations	10				Number of Distinct Observations		10
287										Number of Missing Observations		0
288					Minimum	248				Mean		642
289					Maximum	1843				Median		485
290					SD	459.6				Std. Error of Mean		145.3
291					Coefficient of Variation	0.716				Skewness		2.309
292												
293					Normal GOF Test							
294					Shapiro Wilk Test Statistic	0.734				Shapiro Wilk GOF Test		
295					5% Shapiro Wilk Critical Value	0.842				Data Not Normal at 5% Significance Level		
296					Lilliefors Test Statistic	0.243				Lilliefors GOF Test		
297					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level		
298					Data appear Approximate Normal at 5% Significance Level							
299												
300					Assuming Normal Distribution							
301					95% Normal UCL					95% UCLs (Adjusted for Skewness)		
302					95% Student's-t UCL	908.4				95% Adjusted-CLT UCL (Chen-1995)		994.4
303										95% Modified-t UCL (Johnson-1978)		926.1
304												
305					Gamma GOF Test							
306					A-D Test Statistic	0.491				Anderson-Darling Gamma GOF Test		
307					5% A-D Critical Value	0.732				Detected data appear Gamma Distributed at 5% Significance Level		
308					K-S Test Statistic	0.182				Kolmogrov-Smirnoff Gamma GOF Test		
309					5% K-S Critical Value	0.268				Detected data appear Gamma Distributed at 5% Significance Level		
310					Detected data appear Gamma Distributed at 5% Significance Level							
311												
312					Gamma Statistics							

	A	B	C	D	E	F	G	H	I	J	K	L
313					k hat (MLE)	3.221					k star (bias corrected MLE)	2.321
314					Theta hat (MLE)	199.3					Theta star (bias corrected MLE)	276.6
315					nu hat (MLE)	64.41					nu star (bias corrected)	46.42
316					MLE Mean (bias corrected)	642					MLE Sd (bias corrected)	421.4
317											Approximate Chi Square Value (0.05)	31.79
318					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	29.7
319												
320					**Assuming Gamma Distribution**							
321					95% Approximate Gamma UCL (use when n>=50))	937.5					95% Adjusted Gamma UCL (use when n<50)	1004
322												
323					**Lognormal GOF Test**							
324					Shapiro Wilk Test Statistic	0.942			**Shapiro Wilk Lognormal GOF Test**			
325					5% Shapiro Wilk Critical Value	0.842			Data appear Lognormal at 5% Significance Level			
326					Lilliefors Test Statistic	0.147			**Lilliefors Lognormal GOF Test**			
327					5% Lilliefors Critical Value	0.28			Data appear Lognormal at 5% Significance Level			
