

MW-22 PCE													
General Statistics													
Total Number of Observations					6	Number of Distinct Observations					6		
						Number of Missing Observations					0		
Minimum					2.4	Mean					5.417		
Maximum					8.6	Median					5.35		
SD					1.989	Std. Error of Mean					0.812		
Coefficient of Variation					0.367	Skewness					0.182		
Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,													
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance,													
but note that ITRC may recommend the t-UCL or the Chebyshev UCL for small sample sizes (n < 7).													
The Chebyshev UCL often results in gross overestimates of the mean.													
Refer to the ProUCL 5.2 Technical Guide for a discussion of the Chebyshev UCL.													
Normal GOF Test													
Shapiro Wilk Test Statistic					0.932	Shapiro Wilk GOF Test							
1% Shapiro Wilk Critical Value					0.713	Data appear Normal at 1% Significance Level							
Lilliefors Test Statistic					0.237	Lilliefors GOF Test							
1% Lilliefors Critical Value					0.373	Data appear Normal at 1% Significance Level							
Data appear Normal at 1% Significance Level													
Note GOF tests may be unreliable for small sample sizes													
Assuming Normal Distribution													
95% Normal UCL						95% UCLs (Adjusted for Skewness)							
95% Student's-t UCL					7.053	95% Adjusted-CLT UCL (Chen-1995)					6.817		
						95% Modified-t UCL (Johnson-1978)					7.063		
Gamma GOF Test													
A-D Test Statistic					0.423	Anderson-Darling Gamma GOF Test							
5% A-D Critical Value					0.698	Detected data appear Gamma Distributed at 5% Significance Level							
K-S Test Statistic					0.272	Kolmogorov-Smirnov Gamma GOF Test							

5% K-S Critical Value				0.333	Detected data appear Gamma Distributed at 5% Significance Level						
Detected data appear Gamma Distributed at 5% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Gamma Statistics											
k hat (MLE)				7.815	k star (bias corrected MLE)					4.019	
Theta hat (MLE)				0.693	Theta star (bias corrected MLE)					1.348	
nu hat (MLE)				93.78	nu star (bias corrected)					48.22	
MLE Mean (bias corrected)					5.417	MLE Sd (bias corrected)					2.702
						Approximate Chi Square Value (0.05)					33.28
Adjusted Level of Significance					0.0122	Adjusted Chi Square Value					28.87
Assuming Gamma Distribution											
95% Approximate Gamma UCL					7.848	95% Adjusted Gamma UCL					9.047
Lognormal GOF Test											
Shapiro Wilk Test Statistic					0.886	Shapiro Wilk Lognormal GOF Test					
10% Shapiro Wilk Critical Value					0.826	Data appear Lognormal at 10% Significance Level					
Lilliefors Test Statistic					0.3	Lilliefors Lognormal GOF Test					
10% Lilliefors Critical Value					0.298	Data Not Lognormal at 10% Significance Level					
Data appear Approximate Lognormal at 10% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Lognormal Statistics											
Minimum of Logged Data					0.875	Mean of logged Data					1.624
Maximum of Logged Data					2.152	SD of logged Data					0.417
Assuming Lognormal Distribution											
95% H-UCL					8.743	90% Chebyshev (MVUE) UCL					8.235
95% Chebyshev (MVUE) UCL					9.495	97.5% Chebyshev (MVUE) UCL					11.25
99% Chebyshev (MVUE) UCL					14.68						
Nonparametric Distribution Free UCL Statistics											

Data appear to follow a Discernible Distribution												
Nonparametric Distribution Free UCLs												
95% CLT UCL					6.753	95% BCA Bootstrap UCL					6.6	
95% Standard Bootstrap UCL					6.648	95% Bootstrap-t UCL					6.972	
95% Hall's Bootstrap UCL					7.382	95% Percentile Bootstrap UCL					6.633	
90% Chebyshev(Mean, Sd) UCL					7.853	95% Chebyshev(Mean, Sd) UCL					8.957	
97.5% Chebyshev(Mean, Sd) UCL					10.49	99% Chebyshev(Mean, Sd) UCL					13.5	
Suggested UCL to Use												
95% Student's-t UCL					7.053							
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.												
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.												