GM-1D PCE

General Statistics								
Total Number of Observations			6	Number of Distinct Observations			6	
				Number of Missing Observations			0	
Minimum			0.41	Mean			2.63	
Maximum			8.8	Median			1.55	
SD			3.141	Std. Error of Mean			1.282	
Coefficient of Variation			1.194	Skewness			2.067	

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			0.739	Shapiro Wilk GOF Test				
1% Shapiro Wilk Critical Value			0.713	Data appear Normal at 1% Significance Level				
Lilliefors Test Statistic			0.312	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			5.214	95% Adjusted-CLT UCL (Chen-1995)			5.895	
				95% Modified-t UCL (Johnson-1978)			5.394	

Gamma GOF Test								
A-D Test Statistic			0.311	Anderson-Darling Gamma GOF Test				
5% A-D Critical Value			0.713	Detected data appear Gamma Distributed at 5% Significance Level				
K-S Test Statistic			0.187	Kolmogorov-Smirnov Gamma GOF Test				

5% K-S Critical Value				0.34	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)				1.124	k star (bias corrected MLE)		0.673
Theta hat (MLE)				2.339	Theta star (bias corrected MLE)		3.906
nu hat (MLE)				13.49	nu star (bias corrected)		8.08
MLE Mean (bias corrected)				2.63	MLE Sd (bias corrected)		3.205
					Approximate Chi Square Value (0.05)		2.781
Adjusted Level of Significance				0.0122	Adjusted Chi Square Value		1.789
Assuming Gamma Distribution							
95% Approximate Gamma UCL				7.64	95% Adjusted Gamma UCL		11.88
Lognormal GOF Test							
Shapiro Wilk Test Statistic				0.98	Shapiro Wilk Lognormal GOF Test		
10% Shapiro Wilk Critical Value				0.826	Data appear Lognormal at 10% Significance Level		
Lilliefors Test Statistic				0.133	Lilliefors Lognormal GOF Test		
10% Lilliefors Critical Value				0.298	Data appear Lognormal at 10% Significance Level		
Data appear Lognormal at 10% Significance Level							
Note GOF tests may be unreliable for small sample sizes							
Lognormal Statistics							
Minimum of Logged Data				-0.892	Mean of logged Data		0.46
Maximum of Logged Data				2.175	SD of logged Data		1.085
Assuming Lognormal Distribution							
95% H-UCL				24.46	90% Chebyshev (MVUE) UCL		5.777
95% Chebyshev (MVUE) UCL				7.256	97.5% Chebyshev (MVUE) UCL		9.308
99% Chebyshev (MVUE) UCL				13.34			
Nonparametric Distribution Free UCL Statistics							

Data appear to follow a Discernible Distribution									
Nonparametric Distribution Free UCLs									
95% CLT UCL				4.739	95% BCA Bootstrap UCL			5.402	
95% Standard Bootstrap UCL				4.549	95% Bootstrap-t UCL			11.72	
95% Hall's Bootstrap UCL				14.06	95% Percentile Bootstrap UCL			4.84	
90% Chebyshev(Mean, Sd) UCL				6.477	95% Chebyshev(Mean, Sd) UCL			8.219	
97.5% Chebyshev(Mean, Sd) UCL				10.64	99% Chebyshev(Mean, Sd) UCL			15.39	
Suggested UCL to Use									
95% Student's-t UCL				5.214					
The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.									
Please verify the data were collected from random locations.									
If the data were collected using judgmental or other non-random methods,									
then contact a statistician to correctly calculate UCLs.									
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.									