328					**Data appear Lognormal at 5% Significance Level**							
329												
330					**Lognormal Statistics**							
331					Minimum of Logged Data	5.513					Mean of logged Data	6.301
332					Maximum of Logged Data	7.519					SD of logged Data	0.563
333												
334					**Assuming Lognormal Distribution**							
335					95% H-UCL	985.9					90% Chebyshev (MVUE) UCL	970.4
336					95% Chebyshev (MVUE) UCL	1126					97.5% Chebyshev (MVUE) UCL	1341
337					99% Chebyshev (MVUE) UCL	1764						
338												
339					**Nonparametric Distribution Free UCL Statistics**							
340					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
341												
342					**Nonparametric Distribution Free UCLs**							
343					95% CLT UCL	881					95% Jackknife UCL	908.4
344					95% Standard Bootstrap UCL	861.8					95% Bootstrap-t UCL	1223
345					95% Hall's Bootstrap UCL	1838					95% Percentile Bootstrap UCL	895.1
346					95% BCA Bootstrap UCL	989.2						
347					90% Chebyshev(Mean, Sd) UCL	1078					95% Chebyshev(Mean, Sd) UCL	1275
348					97.5% Chebyshev(Mean, Sd) UCL	1550					99% Chebyshev(Mean, Sd) UCL	2088
349												
350					**Suggested UCL to Use**							
351					95% Student's-t UCL	908.4						
352												
353					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
354					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
355					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
356					For additional insight the user may want to consult a statistician.							
357												
358												
359	**Neptunium-237**											
360												
361					**General Statistics**							
362					Total Number of Observations	10					Number of Distinct Observations	6
363											Number of Missing Observations	0
364					Minimum	0.00162					Mean	0.133

	A	B	C	D	E	F	G	H	I	J	K	L
365					Maximum	0.53					Median	0.133
366					SD	0.15					Std. Error of Mean	0.0473
367					Coefficient of Variation	1.129					Skewness	2.398
368												
369					Normal GOF Test							
370					Shapiro Wilk Test Statistic	0.678	Shapiro Wilk GOF Test					
371					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
372					Lilliefors Test Statistic	0.4	Lilliefors GOF Test					
373					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
374					Data Not Normal at 5% Significance Level							
375												
376					Assuming Normal Distribution							
377				95% Normal UCL			95% UCLs (Adjusted for Skewness)					
378					95% Student's-t UCL	0.219					95% Adjusted-CLT UCL (Chen-1995)	0.249
379											95% Modified-t UCL (Johnson-1978)	0.225
380												
381					Gamma GOF Test							
382					A-D Test Statistic	0.818	Anderson-Darling Gamma GOF Test					
383					5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level					
384					K-S Test Statistic	0.252	Kolmogrov-Smirnoff Gamma GOF Test					
385					5% K-S Critical Value	0.276	Detected data appear Gamma Distributed at 5% Significance Level					
386					Detected data follow Appr. Gamma Distribution at 5% Significance Level							
387												
388					Gamma Statistics							
389					k hat (MLE)	0.744					k star (bias corrected MLE)	0.587
390					Theta hat (MLE)	0.178					Theta star (bias corrected MLE)	0.226
391					nu hat (MLE)	14.88					nu star (bias corrected)	11.75
392					MLE Mean (bias corrected)	0.133					MLE Sd (bias corrected)	0.173
393											Approximate Chi Square Value (0.05)	5.061
394					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	4.323
395												
396					Assuming Gamma Distribution							
397					95% Approximate Gamma UCL (use when n>=50)	0.308					95% Adjusted Gamma UCL (use when n<50)	0.36
398												
399					Lognormal GOF Test							
400					Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Lognormal GOF Test					
401					5% Shapiro Wilk Critical Value	0.842	Data Not Lognormal at 5% Significance Level					
402					Lilliefors Test Statistic	0.292	Lilliefors Lognormal GOF Test					
403					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
404					Data Not Lognormal at 5% Significance Level							
405												
406					Lognormal Statistics							
407					Minimum of Logged Data	-6.425					Mean of logged Data	-2.827
408					Maximum of Logged Data	-0.635					SD of logged Data	1.783
409												
410					Assuming Lognormal Distribution							
411					95% H-UCL	5.258					90% Chebyshev (MVUE) UCL	0.592
412					95% Chebyshev (MVUE) UCL	0.763					97.5% Chebyshev (MVUE) UCL	1.001
413					99% Chebyshev (MVUE) UCL	1.467						
414												
415					Nonparametric Distribution Free UCL Statistics							
416					Data appear to follow a Discernible Distribution at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L
417												
418					Nonparametric Distribution Free UCLs							
419					95% CLT UCL	0.21				95% Jackknife UCL		0.219
420					95% Standard Bootstrap UCL	0.209				95% Bootstrap-t UCL		0.293
421					95% Hall's Bootstrap UCL	0.543				95% Percentile Bootstrap UCL		0.216
422					95% BCA Bootstrap UCL	0.246						
423					90% Chebyshev(Mean, Sd) UCL	0.274				95% Chebyshev(Mean, Sd) UCL		0.339
424					97.5% Chebyshev(Mean, Sd) UCL	0.428				99% Chebyshev(Mean, Sd) UCL		0.603
425												
426					Suggested UCL to Use							
427					95% Adjusted Gamma UCL	0.36						
428												
429					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
