	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			10/29/2015 11:45								
5	From File			EPC_013Surf.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	**Vanadium**											
12												
13	**General Statistics**											
14	Total Number of Observations					15	Number of Distinct Observations					12
15							Number of Missing Observations					0
16	Minimum					72	Mean					87.47
17	Maximum					103	Median					85
18	SD					10.66	Std. Error of Mean					2.751
19	Coefficient of Variation					0.122	Skewness					0.192
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic					0.917	**Shapiro Wilk GOF Test**					
23	5% Shapiro Wilk Critical Value					0.881	Data appear Normal at 5% Significance Level					
24	Lilliefors Test Statistic					0.155	**Lilliefors GOF Test**					
25	5% Lilliefors Critical Value					0.229	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					92.31	95% Adjusted-CLT UCL (Chen-1995)					92.14
31							95% Modified-t UCL (Johnson-1978)					92.34
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic					0.497	**Anderson-Darling Gamma GOF Test**					
35	5% A-D Critical Value					0.734	Detected data appear Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic					0.158	**Kolmogrov-Smirnoff Gamma GOF Test**					
37	5% K-S Critical Value					0.221	Detected 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)					72.5	k star (bias corrected MLE)					58.05
42	Theta hat (MLE)					1.206	Theta star (bias corrected MLE)					1.507
43	nu hat (MLE)					2175	nu star (bias corrected)					1741
44	MLE Mean (bias corrected)					87.47	MLE Sd (bias corrected)					11.48
45							Approximate Chi Square Value (0.05)					1645
46	Adjusted Level of Significance					0.0324	Adjusted Chi Square Value					1634
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50))					92.57	95% Adjusted Gamma UCL (use when n<50)					93.22
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic					0.924	**Shapiro Wilk Lognormal GOF Test**					

	A	B	C	D	E	F	G	H	I	J	K	L
53	5% Shapiro Wilk Critical Value					0.881	Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.151	**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value					0.229	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data					4.277	Mean of logged Data					4.464
60	Maximum of Logged Data					4.635	SD of logged Data					0.122
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					92.67	90% Chebyshev (MVUE) UCL					95.72
64	95% Chebyshev (MVUE) UCL					99.47	97.5% Chebyshev (MVUE) UCL					104.7
65	99% Chebyshev (MVUE) UCL					114.9						
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					91.99	95% Jackknife UCL					92.31
72	95% Standard Bootstrap UCL					91.75	95% Bootstrap-t UCL					92.74
73	95% Hall's Bootstrap UCL					91.91	95% Percentile Bootstrap UCL					91.53
74	95% BCA Bootstrap UCL					92						
75	90% Chebyshev(Mean, Sd) UCL					95.72	95% Chebyshev(Mean, Sd) UCL					99.46
76	97.5% Chebyshev(Mean, Sd) UCL					104.6	99% Chebyshev(Mean, Sd) UCL					114.8
77												
78	**Suggested UCL to Use**											
79	95% Student's-t UCL					92.31						
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.											