

MW-111 Cis-1,2 DCE											
General Statistics											
Total Number of Observations					6	Number of Distinct Observations					6
Number of Detects					5	Number of Non-Detects					1
Number of Distinct Detects					5	Number of Distinct Non-Detects					1
Minimum Detect					2.7	Minimum Non-Detect					0.2
Maximum Detect					8.6	Maximum Non-Detect					0.2
Variance Detects					5.815	Percent Non-Detects					16.67%
Mean Detects					6.1	SD Detects					2.411
Median Detects					6.9	CV Detects					0.395
Skewness Detects					-0.667	Kurtosis Detects					-1.171
Mean of Logged Detects					1.729	SD of Logged Detects					0.474
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					0.937	Shapiro Wilk GOF Test					
1% Shapiro Wilk Critical Value					0.686	Detected Data appear Normal at 1% Significance Level					
Lilliefors Test Statistic					0.23	Lilliefors GOF Test					
1% Lilliefors Critical Value					0.396	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					5.117	KM Standard Error of Mean					1.347
90KM SD					2.952	95% KM (BCA) UCL					6.833
95% KM (t) UCL					7.831	95% KM (Percentile Bootstrap) UCL					7.067
95% KM (z) UCL					7.333	95% KM Bootstrap t UCL					7.036
90% KM Chebyshev UCL					9.158	95% KM Chebyshev UCL					10.99
97.5% KM Chebyshev UCL					13.53	99% KM Chebyshev UCL					18.52
Gamma GOF Tests on Detected Observations Only											
A-D Test Statistic					0.355	Anderson-Darling GOF Test					
5% A-D Critical Value					0.68	Detected data appear Gamma Distributed at 5% Significance Level					

K-S Test Statistic				0.274	Kolmogorov-Smirnov GOF					
5% K-S Critical Value				0.358	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)				6.449	k star (bias corrected MLE)				2.713	
Theta hat (MLE)				0.946	Theta star (bias corrected MLE)				2.248	
nu hat (MLE)				64.49	nu star (bias corrected)				27.13	
Mean (detects)				6.1						
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				1.239	Mean				5.29	
Maximum				8.6	Median				5.75	
SD				2.931	CV				0.554	
k hat (MLE)				2.794	k star (bias corrected MLE)				1.508	
Theta hat (MLE)				1.893	Theta star (bias corrected MLE)				3.507	
nu hat (MLE)				33.53	nu star (bias corrected)				18.1	
Adjusted Level of Significance (β)					0.0122					
Approximate Chi Square Value (18.10, α)					9.462	Adjusted Chi Square Value (18.10, β)			7.319	
95% Gamma Approximate UCL					10.12	95% Gamma Adjusted UCL			13.08	
Estimates of Gamma Parameters using KM Estimates										
Mean (KM)				5.117	SD (KM)				2.952	
Variance (KM)				8.711	SE of Mean (KM)				1.347	
k hat (KM)				3.005	k star (KM)				1.614	
nu hat (KM)				36.06	nu star (KM)				19.37	
theta hat (KM)				1.703	theta star (KM)				3.171	
80% gamma percentile (KM)					7.853	90% gamma percentile (KM)			10.47	
95% gamma percentile (KM)					13.01	99% gamma percentile (KM)			18.7	
Gamma Kaplan-Meier (KM) Statistics										
Approximate Chi Square Value (19.37, α)					10.38	Adjusted Chi Square Value (19.37, β)			8.119	
95% KM Approximate Gamma UCL					9.542	95% KM Adjusted Gamma UCL			12.2	

Lognormal GOF Test on Detected Observations Only												
Shapiro Wilk Test Statistic				0.889	Shapiro Wilk GOF Test							
10% Shapiro Wilk Critical Value				0.806	Detected Data appear Lognormal at 10% Significance Level							
Lilliefors Test Statistic				0.265	Lilliefors GOF Test							
10% Lilliefors Critical Value				0.319	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				5.38	Mean in Log Scale						1.537	
SD in Original Scale				2.786	SD in Log Scale						0.633	
95% t UCL (assumes normality of ROS data)				7.672	95% Percentile Bootstrap UCL						7.067	
95% BCA Bootstrap UCL				7.03	95% Bootstrap t UCL						7.623	
95% H-UCL (Log ROS)				13.21								
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution												
KM Mean (logged)				1.172	KM Geo Mean						3.23	
KM SD (logged)				1.303	95% Critical H Value (KM-Log)						5.176	
KM Standard Error of Mean (logged)				0.595	95% H-UCL (KM -Log)						154.1	
KM SD (logged)				1.303	95% Critical H Value (KM-Log)						5.176	
KM Standard Error of Mean (logged)				0.595								
DL/2 Statistics												
DL/2 Normal					DL/2 Log-Transformed							
Mean in Original Scale				5.1	Mean in Log Scale						1.057	
SD in Original Scale				3.264	SD in Log Scale						1.7	
95% t UCL (Assumes normality)				7.785	95% H-Stat UCL						1843	
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				7.831								
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.												