430					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
431					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
432					For additional insight the user may want to consult a statistician.							
433												
434												
435	PAH, Total											
436												
437					General Statistics							
438					Total Number of Observations	10				Number of Distinct Observations		5
439										Number of Missing Observations		0
440					Minimum	0.0663				Mean		0.375
441					Maximum	0.49				Median		0.375
442					SD	0.122				Std. Error of Mean		0.0385
443					Coefficient of Variation	0.325				Skewness		-1.93
444												
445					Normal GOF Test							
446					Shapiro Wilk Test Statistic	0.732				Shapiro Wilk GOF Test		
447					5% Shapiro Wilk Critical Value	0.842				Data Not Normal at 5% Significance Level		
448					Lilliefors Test Statistic	0.311				Lilliefors GOF Test		
449					5% Lilliefors Critical Value	0.28				Data Not Normal at 5% Significance Level		
450					Data Not Normal at 5% Significance Level							
451												
452					Assuming Normal Distribution							
453					95% Normal UCL					95% UCLs (Adjusted for Skewness)		
454					95% Student's-t UCL	0.445				95% Adjusted-CLT UCL (Chen-1995)		0.413
455										95% Modified-t UCL (Johnson-1978)		0.441
456												
457					Gamma GOF Test							
458					A-D Test Statistic	1.731				Anderson-Darling Gamma GOF Test		
459					5% A-D Critical Value	0.729				Data Not Gamma Distributed at 5% Significance Level		
460					K-S Test Statistic	0.392				Kolmogrov-Smirnoff Gamma GOF Test		
461					5% K-S Critical Value	0.267				Data Not Gamma Distributed at 5% Significance Level		
462					Data Not Gamma Distributed at 5% Significance Level							
463												
464					Gamma Statistics							
465					k hat (MLE)	5.041				k star (bias corrected MLE)		3.596
466					Theta hat (MLE)	0.0743				Theta star (bias corrected MLE)		0.104
467					nu hat (MLE)	100.8				nu star (bias corrected)		71.91
468					MLE Mean (bias corrected)	0.375				MLE Sd (bias corrected)		0.198

	A	B	C	D	E	F	G	H	I	J	K	L
469											Approximate Chi Square Value (0.05)	53.39
470					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	50.62
471												
472					**Assuming Gamma Distribution**							
473				95% Approximate Gamma UCL (use when n>=50))		0.505					95% Adjusted Gamma UCL (use when n<50)	0.532
474												
475					**Lognormal GOF Test**							
476					Shapiro Wilk Test Statistic	0.556			**Shapiro Wilk Lognormal GOF Test**			
477					5% Shapiro Wilk Critical Value	0.842			Data Not Lognormal at 5% Significance Level			
478					Lilliefors Test Statistic	0.418			**Lilliefors Lognormal GOF Test**			
479					5% Lilliefors Critical Value	0.28			Data Not Lognormal at 5% Significance Level			
480					**Data Not Lognormal at 5% Significance Level**							
481												
482					**Lognormal Statistics**							
483					Minimum of Logged Data	-2.714			Mean of logged Data			-1.084
484					Maximum of Logged Data	-0.713			SD of logged Data			0.588
485												
486					**Assuming Lognormal Distribution**							
487					95% H-UCL	0.637			90% Chebyshev (MVUE) UCL			0.619
488					95% Chebyshev (MVUE) UCL	0.721			97.5% Chebyshev (MVUE) UCL			0.862
489					99% Chebyshev (MVUE) UCL	1.14						
490												
491					**Nonparametric Distribution Free UCL Statistics**							
492					**Data do not follow a Discernible Distribution (0.05)**							
493												
494					**Nonparametric Distribution Free UCLs**							
495					95% CLT UCL	0.438			95% Jackknife UCL			0.445
496					95% Standard Bootstrap UCL	0.435			95% Bootstrap-t UCL			0.429
497					95% Hall's Bootstrap UCL	0.421			95% Percentile Bootstrap UCL			0.428
498					95% BCA Bootstrap UCL	0.418						
499					90% Chebyshev(Mean, Sd) UCL	0.49			95% Chebyshev(Mean, Sd) UCL			0.543
500					97.5% Chebyshev(Mean, Sd) UCL	0.615			99% Chebyshev(Mean, Sd) UCL			0.758
501												
502					**Suggested UCL to Use**							
503					95% Chebyshev (Mean, Sd) UCL	0.543						
504												
505					**Recommended UCL exceeds the maximum observation**							
506												
507					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
508					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
509					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
510					For additional insight the user may want to consult a statistician.							
511												
512					**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**							
513					**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**							
514												
515												
516	**PCB, Total**											
517												
518					**General Statistics**							
519					Total Number of Observations	10			Number of Distinct Observations			6
520									Number of Missing Observations			0

	A	B	C	D	E	F	G	H	I	J	K	L
521					Minimum	0.1					Mean	2.733
522					Maximum	5					Median	3.126
523					SD	2.411					Std. Error of Mean	0.762
524					Coefficient of Variation	0.882					Skewness	-0.0574
525												
526					Normal GOF Test							
527					Shapiro Wilk Test Statistic	0.716	Shapiro Wilk GOF Test					
528					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
529					Lilliefors Test Statistic	0.326	Lilliefors GOF Test					
530					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
