

MW-2 TCE												
General Statistics												
Total Number of Observations					6	Number of Distinct Observations					6	
Number of Detects					4	Number of Non-Detects					2	
Number of Distinct Detects					4	Number of Distinct Non-Detects					2	
Minimum Detect					0.6	Minimum Non-Detect					0.2	
Maximum Detect					1.1	Maximum Non-Detect					3.4	
Variance Detects					0.0548	Percent Non-Detects					33.33%	
Mean Detects					0.755	SD Detects					0.234	
Median Detects					0.66	CV Detects					0.31	
Skewness Detects					1.806	Kurtosis Detects					3.265	
Mean of Logged Detects					-0.313	SD of Logged Detects					0.28	
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 on Detects Only												
Shapiro Wilk Test Statistic					0.776	Shapiro Wilk GOF Test						
1% Shapiro Wilk Critical Value					0.687	Detected Data appear Normal at 1% Significance Level						
Lilliefors Test Statistic					0.343	Lilliefors GOF Test						
1% Lilliefors Critical Value					0.413	Detected Data appear Normal at 1% Significance Level						
Detected Data appear Normal at 1% Significance Level												
Note GOF tests may be unreliable for small sample sizes												
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs												
KM Mean					0.644	KM Standard Error of Mean					0.148	
90KM SD					0.287	95% KM (BCA) UCL					N/A	
95% KM (t) UCL					0.942	95% KM (Percentile Bootstrap) UCL					N/A	
95% KM (z) UCL					0.887	95% KM Bootstrap t UCL					N/A	
90% KM Chebyshev UCL					1.088	95% KM Chebyshev UCL					1.289	
97.5% KM Chebyshev UCL					1.568	99% KM Chebyshev UCL					2.117	
Gamma GOF Tests on Detected Observations Only												
A-D Test Statistic					0.561	Anderson-Darling GOF Test						
5% A-D Critical Value					0.657	Detected data appear Gamma Distributed at 5% Significance Level						
K-S Test Statistic					0.335	Kolmogorov-Smirnov GOF						
5% K-S Critical Value					0.395	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 on Detected Data Only												
k hat (MLE)					16.03	k star (bias corrected MLE)					4.174	
Theta hat (MLE)					0.0471	Theta star (bias corrected MLE)					0.181	
nu hat (MLE)					128.2	nu star (bias corrected)					33.39	
Mean (detects)					0.755							
Gamma ROS Statistics using Imputed Non-Detects												
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
For such situations, GROS method may yield incorrect values of UCLs and BTVs												
This is especially true when the sample size is small.												
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
Minimum					0.243	Mean					0.651	
Maximum					1.1	Median					0.632	
SD					0.274	CV					0.42	
k hat (MLE)					5.806	k star (bias corrected MLE)					3.014	

Theta hat (MLE)				0.112	Theta star (bias corrected MLE)			0.216	
nu hat (MLE)				69.67	nu star (bias corrected)			36.17	
Adjusted Level of Significance (β)				0.0122					
Approximate Chi Square Value (36.17, α)				23.4	Adjusted Chi Square Value (36.17, β)			19.78	
95% Gamma Approximate UCL				1.006	95% Gamma Adjusted UCL			N/A	
Estimates of Gamma Parameters using KM Estimates									
Mean (KM)				0.644	SD (KM)			0.287	
Variance (KM)				0.0821	SE of Mean (KM)			0.148	
k hat (KM)				5.049	k star (KM)			2.636	
nu hat (KM)				60.59	nu star (KM)			31.63	
theta hat (KM)				0.128	theta star (KM)			0.244	
80% gamma percentile (KM)				0.933	90% gamma percentile (KM)			1.176	
95% gamma percentile (KM)				1.404	99% gamma percentile (KM)			1.901	
Gamma Kaplan-Meier (KM) Statistics									
Approximate Chi Square Value (31.63, α)				19.78	Adjusted Chi Square Value (31.63, β)			16.48	
95% KM Approximate Gamma UCL				1.03	95% KM Adjusted Gamma UCL			1.236	
Lognormal GOF Test on Detected Observations Only									
Shapiro Wilk Test Statistic				0.812	Shapiro Wilk GOF Test				
10% Shapiro Wilk Critical Value				0.792	Detected Data appear Lognormal at 10% Significance Level				
Lilliefors Test Statistic				0.313	Lilliefors GOF Test				
10% Lilliefors Critical Value				0.346	Detected Data appear Lognormal at 10% Significance Level				
Detected Data appear Lognormal at 10% Significance Level									
Note GOF tests may be unreliable for small sample sizes									
Lognormal ROS Statistics Using Imputed Non-Detects									
Mean in Original Scale				0.671	Mean in Log Scale			-0.45	
SD in Original Scale				0.24	SD in Log Scale			0.354	
95% t UCL (assumes normality of ROS data)				0.869	95% Percentile Bootstrap UCL			0.827	
95% BCA Bootstrap UCL				0.857	95% Bootstrap t UCL			0.938	
95% H-UCL (Log ROS)				0.98					
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution									
KM Mean (logged)				-0.572	KM Geo Mean			0.564	
KM SD (logged)				0.562	95% Critical H Value (KM-Log)			2.792	
KM Standard Error of Mean (logged)				0.29	95% H-UCL (KM -Log)			1.334	
KM SD (logged)				0.562	95% Critical H Value (KM-Log)			2.792	
KM Standard Error of Mean (logged)				0.29					
DL/2 Statistics									
DL/2 Normal					DL/2 Log-Transformed				
Mean in Original Scale				0.803	Mean in Log Scale			-0.504	
SD in Original Scale				0.543	SD in Log Scale			0.968	
95% t UCL (Assumes normality)				1.25	95% H-Stat UCL			5.471	
DL/2 is not a recommended method, provided for comparisons and historical reasons									
Nonparametric Distribution Free UCL Statistics									
Detected Data appear Normal Distributed at 1% Significance Level									
Suggested UCL to Use									
95% KM (t) UCL				0.942					
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.									