531					Data Not Normal at 5% Significance Level							
532												
533					Assuming Normal Distribution							
534				95% Normal UCL			95% UCLs (Adjusted for Skewness)					
535					95% Student's-t UCL	4.13					95% Adjusted-CLT UCL (Chen-1995)	3.972
536											95% Modified-t UCL (Johnson-1978)	4.128
537												
538					Gamma GOF Test							
539					A-D Test Statistic	1.026	Anderson-Darling Gamma GOF Test					
540					5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level					
541					K-S Test Statistic	0.33	Kolmogrov-Smirnoff Gamma GOF Test					
542					5% K-S Critical Value	0.276	Data Not Gamma Distributed at 5% Significance Level					
543					Data Not Gamma Distributed at 5% Significance Level							
544												
545					Gamma Statistics							
546					k hat (MLE)	0.752					k star (bias corrected MLE)	0.593
547					Theta hat (MLE)	3.636					Theta star (bias corrected MLE)	4.61
548					nu hat (MLE)	15.03					nu star (bias corrected)	11.86
549					MLE Mean (bias corrected)	2.733					MLE Sd (bias corrected)	3.55
550											Approximate Chi Square Value (0.05)	5.133
551					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	4.389
552												
553					Assuming Gamma Distribution							
554					95% Approximate Gamma UCL (use when n>=50))	6.313					95% Adjusted Gamma UCL (use when n<50)	7.383
555												
556					Lognormal GOF Test							
557					Shapiro Wilk Test Statistic	0.802	Shapiro Wilk Lognormal GOF Test					
558					5% Shapiro Wilk Critical Value	0.842	Data Not Lognormal at 5% Significance Level					
559					Lilliefors Test Statistic	0.305	Lilliefors Lognormal GOF Test					
560					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
561					Data Not Lognormal at 5% Significance Level							
562												
563					Lognormal Statistics							
564					Minimum of Logged Data	-2.303					Mean of logged Data	0.209
565					Maximum of Logged Data	1.609					SD of logged Data	1.632
566												
567					Assuming Lognormal Distribution							
568					95% H-UCL	54.39					90% Chebyshev (MVUE) UCL	9.661
569					95% Chebyshev (MVUE) UCL	12.37					97.5% Chebyshev (MVUE) UCL	16.13
570					99% Chebyshev (MVUE) UCL	23.53						
571												
572					Nonparametric Distribution Free UCL Statistics							

	A	B	C	D	E	F	G	H	I	J	K	L
573	Data do not follow a Discernible Distribution (0.05)											
574												
575	Nonparametric Distribution Free UCLs											
576					95% CLT UCL	3.987				95% Jackknife UCL		4.13
577					95% Standard Bootstrap UCL	3.916				95% Bootstrap-t UCL		4.321
578					95% Hall's Bootstrap UCL	3.615				95% Percentile Bootstrap UCL		4.038
579					95% BCA Bootstrap UCL	4.038						
580					90% Chebyshev(Mean, Sd) UCL	5.02				95% Chebyshev(Mean, Sd) UCL		6.056
581					97.5% Chebyshev(Mean, Sd) UCL	7.494				99% Chebyshev(Mean, Sd) UCL		10.32
582												
583	Suggested UCL to Use											
584					99% Chebyshev (Mean, Sd) UCL	10.32						
585												
586	Recommended UCL exceeds the maximum observation											
587												
588	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
589	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
590	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
591	For additional insight the user may want to consult a statistician.											
592												
593	Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be											
594	reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.											
595												
596												
597	Technetium-99											
598												
599	General Statistics											
600					Total Number of Observations	10				Number of Distinct Observations		6
601										Number of Missing Observations		0
602					Minimum	-0.014				Mean		30.58
603					Maximum	150				Median		30.58
604					SD	44.51				Std. Error of Mean		14.08
605					Coefficient of Variation	1.456				Skewness		2.514
606												
607	Normal GOF Test											
608					Shapiro Wilk Test Statistic	0.631				Shapiro Wilk GOF Test		
609					5% Shapiro Wilk Critical Value	0.842				Data Not Normal at 5% Significance Level		
610					Lilliefors Test Statistic	0.4				Lilliefors GOF Test		
611					5% Lilliefors Critical Value	0.28				Data Not Normal at 5% Significance Level		
612	Data Not Normal at 5% Significance Level											
613												
614	Assuming Normal Distribution											
615	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
616					95% Student's-t UCL	56.38				95% Adjusted-CLT UCL (Chen-1995)		65.69
617										95% Modified-t UCL (Johnson-1978)		58.24
618	Gamma Statistics Not Available											
619	Lognormal Statistics Not Available											
620												
621	Nonparametric Distribution Free UCL Statistics											
622	Data do not follow a Discernible Distribution (0.05)											
623												
624	Nonparametric Distribution Free UCLs											

	A	B	C	D	E	F	G	H	I	J	K	L
625					95% CLT UCL	53.73					95% Jackknife UCL	56.38
626					95% Standard Bootstrap UCL	52.72					95% Bootstrap-t UCL	82.23
627					95% Hall's Bootstrap UCL	144.5					95% Percentile Bootstrap UCL	54.46
628					95% BCA Bootstrap UCL	72.26						
629					90% Chebyshev(Mean, Sd) UCL	72.8					95% Chebyshev(Mean, Sd) UCL	91.93
630					97.5% Chebyshev(Mean, Sd) UCL	118.5					99% Chebyshev(Mean, Sd) UCL	170.6
631												
632					**Suggested UCL to Use**							
633					95% Chebyshev (Mean, Sd) UCL	91.93						
634												
635					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
636					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
637					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
638					For additional insight the user may want to consult a statistician.							
639												
640												
641	**Uranium**											
642												
643					**General Statistics**							
644					Total Number of Observations	10					Number of Distinct Observations	4
645											Number of Missing Observations	0
646					Minimum	0.929					Mean	20.58
647					Maximum	130					Median	10
648					SD	38.57					Std. Error of Mean	12.2
649					Coefficient of Variation	1.874					Skewness	3.123
650												
651					**Normal GOF Test**							
652					Shapiro Wilk Test Statistic	0.429			**Shapiro Wilk GOF Test**			
653					5% Shapiro Wilk Critical Value	0.842			Data Not Normal at 5% Significance Level			
654					Lilliefors Test Statistic	0.508			**Lilliefors GOF Test**			
655					5% Lilliefors Critical Value	0.28			Data Not Normal at 5% Significance Level			
656					**Data Not Normal at 5% Significance Level**							
657												
658					**Assuming Normal Distribution**							
659					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
660					95% Student's-t UCL	42.94			95% Adjusted-CLT UCL (Chen-1995)			53.52
661									95% Modified-t UCL (Johnson-1978)			44.95
662												
663					**Gamma GOF Test**							
664					A-D Test Statistic	1.906			**Anderson-Darling Gamma GOF Test**			
665					5% A-D Critical Value	0.756			Data Not Gamma Distributed at 5% Significance Level			
666					K-S Test Statistic	0.466			**Kolmogrov-Smirnoff Gamma GOF Test**			
667					5% K-S Critical Value	0.276			Data Not Gamma Distributed at 5% Significance Level			
668					**Data Not Gamma Distributed at 5% Significance Level**							
669												
670					**Gamma Statistics**							
671					k hat (MLE)	0.77			k star (bias corrected MLE)			0.606
672					Theta hat (MLE)	26.72			Theta star (bias corrected MLE)			33.97
673					nu hat (MLE)	15.41			nu star (bias corrected)			12.12
674					MLE Mean (bias corrected)	20.58			MLE Sd (bias corrected)			26.44
675									Approximate Chi Square Value (0.05)			5.305
676					Adjusted Level of Significance	0.0267			Adjusted Chi Square Value			4.546

	A	B	C	D	E	F	G	H	I	J	K	L
677												
678						Assuming Gamma Distribution						
679					95% Approximate Gamma UCL (use when n>=50))	47.02				95% Adjusted Gamma UCL (use when n<50)		54.86
680												
681						Lognormal GOF Test						
682					Shapiro Wilk Test Statistic	0.742			Shapiro Wilk Lognormal GOF Test			
683					5% Shapiro Wilk Critical Value	0.842			Data Not Lognormal at 5% Significance Level			
684					Lilliefors Test Statistic	0.382			Lilliefors Lognormal GOF Test			
685					5% Lilliefors Critical Value	0.28			Data Not Lognormal at 5% Significance Level			
686						Data Not Lognormal at 5% Significance Level						
687												
688						Lognormal Statistics						
689					Minimum of Logged Data	-0.0736			Mean of logged Data			2.25
690					Maximum of Logged Data	4.868			SD of logged Data			1.188
691												
692						Assuming Lognormal Distribution						
693					95% H-UCL	76.95			90% Chebyshev (MVUE) UCL			37.96
694					95% Chebyshev (MVUE) UCL	47.31			97.5% Chebyshev (MVUE) UCL			60.27
695					99% Chebyshev (MVUE) UCL	85.75						
696												
697						Nonparametric Distribution Free UCL Statistics						
698						Data do not follow a Discernible Distribution (0.05)						
699												
700						Nonparametric Distribution Free UCLs						
701					95% CLT UCL	40.64			95% Jackknife UCL			42.94
702					95% Standard Bootstrap UCL	N/A			95% Bootstrap-t UCL			N/A
703					95% Hall's Bootstrap UCL	N/A			95% Percentile Bootstrap UCL			N/A
704					95% BCA Bootstrap UCL	N/A						
705					90% Chebyshev(Mean, Sd) UCL	57.17			95% Chebyshev(Mean, Sd) UCL			73.75
706					97.5% Chebyshev(Mean, Sd) UCL	96.75			99% Chebyshev(Mean, Sd) UCL			141.9
707												
708						Suggested UCL to Use						
709					95% Chebyshev (Mean, Sd) UCL	73.75						
710												
711					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
712					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
713					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
714					For additional insight the user may want to consult a statistician.							
715												
716												
717	Uranium-234											
718												
719						General Statistics						
720					Total Number of Observations	10			Number of Distinct Observations			6
721									Number of Missing Observations			0
722					Minimum	0.5			Mean			8.028
723					Maximum	35.7			Median			8.028
724					SD	10.32			Std. Error of Mean			3.263
725					Coefficient of Variation	1.285			Skewness			2.51
726												
727						Normal GOF Test						
728					Shapiro Wilk Test Statistic	0.639			Shapiro Wilk GOF Test			

	A	B	C	D	E	F	G	H	I	J	K	L
729					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
730					Lilliefors Test Statistic	0.4	**Lilliefors GOF Test**					
731					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
732	**Data Not Normal at 5% Significance Level**											
733												
734	**Assuming Normal Distribution**											
735	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
736					95% Student's-t UCL	14.01	95% Adjusted-CLT UCL (Chen-1995)					16.16
737							95% Modified-t UCL (Johnson-1978)					14.44
738												
739	**Gamma GOF Test**											
740					A-D Test Statistic	0.716	**Anderson-Darling Gamma GOF Test**					
741					5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level					
742					K-S Test Statistic	0.258	**Kolmogrov-Smirnoff Gamma GOF Test**					
743					5% K-S Critical Value	0.275	Detected data appear Gamma Distributed at 5% Significance Level					
744	**Detected data appear Gamma Distributed at 5% Significance Level**											
745												
746	**Gamma Statistics**											
747					k hat (MLE)	0.863	k star (bias corrected MLE)					0.671
748					Theta hat (MLE)	9.303	Theta star (bias corrected MLE)					11.97
749					nu hat (MLE)	17.26	nu star (bias corrected)					13.41
750					MLE Mean (bias corrected)	8.028	MLE Sd (bias corrected)					9.803
751							Approximate Chi Square Value (0.05)					6.173
752					Adjusted Level of Significance	0.0267	Adjusted Chi Square Value					5.343
753												
754	**Assuming Gamma Distribution**											
755					95% Approximate Gamma UCL (use when n>=50)	17.45	95% Adjusted Gamma UCL (use when n<50)					20.16
756												
757	**Lognormal GOF Test**											
758					Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**					
759					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
760					Lilliefors Test Statistic	0.297	**Lilliefors Lognormal GOF Test**					
761					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
762	**Data appear Approximate Lognormal at 5% Significance Level**											
763												
764	**Lognormal Statistics**											
765					Minimum of Logged Data	-0.693	Mean of logged Data					1.402
766					Maximum of Logged Data	3.575	SD of logged Data					1.319
767												
768	**Assuming Lognormal Distribution**											
769					95% H-UCL	51.42	90% Chebyshev (MVUE) UCL					19.68
770					95% Chebyshev (MVUE) UCL	24.76	97.5% Chebyshev (MVUE) UCL					31.81
771					99% Chebyshev (MVUE) UCL	45.66						
772												
773	**Nonparametric Distribution Free UCL Statistics**											
774	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
775												
776	**Nonparametric Distribution Free UCLs**											
777					95% CLT UCL	13.39	95% Jackknife UCL					14.01
778					95% Standard Bootstrap UCL	13.08	95% Bootstrap-t UCL					19.98
779					95% Hall's Bootstrap UCL	34.49	95% Percentile Bootstrap UCL					14.14
780					95% BCA Bootstrap UCL	16.95						

	A	B	C	D	E	F	G	H	I	J	K	L
781					90% Chebyshev(Mean, Sd) UCL	17.82					95% Chebyshev(Mean, Sd) UCL	22.25
782					97.5% Chebyshev(Mean, Sd) UCL	28.4					99% Chebyshev(Mean, Sd) UCL	40.49
783												
784					**Suggested UCL to Use**							
785					95% Adjusted Gamma UCL	20.16						
786												
787	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
788	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
789	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
790	For additional insight the user may want to consult a statistician.											
791												
792												
793	**Uranium-235**											
794												
795					**General Statistics**							
796					Total Number of Observations	10					Number of Distinct Observations	6
797											Number of Missing Observations	0
798					Minimum	0.00841					Mean	0.873
799					Maximum	4.12					Median	0.873
800					SD	1.21					Std. Error of Mean	0.383
801					Coefficient of Variation	1.386					Skewness	2.512
802												
803					**Normal GOF Test**							
804					Shapiro Wilk Test Statistic	0.636					**Shapiro Wilk GOF Test**	
805					5% Shapiro Wilk Critical Value	0.842					Data Not Normal at 5% Significance Level	
806					Lilliefors Test Statistic	0.4					**Lilliefors GOF Test**	
807					5% Lilliefors Critical Value	0.28					Data Not Normal at 5% Significance Level	
808					**Data Not Normal at 5% Significance Level**							
809												
810					**Assuming Normal Distribution**							
811					**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**	
812					95% Student's-t UCL	1.575					95% Adjusted-CLT UCL (Chen-1995)	1.828
813											95% Modified-t UCL (Johnson-1978)	1.626
814												
815					**Gamma GOF Test**							
816					A-D Test Statistic	0.653					**Anderson-Darling Gamma GOF Test**	
817					5% A-D Critical Value	0.77					Detected data appear Gamma Distributed at 5% Significance Level	
818					K-S Test Statistic	0.27					**Kolmogrov-Smirnoff Gamma GOF Test**	
819					5% K-S Critical Value	0.279					Detected data appear Gamma Distributed at 5% Significance Level	
820					**Detected data appear Gamma Distributed at 5% Significance Level**							
821												
822					**Gamma Statistics**							
823					k hat (MLE)	0.586					k star (bias corrected MLE)	0.477
824					Theta hat (MLE)	1.489					Theta star (bias corrected MLE)	1.83
825					nu hat (MLE)	11.73					nu star (bias corrected)	9.543
826					MLE Mean (bias corrected)	0.873					MLE Sd (bias corrected)	1.264
827											Approximate Chi Square Value (0.05)	3.658
828					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	3.053
829												
830					**Assuming Gamma Distribution**							
831					95% Approximate Gamma UCL (use when n>=50)	2.278					95% Adjusted Gamma UCL (use when n<50)	2.73
832												

	A	B	C	D	E	F	G	H	I	J	K	L
833						Lognormal GOF Test						
834					Shapiro Wilk Test Statistic	0.882	Shapiro Wilk Lognormal GOF Test					
835					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
836					Lilliefors Test Statistic	0.313	Lilliefors Lognormal GOF Test					
837					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
838					Data appear Approximate Lognormal at 5% Significance Level							
839												
840					Lognormal Statistics							
841					Minimum of Logged Data	-4.778	Mean of logged Data					-1.193
842					Maximum of Logged Data	1.416	SD of logged Data					1.885
843												
844					Assuming Lognormal Distribution							
845					95% H-UCL	44.6	90% Chebyshev (MVUE) UCL					3.584
846					95% Chebyshev (MVUE) UCL	4.639	97.5% Chebyshev (MVUE) UCL					6.103
847					99% Chebyshev (MVUE) UCL	8.979						
848												
849					Nonparametric Distribution Free UCL Statistics							
850					Data appear to follow a Discernible Distribution at 5% Significance Level							
851												
852					Nonparametric Distribution Free UCLs							
853					95% CLT UCL	1.503	95% Jackknife UCL					1.575
854					95% Standard Bootstrap UCL	1.467	95% Bootstrap-t UCL					2.276
855					95% Hall's Bootstrap UCL	3.974	95% Percentile Bootstrap UCL					1.523
856					95% BCA Bootstrap UCL	1.773						
857					90% Chebyshev(Mean, Sd) UCL	2.021	95% Chebyshev(Mean, Sd) UCL					2.542
858					97.5% Chebyshev(Mean, Sd) UCL	3.263	99% Chebyshev(Mean, Sd) UCL					4.682
859												
860					Suggested UCL to Use							
861					95% Adjusted Gamma UCL	2.73						
862												
863					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
864					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
865					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
866					For additional insight the user may want to consult a statistician.							
867												
868												
869	Uranium-238											
870												
871					General Statistics							
872					Total Number of Observations	10	Number of Distinct Observations					6
873							Number of Missing Observations					0
874					Minimum	0.687	Mean					13.99
875					Maximum	64.1	Median					13.99
876					SD	18.68	Std. Error of Mean					5.907
877					Coefficient of Variation	1.335	Skewness					2.512
878												
879					Normal GOF Test							
880					Shapiro Wilk Test Statistic	0.636	Shapiro Wilk GOF Test					
881					5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level					
882					Lilliefors Test Statistic	0.4	Lilliefors GOF Test					
883					5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level					
884					Data Not Normal at 5% Significance Level							

	A	B	C	D	E	F	G	H	I	J	K	L
885												
886						Assuming Normal Distribution						
887				95% Normal UCL					95% UCLs (Adjusted for Skewness)			
888					95% Student's-t UCL	24.82				95% Adjusted-CLT UCL (Chen-1995)		28.72
889										95% Modified-t UCL (Johnson-1978)		25.6
890												
891						Gamma GOF Test						
892					A-D Test Statistic	0.733			Anderson-Darling Gamma GOF Test			
893					5% A-D Critical Value	0.757			Detected data appear Gamma Distributed at 5% Significance Level			
894					K-S Test Statistic	0.251			Kolmogrov-Smirnoff Gamma GOF Test			
895					5% K-S Critical Value	0.276			Detected data appear Gamma Distributed at 5% Significance Level			
896						Detected data appear Gamma Distributed at 5% Significance Level						
897												
898						Gamma Statistics						
899					k hat (MLE)	0.754			k star (bias corrected MLE)			0.595
900					Theta hat (MLE)	18.55			Theta star (bias corrected MLE)			23.53
901					nu hat (MLE)	15.08			nu star (bias corrected)			11.89
902					MLE Mean (bias corrected)	13.99			MLE Sd (bias corrected)			18.14
903									Approximate Chi Square Value (0.05)			5.156
904					Adjusted Level of Significance	0.0267			Adjusted Chi Square Value			4.41
905												
906						Assuming Gamma Distribution						
907					95% Approximate Gamma UCL (use when n>=50)	32.27			95% Adjusted Gamma UCL (use when n<50)			37.73
908												
909						Lognormal GOF Test						
910					Shapiro Wilk Test Statistic	0.878			Shapiro Wilk Lognormal GOF Test			
911					5% Shapiro Wilk Critical Value	0.842			Data appear Lognormal at 5% Significance Level			
912					Lilliefors Test Statistic	0.306			Lilliefors Lognormal GOF Test			
913					5% Lilliefors Critical Value	0.28			Data Not Lognormal at 5% Significance Level			
914						Data appear Approximate Lognormal at 5% Significance Level						
915												
916						Lognormal Statistics						
917					Minimum of Logged Data	-0.375			Mean of logged Data			1.845
918					Maximum of Logged Data	4.16			SD of logged Data			1.462
919												
920						Assuming Lognormal Distribution						
921					95% H-UCL	137.1			90% Chebyshev (MVUE) UCL			38.04
922					95% Chebyshev (MVUE) UCL	48.29			97.5% Chebyshev (MVUE) UCL			62.51
923					99% Chebyshev (MVUE) UCL	90.43						
924												
925						Nonparametric Distribution Free UCL Statistics						
926						Data appear to follow a Discernible Distribution at 5% Significance Level						
927												
928						Nonparametric Distribution Free UCLs						
929					95% CLT UCL	23.71			95% Jackknife UCL			24.82
930					95% Standard Bootstrap UCL	23.17			95% Bootstrap-t UCL			35.64
931					95% Hall's Bootstrap UCL	61.85			95% Percentile Bootstrap UCL			24.01
932					95% BCA Bootstrap UCL	27.88						
933					90% Chebyshev(Mean, Sd) UCL	31.71			95% Chebyshev(Mean, Sd) UCL			39.74
934					97.5% Chebyshev(Mean, Sd) UCL	50.88			99% Chebyshev(Mean, Sd) UCL			72.77
935												
936						Suggested UCL to Use						

	A	B	C	D	E	F	G	H	I	J	K	L
937					95% Adjusted Gamma UCL	37.73						
938												
939	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
940	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
941	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
942	For additional insight the user may want to consult a statistician.											
943												
944												
945	**Vanadium**											
946												
947	**General Statistics**											
948	Total Number of Observations					10	Number of Distinct Observations					9
949							Number of Missing Observations					0
950	Minimum					73	Mean					95
951	Maximum					138	Median					92.5
952	SD					18.11	Std. Error of Mean					5.727
953	Coefficient of Variation					0.191	Skewness					1.458
954												
955	**Normal GOF Test**											
956	Shapiro Wilk Test Statistic					0.875	**Shapiro Wilk GOF Test**					
957	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level					
958	Lilliefors Test Statistic					0.191	**Lilliefors GOF Test**					
959	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
960	**Data appear Normal at 5% Significance Level**											
961												
962	**Assuming Normal Distribution**											
963	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
964	95% Student's-t UCL					105.5	95% Adjusted-CLT UCL (Chen-1995)					107.2
965							95% Modified-t UCL (Johnson-1978)					105.9
966												
967	**Gamma GOF Test**											
968	A-D Test Statistic					0.4	**Anderson-Darling Gamma GOF Test**					
969	5% A-D Critical Value					0.724	Detected data appear Gamma Distributed at 5% Significance Level					
970	K-S Test Statistic					0.16	**Kolmogrov-Smirnoff Gamma GOF Test**					
971	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
972	**Detected data appear Gamma Distributed at 5% Significance Level**											
973												
974	**Gamma Statistics**											
975	k hat (MLE)					33.86	k star (bias corrected MLE)					23.77
976	Theta hat (MLE)					2.806	Theta star (bias corrected MLE)					3.997
977	nu hat (MLE)					677.2	nu star (bias corrected)					475.4
978	MLE Mean (bias corrected)					95	MLE Sd (bias corrected)					19.49
979							Approximate Chi Square Value (0.05)					425.8
980	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					417.7
981												
982	**Assuming Gamma Distribution**											
983	95% Approximate Gamma UCL (use when n>=50))					106.1	95% Adjusted Gamma UCL (use when n<50)					108.1
984												
985	**Lognormal GOF Test**											
986	Shapiro Wilk Test Statistic					0.93	**Shapiro Wilk Lognormal GOF Test**					
987	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
988	Lilliefors Test Statistic					0.161	**Lilliefors Lognormal GOF Test**					

	A	B	C	D	E	F	G	H	I	J	K	L
989					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
990	Data appear Lognormal at 5% Significance Level											
991												
992	Lognormal Statistics											
993					Minimum of Logged Data	4.29				Mean of logged Data		4.539
994					Maximum of Logged Data	4.927				SD of logged Data		0.178
995												
996	Assuming Lognormal Distribution											
997					95% H-UCL	106.2				90% Chebyshev (MVUE) UCL		111
998					95% Chebyshev (MVUE) UCL	118.3				97.5% Chebyshev (MVUE) UCL		128.4
999					99% Chebyshev (MVUE) UCL	148.2						
1000												
1001	Nonparametric Distribution Free UCL Statistics											
1002	Data appear to follow a Discernible Distribution at 5% Significance Level											
1003												
1004	Nonparametric Distribution Free UCLs											
1005					95% CLT UCL	104.4				95% Jackknife UCL		105.5
1006					95% Standard Bootstrap UCL	103.9				95% Bootstrap-t UCL		109.7
1007					95% Hall's Bootstrap UCL	156.7				95% Percentile Bootstrap UCL		104.6
1008					95% BCA Bootstrap UCL	107.8						
1009					90% Chebyshev(Mean, Sd) UCL	112.2				95% Chebyshev(Mean, Sd) UCL		120
1010					97.5% Chebyshev(Mean, Sd) UCL	130.8				99% Chebyshev(Mean, Sd) UCL		152
1011												
1012	Suggested UCL to Use											
1013					95% Student's-t UCL	105.5						
1014												
1015	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1016	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1017	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1018	For additional insight the user may want to consult a statistician.											
1019												